



The Renton Technical College Catalog is your official source for college information, programs, courses, and resources offered at RTC. RTC's online catalog contains general information on Admissions, Registration, Student Services, and Financial Aid.

**Publication Date: June 2020**

For information and guidance related to the COVID-19 pandemic, please visit the [RTC Coronavirus webpage](https://rtc.edu/coronavirus) for the most up-to-date information at [rtc.edu/coronavirus](https://rtc.edu/coronavirus).

*Notice: Renton Technical College has made reasonable efforts to ensure the accuracy of the information throughout this Catalog. However, the college reserves the right to make appropriate changes in procedures, policies, calendars, requirements, programs, courses and fees. When feasible, changes will be announced prior to their effective dates, but the college assumes no responsibility for giving any particular notice of any such changes. Changes may apply not only to prospective students, but also to those who are currently enrolled. Nothing contained in this Catalog shall be construed to create any offer to contract or any contractual rights. We encourage readers to contact the college or appropriate office to obtain current information.*

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## The RTC Experience



RENTON  
TECHNICAL  
COLLEGE®

### Students succeed at RTC.

Renton Technical College is a nationally recognized college committed to helping our diverse student population succeed. Our 66 percent completion rate is the highest in the state among community and technical colleges - and among the highest in the country. And 82 percent of our graduates are employed nine months after graduation.

We are a vibrant, inclusive community that embraces students from all backgrounds. We meet students where they are and move them toward greater opportunity. Our student body is 69 percent students of color, and we welcome immigrants, veterans, students with disabilities - anyone who wants to succeed in college.

RTC offers a breadth of short- and long-term programs, apprenticeships, college transfer options, and applied bachelor's degrees in information technology. Some of our courses are offered in the evening or in an online or hybrid format to fit your schedule and needs.

Our Guided Pathways model helps students find the right path and help them finish their programs faster. To make it simpler, we have grouped our programs into seven Areas of Study: Advanced Manufacturing, Business Management, Culinary Arts, Health & Human Services, Information Technology, and Transportation Technology. Our College and Career Pathways programs offer English, math, and high school completion courses to prepare students to transition into career training courses.

### Enrollment & Student Composition

Renton Technical College serves students from nearly every Washington county and 43 states. The majority of our students come from the South Puget Sound region, but we have a highly diverse population representing ideas and experiences from around the world. The average student to instructor ratio at RTC is 17:1.

#### 2018-19 Student Body

- Students: 9,347
- Full-time: 3,806
- Students of Color: 69%

#### Educational Focus

- 40% Career Training (Certificates/Degrees)
- 32% College and Career Pathways (ABE/GED/ESL)
- 13% Academic/Transfer
- 13% Apprenticeship
- 2% Other

## A Letter from the President



On behalf of the faculty, staff, and Board of Trustees, I extend a warm welcome to Renton Technical College, a diverse and inclusive community committed to student success.

This is an exciting time for RTC, as we embrace our mission, implement our 2017-2022 Strategic Plan, and move forward with our Guided Pathways approach to help students complete their certificates and degrees sooner. We have adjusted our learning options to help students succeed in college and career while complying with new health and safety requirements during the COVID-19 pandemic. Though times have changed, what will never change is our commitment to your success.

Our Strategic Plan sets forth important goals and serves as a roadmap to lead us toward our vision of RTC as a nationally recognized leader for improving lives and inspiring lifelong learning. At the heart of that Plan are our four goals: Learning, Equity, Community, and Strength. Our mission is to engage a diverse student population through educational opportunities for career readiness and advancement, serving the needs of individuals, the community, businesses, and industry.

That means we meet students where they are and move them forward to greater opportunity, and the Guided Pathways model is an important part of that. We have grouped programs and degrees into seven Areas of Study to make it easier for students to find the best career fit for them and then take classes in the best sequence to complete their education sooner. We offer a broad array of long- and short-term programs to prepare students for in-demand careers, including jobs in emerging and high-paying fields. You can earn certificates, associate's degrees, transferable credits, and applied bachelor's degrees in two Information Technology programs.

In addition to our career training programs, RTC is an excellent place for students to get transferable college credits at a much lower cost through the first-year 45-credit option or a variety of transferable degrees. We're also pleased to serve students in our College and Career Pathways, offering adult basic studies, GED and high school diploma programs, and English as a Second Language, as well as helping students transition into career programs.

As you look through our website, you'll learn more about the opportunities we provide and the students who have transformed their lives at RTC, an Aspen Institute top 10 finalist for Community College Excellence. Our advisers and faculty look forward to helping you meet your educational and career goals.

Best,

*Dr. Kevin McCarthy*  
*President, Renton Technical College*



## College Mission, Vision, & Values

### College Mission

Renton Technical College engages a diverse student population through educational opportunities for career readiness and advancement, serving the needs of individuals, the community, businesses, and industry.

### Our Vision

Renton Technical College will be a locally, regionally, and nationally recognized leader for improving lives and inspiring lifelong learning.

### Our Values

- **Community** - create an inclusive environment where all are celebrated and welcome.
- **Empowerment** - promote strength and confidence to embrace challenge, creativity, and intellectual risk.
- **Equity** - nurture an academic and work environment that promotes fairness and removes systemic and institutional barriers.
- **Integrity** - foster an ethical environment of trust and honesty.
- **Learning** - pursue excellence by engaging in critical thinking, problem solving, and technical expertise.
- **Respect** - value humanity and the diversity of people, perspectives, and ideas.
- **Stewardship** - build a stronger, accountable institution for future generations.

## Renton Technical College Learning Outcomes

Renton Technical College faculty, staff and administration are committed to the employability of our certificate and degree graduates. We promote the knowledge, habits and skills leading to success in a diverse, technological, information driven society.

### Responsibility

- Display honest and ethical behavior in all actions.
- Practice accountability for performance.
- Apply appropriate work habits and attitudes.
- Articulate a plan for career pathways.

### Collaboration

- Participate effectively within groups.
- Articulate the value of diversity and equity.
- Use communication skills that encourage all the members of the team.
- Work productively with diverse populations.

### Performance

- Utilize content-specific skills.
- Perform competencies to program-specific or certification standards.
- Employ knowledge, skills, and abilities for matriculation or employment.

### Problem Solving

- Use multiple resources to find pertinent information.
- Organize information into a usable format.
- Apply decision-making strategies to come to reasonable solutions.

### Communication

- Demonstrate clearly understood purpose.
- Analyze audience appropriately and recognize diverse needs.
- Deliver information accurately.
- Interpret feedback constructively.

## Our History

Renton Technical College was founded in December 1941 as a war production school, providing customized pre-employment training for the aerospace industry in South Puget Sound.

After the war, the college became a state-funded professional-technical school, charged with assisting industry in converting to a peacetime economy. For the next two decades, the college focused on worker retraining classes and a small number of high quality industry training programs.

In 1965, the college, at that time known as Renton Vocational Technical Institute (RVTI), moved to our current location. The initial campus was just three buildings located on NE 4th St. in the Renton Highlands neighborhood. Until 1970, the college emphasized open-entry, open-exit, and continuous competency-based instruction.

Since 1971, the college has expanded to over nine acres of workforce training facilities. The original three buildings have been remodeled and expanded. One of the newest buildings, N, housing Facilities and Security, was completed in 2012. The 63,550 square foot Automotive Technology Complex hosted its grand opening in May 2017. The \$20 million project involved the rebuilding and renovation of four separate buildings, and added space, top technology and the first LEED (Leadership in Energy & Environmental Design) certified buildings on the RTC campus. The new buildings will expand the Ford ASSET (Automotive Student Service Educational Training) program. Renton Technical College is the only one in the state offering this program, where students train to work as professional automotive technicians on Ford products in ASE-Certified centers.

In 1991, Renton Vocational Technical Institute joined the State Board of Community and Technical Colleges and was renamed "Renton Technical College". The college was granted the authority to award Associate's degrees and certificates of completion. Beginning in winter quarter of 2015, Renton Technical College was granted the authority to award a Bachelor of Applied Science (BAS) in Application Development.

The growth of the campus has allowed the college to expand training in the fastest growing fields in our region; healthcare, information technology, and manufacturing. The college also provides customized training and services to Puget Sound area businesses, both on our campus and at business locations. A part of that growth, the Construction Center of Excellence (CCE), was established in 2004 when the Washington State Board for Community and Technical Colleges designated Renton Technical College (RTC) as a statewide leader in construction workforce education and training. The primary charge of the CCE is to help the state's economic vitality grow. Renton Technical College has been accredited by the Northwest Commission on Colleges and Universities since 1978.

In 2006, Renton Technical College was among six Washington colleges that joined Achieving the Dream: Community Colleges Count, a national initiative to help more community college students succeed. In 2011, Achieving the Dream announced that Renton Technical College earned the Leader College distinction, achieved by raising persistence and graduation rates, closing achievement gaps, and changing lives. In September 2014, the college's Leader College status was recertified.

Renton Technical College is proud to have been named as one of the 2015 top 10 community colleges in the nation for Community College Excellence by the Aspen Institute. The Aspen College Excellence Program aims to identify and replicate practices and policies that significantly improve college student outcomes. The college is honored to serve the citizens of our community.



## Board of Trustees

The Renton Technical College Board of Trustees holds monthly public meetings, at 3 p.m. Meetings are typically not held in July and August.

### Debra Entenman

(Member since: 2015; Term: 2015-2020)

Was appointed to the Board of Trustees in July 2015. Debra served as staff for the office of Congressman Adam Smith for 12 years and was District Director from 2015-2018. She was elected to the Washington State House of Representatives, 47th Legislative District in 2018. She currently serves as Vice Chair on the College and Workforce Development Committee, and Vice Chair on the Black Members Caucus. Debra served as a former Board member on both the Neighborhood House and Kent Youth and Family Services. While attending Highline College, Debra was a member of Phi Theta Kappa. She transferred to Seattle University where she graduated with a B.A. in Political Science.

### Frieda Takamura

(Member since: 2015; Term: 2015-2020)

Was appointed to the Board of Trustees in November 2015. Frieda is currently serving on the Washington Education Opportunity Gap Oversight and Accountability Committee as well as representing the Asian community on various education-related committees and work groups. She was formerly a public education teacher and Human and Civil Rights Program Coordinator at the Washington Education Association. Frieda is also involved with various community-based organizations, including the Puget Sound Advocates for retired Americans, and the Asian Pacific Directors Coalition. Frieda holds a Bachelor of Arts degree from Whitman College and a Master's degree in Education from the University of Washington.

### Kirby Unti

(Member since: 2009; Term: 2009-2022)

Was appointed to the Board of Trustees in December 2009. Bishop Unti is now retired after

serving 6 years as Bishop of Northwest Washington Synod, Evangelical Lutheran Church in America (ELCA). Rev. Unti was previously employed by the ELCA for 41 years, serving St. Matthew's Lutheran Church in the Renton Highlands. He holds a B.A. in Speech and Communication from the University of Washington and a Master's degree in Theology from Pacific Lutheran Theological Seminary.

### Susan Palmer

(Member since: 2011; Term: 2011-2021)

Was appointed to the Board of Trustees in October 2011. Susan is District Secretary-Treasurer for the International Association of Machinists and Aerospace Workers, District Lodge 751 in Seattle, Washington. Susan attended Bellevue College. She currently serves on a variety of community organizations: RTC Foundation Board of Directors; Commissioner, King County Housing Authority; King County Council Board member; SBCTC Workforce Training Customer Advisory Committee; Board member Puget Sound Labor Agency; IAM&AW Delegate to the AFL-CIO; and Organizer for the Fight for Sight Fun Run for Guide Dogs of America.

### Tyler Page

(Member since: 2009; Term: 2009 - 2018 Tyler continues to serve until a replacement is appointed by the Governor's office)

Was appointed to the Board of Trustees in June 2009. Tyler has been employed as a computer system administrator, programmer and data analyst for 28 years by Trojan Litho, a Renton company specializing in the manufacturing of high-end printed packaging. He is an active participant of the 47th District Democrats, a volunteer at the Kent Food Bank, King County Citizens Elections Oversight Committee, and active in the Association of College Trustees (ACT) in both leadership and Legislative Action Committee.

## Foundation and Advisory Council

### The Renton Technical College Foundation

The mission of the RTC Foundation (RTCF) is to support career training, educational advancement, and program success at Renton Technical College. Founded in 1994, the RTCF is a 501(c)(3) public charity, classified under IRC sections 509(a)(1) and 170(b)(1). The Foundation is part of the Office of the President and is governed by a separate volunteer Board of Directors.

#### ***What we do***

We provide scholarships and grants to students and develop resources for RTC's award-winning and nationally recognized programs and faculty.

#### ***How we do this***

We work to build business and industry partnerships, and to raise awareness of the vital role RTC plays in our regional economy. By expanding the Foundation's fundraising capacity, we serve the College's overarching vision to improve lives through career advancement and lifelong learning.

If you would like more information on how to invest in student success, please contact Carrie Shaw, Foundation Executive Director, at (425) 235-2415 or email her at [cshaw@rtc.edu](mailto:cshaw@rtc.edu).

#### ***Foundation Board of Directors***

**Stan Kawamoto - President**

J Harper Contractors (Retired)  
Appointed: 2014

**Karen Hansen - Vice President of Finance**

Wyman and Associates  
Appointed: July, 2014

**Reba Haas - Vice President of Membership**

Team Reba of RE/MAX Metro Eastside  
Appointed: May, 2016

**Fernando Del Valle - Vice President of Development**

Albert Lee Appliances (Retired)  
Appointed: March, 2018

**Brenda Collons - Secretary**

Hydrogen Advertising  
Appointed: September, 2018

**Brad Beck**

Information Technology Director  
University of Washington  
Appointed: June 2019

**Brent Camann**

Q Hospitality Management  
Appointed: January, 2018

**Lori Inman**

Director of Marketing 3rd Party Games Xbox  
Microsoft Corporation  
Appointed: January 2020

**Batholomew Kimani**

RTC Faculty - Precision Machining  
Appointed: September 2019

**Chae Kim**

Legacy Group Interiors  
Appointed: March, 2018

**Bonnie Nichols**

Ernst and Young, LLP  
Appointed: March, 2016

**Tyler Page**

Board of Trustees Liasion  
Appointed: September, 2016

**Susan Palmer**

International Association Machinists & Aerospace Workers  
District Lodge 751  
Appointed: November, 2016

**John Sothern**

UW Medicine (Retired)  
Appointed: July, 2014

**June Stacey-Clemons**

Higher Education Consultant  
Appointed: February, 2016

**Warren Takata**

RTC Automotive Faculty  
Appointed: September, 2017

**Jay Townsend**

First Financial Northwest Bank  
Appointed: February, 2016

**Student Representatives - appointed November 2019**

- Jill Rupp
- Tyson Young

## ***Ex-Officio Members***

### **Dr. Kevin McCarthy**

RTC President

### **Eduardo Rodriguez**

RTC Vice President, Finance & Administration

### **Carrie Shaw**

RTC Foundation Executive Director

## **The Renton Technical College Advisory Council**

A key contributor to the college's success in training students is its advisory committees. The RTC Advisory Council, whose membership consists of volunteers from business, industry, labor, and community-based organizations, advises administration on issues related to all of its instructional programs. Special emphasis is placed on Carl D. Perkins and Worker Retraining programs.

Professional-technical programs, apprenticeship programs and non-professional-technical programs are also served by separate program advisory committees, which are comprised of volunteer representatives from management and labor who are currently working in the applicable field. These committees work with faculty and administration to ensure that program content is consistent with current employment needs; recommend competent journey level workers and technicians as instructors; assess the adequacy of facilities, supplies, materials and equipment; monitor each program's placement record; and evaluate overall program performance. Annually, each committee specifies in writing whether a program should be expanded, curtailed, maintained or abolished. These dedicated advisory committee members volunteer their time and energy to ensure that the college provides quality education.

### ***Advisory Council***

#### **Kevin Cloud**

Boeing

#### **Suzanne Dale Estey (Chair)**

Dale Estey Partnerships, Strategy,  
and Results

#### **Diane Dobson**

Renton Chamber of Commerce

#### **Bradley Flanagan**

Starbucks

#### **Jacob Jackson**

RTC

#### **Cliff Long**

City of Renton

#### **Liz Nolan**

Valley Medical

#### **Susan Palmer**

Board of Trustees

#### **Todd Pierce**

IUPAT DC-5

#### **Tami Rable**

RTC

#### **Kevin Smith**

Renton School District

#### **Bill VanDyck**

PACCAR

#### **Jeff Yarbrough**

Amazon

# Accreditation

## College Accreditation

Renton Technical College is accredited by the **Northwest Commission on Colleges and Universities**.

Accreditation of an institution of higher education by the Northwest Commission on Colleges and Universities indicates that it meets or exceeds criteria for the assessment of institutional quality evaluated through a peer review process. An accredited college or university is one which has available the necessary resources to achieve its stated purposes through appropriate educational programs, is substantially doing so, and gives reasonable evidence that it will continue to do so in the foreseeable future. Institutional integrity is also addressed through accreditation.

Accreditation by the Northwest Commission on Colleges and Universities is not partial but applies to the institution as a whole. As such, it is not a guarantee of every course or program offered, or the competence of individual graduates. Rather, it provides reasonable assurance about the quality of opportunities available to students who attend the institution.

Inquiries regarding RTC's accredited status by the Northwest Commission on Colleges and Universities should be directed to the administrative staff of RTC. Individuals may also contact:

### **Northwest Commission on Colleges and Universities**

8060 165th Avenue N.E., Suite 100  
Redmond, WA 98052  
(425) 558-4224  
[www.nwccu.org](http://www.nwccu.org)

Renton Technical College is governed by the Washington **State Board for Community & Technical Colleges (SBCTC)**.

Selected programs of study at Renton Technical College are approved by the **Workforce Training and Education Coordinating Board's State Approving Agency (WTECB/SAA)** for enrollment of those eligible to receive benefits under Title 38 and Title 10, USC.

## Specialized Program Accreditation

- The Anesthesia Technologist program is accredited by the American Society of Anesthesia Technologists and Technicians (ASATT).
- The Autobody Repair & Refinishing program is certified by the Inter-Industry Conference on Automotive Repair (I-CAR).
- The Automotive Technology and Automotive, Ford ASSET programs are certified by the National Institute for Automotive Service Excellence (ASE) through the National Automotive Technicians Education Foundation, Inc. (NATEF).
- The Commercial Building Engineering and Industrial Engineering programs are certified as a School of Technology by the City of Seattle and the Tacoma Steam Advisory Certification Board.
- The Culinary Arts program is accredited by the American Culinary Federation Education Foundation Accreditation Commission (ACFEFAC).
- The Dental Assistant program is accredited by the Commission on Dental Accreditation (CODA).
- The Massage Therapy Practitioner program is accredited by the Washington State Commission on Massage Therapy Accreditation (COMTA).
- The Medical Assistant program is accredited by the Commission on Accreditation of Allied Health Educational Programs (CAAHEP).
- The Nursing Assistant program is approved by the Washington State Nursing Care Quality Assurance Commission.
- The Registered Nurse program is conditionally approved by the Washington State Nursing Care Quality Assurance Commission.
- The Pharmacy Technician program is accredited by the American Society of Health-System Pharmacists (ASHP).
- The Surgical Technologist program is accredited by the Committee for Accreditation of Allied Health Education Programs (CAAHEP).
- The Veterinary Assistant Program is accredited by the National Association of Veterinary Technicians in America (NAVTA).
- The Welding program is approved by the Washington Association of Building Officials (WABO) as a testing center.

# Academic Calendar

*All dates subject to change*

## Summer Quarter 2020

Date	Event
MAY 29, 2020	Priority date to have a complete Financial Aid file to receive funding on the first day of Summer Quarter
MAY 6, 2020	Student Advising Day - Current/Continuing Students
MAY 15, 2020	Summer/Fall Quarter registration begins - Veterans
MAY 18, 2020	Summer/Fall Quarter registration begins - Continuing Students
MAY 23-25, 2020	HOLIDAY (CAMPUS CLOSED) - MEMORIAL DAY
MAY 26, 2020	Summer/Fall Quarter registration begins - New & Re-Entry Students
JUNE 17, 2020	Summer Quarter Tuition Due (Students registering after 6/17, tuition is due within 5 business days) 1st Summer Quarter STEPP (Student Tuition Easy Pay Plan) - Payment Due
JUNE 24, 2020	Last day to enroll in STEPP (Student Tuition Easy Pay Plan)
JUNE 24, 2020	SPRING QUARTER 2020 ENDS
JUNE 25 - JULY 3, 2020	NO CLASSES
JULY 2, 2020	Priority date to have a complete Financial Aid file to receive funding on the first day of Fall Quarter
JULY 3-5, 2020	HOLIDAY (CAMPUS CLOSED) - INDEPENDENCE DAY
JULY 6, 2020	SUMMER QUARTER 2020 CLASSES BEGIN
JULY 6-13, 2020	To ADD or DROP Professional/Technical classes - Requires INSTRUCTOR & ADVISOR signature on add/drop form To ADD Academic/General Education classes - Requires INSTRUCTOR signature on add/drop form To DROP Academic/General Education classes - Requires ADVISOR signature only To ADD an overloaded/full class - Requires INSTRUCTOR & DEAN signatures on add/drop form TO ADD OR DROP ABE/ESL/GED classes - No signature required *All tuition and fees are due the next business day
JULY 10, 2020	Last day to withdraw from classes with 100% refund
JULY 13, 2020	First day to withdraw from classes with 50% refund
JULY 15, 2020	Last day to change to/from Audit grade at Enrollment Services Last day to ADD/DROP a class Last day to withdraw from classes without a "W" grade on transcript
JULY 16, 2020	First day to withdraw from classes will post "W" grade on transcript
JULY 17, 2020	Final Summer Quarter STEPP (Student Tuition Easy Pay Plan) Payment Due
JULY 24, 2020	Last day to withdraw from classes with 50% refund.
AUGUST 4, 2020	Last day to withdraw from classes with "W" grade posted on transcript
AUGUST 10, 2020	Instructor Briefcase opens for Summer Quarter faculty grading Instructor Briefcase page
AUGUST 12, 2020	6 Week Classes END
AUGUST 13, 2020	NO CLASSES - WORK DAY FOR FACULTY
AUGUST 18, 2020	Grades for 6 week classes submitted online by 12pm.
AUGUST 19, 2020	Grades for 6 week classes posted by 12pm.
AUGUST 27, 2020	SUMMER QUARTER 2020 ENDS
AUGUST 31, 2020	All grades submitted online by 12pm.
SEPTEMBER 1, 2020	Summer Quarter 2020 grades available to access and view: Student Online Services page

## Fall Quarter 2020

Date	Event
MAY 6, 2020	Student Advising Day - Current/Continuing Students
MAY 15, 2020	Summer/Fall Quarter registration begins - Veterans
MAY 18, 2020	Summer/Fall Quarter registration begins - Continuing Students
MAY 26, 2020	Summer/Fall Quarter registration begins - New & Re-Entry Students
JULY 2, 2019	Priority date to have a complete Financial Aid file to receive funding on the first day of Fall Quarter
AUGUST 12, 2020	Fall Quarter tuition due (Students registering after 8/12, tuition is due within 5 business days) 1st Fall Quarter STEPP (Student Tuition Easy Pay Plan) - Payment Due
SEPTEMBER 5-7, 2020	HOLIDAY (CAMPUS CLOSED) - LABOR DAY
SEPTEMBER 14, 2020	2nd Fall Quarter STEPP (Student Tuition Easy Pay Plan) - Payment Due
SEPTEMBER 16, 2020	Last day to enroll in STEPP with three payment option
SEPTEMBER 15 & 17, 2020	New Student Orientations
SEPTEMBER 21, 2020	FALL QUARTER 2020 CLASSES BEGIN
SEPT 21- OCT 2, 2020	To ADD or DROP Professional/Technical classes - Requires INSTRUCTOR & ADVISOR signature on add/drop form To ADD Academic/General Education classes - Requires INSTRUCTOR signature on add/drop form To DROP Academic/General Education classes - Requires ADVISOR signature only To ADD an overloaded/full class - Requires INSTRUCTOR & DEAN signatures on add/drop form TO ADD OR DROP ABE/ESL/GED classes - No signature required *All tuition and fees are due the next business day
SEPTEMBER 25, 2020	Last day to withdraw from classes with 100% refund
SEPTEMBER 28, 2020	First day to withdraw from classes with 50% refund
OCTOBER 2, 2020	Last day to withdraw from classes without "W" grade on transcript Last day to ADD/DROP classes Last day to change to/from Audit grade at Enrollment Services
OCTOBER 5, 2020	First day to withdraw from classes with "W" grade on transcript
OCTOBER 9, 2020	Last day to withdraw from classes with 50% refund
OCTOBER 14, 2020	Final Fall Quarter STEPP (Student Tuition Easy Pay Plan) - Payment Due
OCTOBER 21, 2020	Student Advising Day - Faculty Meeting Day/No Classes
NOVEMBER 2, 2020	Priority date to have a complete Financial Aid file to receive funding on the first day of Winter Quarter
NOVEMBER 6, 2020	Last day to withdraw from classes, "W" grade posted on transcript
NOVEMBER 10, 2020	Winter Quarter registration begins - Veterans
NOVEMBER 11, 2020	HOLIDAY (CAMPUS CLOSED) - VETERAN'S DAY
NOVEMBER 12, 2020	Winter Quarter registration begins - Continuing Students
NOVEMBER 16, 2020	Winter Quarter registration begins - New & Re-Entry Students
NOVEMBER 26-29, 2020	HOLIDAY (CAMPUS CLOSED) - THANKSGIVING
DECEMBER 1, 2020	Instructor Briefcase opens for Faculty grading: access Instructor Briefcase page
DECEMBER 10, 2020	FALL QUARTER 2020 ENDS
DECEMBER 10, 2020	Winter Quarter Tuition Due (Students registering after 12/10, tuition is due within 5 business days) 1st Winter Quarter STEPP (Student Tuition Easy Pay Plan) - Payment Due
DECEMBER 11, 2020	NO CLASSES - Work day for faculty
DECEMBER 15, 2020	All grades submitted online by NOON
DECEMBER 16, 2020	Fall Quarter 2020 Grades available to access and view: Student Online Services page
DECEMBER 11 - JANUARY 1, 2021	NO CLASSES - WINTER BREAK
DECEMBER 25-29, 2020	HOLIDAY (CAMPUS CLOSED) - WINTER HOLIDAY
JANUARY 1-3, 2021	HOLIDAY (CAMPUS CLOSED) - NEW YEARS HOLIDAY



## Winter Quarter 2021

Date	Event
NOVEMBER 2, 2020	Priority date to have a complete Financial Aid file to receive funding on the first day of Winter Quarter
NOVEMBER 10, 2020	Winter Quarter registration begins - Veterans
NOVEMBER 12, 2020	Winter Quarter registration begins - Continuing Students
NOVEMBER 16, 2020	Winter Quarter registration begins - New & Re-Entry Students
DECEMBER 10, 2020	Winter Quarter Tuition Due (Students registering after 12/10, tuition is due within 5 business days) 1st Winter Quarter STEPP (Student Tuition Easy Pay Plan) - Payment Due
DECEMBER 14 & 15, 2020	New Student Orientations
<b>JANUARY 5, 2021</b>	<b>WINTER QUARTER 2021 CLASSES BEGIN</b>
JANUARY 5-19, 2021	To ADD or DROP Professional/Technical classes - Requires INSTRUCTOR & ADVISOR signature on add/drop form To ADD Academic/General Education classes - Requires INSTRUCTOR signature on add/drop form To DROP Academic/General Education classes - Requires ADVISOR signature only To ADD an overloaded/full class - Requires INSTRUCTOR & DEAN signatures on add/drop form TO ADD OR DROP ABE/ESL/GED classes - No signature required <i>*All tuition and fees are due the next business day</i>
JANUARY 8, 2021	Last day to withdraw from classes with 100% refund Last day to enroll in STEPP (Student Tuition Easy Pay Plan) with three payment option
JANUARY 13, 2021	First day to withdraw from classes with 50% refund 2nd Winter Quarter STEPP (Student Tuition Easy Pay Plan) - Payment Due
<b>JANUARY 18, 2021</b>	<b>HOLIDAY (CAMPUS CLOSED) - MLK HOLIDAY</b>
JANUARY 19, 2021	Last day to withdraw from classes without "W" grade on transcript Last day to ADD/DROP classes Last day to change to/from Audit grade at Enrollment Services
JANUARY 19, 2021	First day to withdraw from classes with "W" grade on transcript
JANUARY 22, 2021	Last day to withdraw from classes with 50% refund
FEBRUARY 3, 2021	Priority date to have a complete Financial Aid file to receive funding on the first day of Spring Quarter
FEBRUARY 3, 2021	Student Advising Day - Faculty Meeting Day/No Classes
FEBRUARY 9, 2021	Final Winter Quarter STEPP (Student Tuition Easy Pay Plan) - Payment Due
<b>FEBRUARY 15, 2021</b>	<b>HOLIDAY (CAMPUS CLOSED) - PRESIDENT'S DAY</b>
FEBRUARY 19, 2021	Spring Quarter registration begins - Veterans
FEBRUARY 22, 2021	Spring Quarter registration begins - Continuing Students
FEBRUARY 24, 2021	Spring Quarter registration begins - New & Re-Entry Students
FEBRUARY 25, 2021	Last day to withdraw from classes, "W" grade posted on transcript
MARCH 16, 2021	Instructor Briefcase opens for Faculty grading: access Instructor Briefcase page
<b>MARCH 25, 2021</b>	<b>WINTER QUARTER 2021 ENDS</b>
<b>MARCH 29 - APRIL 5, 2021</b>	<b>NO CLASSES - SPRING BREAK</b>
MARCH 29, 2021	All grades submitted online by NOON
MARCH 31, 2021	Winter Quarter 2021 Grades available to access and view: Student Online Services page

## Spring Quarter 2021

Date	Event
FEBRUARY 3, 2021	Priority date to have a complete Financial Aid file to receive funding on the first day of Spring Quarter
FEBURARY 19, 2021	Spring Quarter registration begins - Veterans
FEBURARY 22, 2021	Spring Quarter registration begins - Continuing Students
FEBRUARY 24, 2021	Spring Quarter registration begins - New & Re-Entry Students
MARCH 4, 2021	Spring Quarter Tuition Due (Students registering after 3/1, tuition is due within 5 business days) 1st Spring Quarter STEPP (Student Tuition Easy Pay Plan) - Payment Due
APRIL 2, 2021	2nd Spring Quarter STEPP (Student Tuition Easy Pay Plan) Payment Due
APRIL 5, 2021	New Student Orientation
<b>APRIL 6, 2021</b>	<b>SPRING QUARTER 2021 CLASSES BEGIN</b>
APRIL 6-19, 2021	To ADD or DROP Professional/Technical classes - Requires INSTRUCTOR & ADVISOR signature on add/drop form To ADD Academic/General Education classes - Requires INSTRUCTOR signature on add/drop form To DROP Academic/General Education classes - Requires ADVISOR signature only To ADD an overloaded/full class - Requires INSTRUCTOR & DEAN signatures on add/drop form TO ADD OR DROP ABE/ESL/GED classes - No signature required <i>*All tuition and fees are due the next business day</i>
APRIL 7, 2021	Last day to withdraw from classes with 100% refund Last day to enroll in STEPP (Student Tuition Easy Pay Plan) with three payment option
APRIL 12, 2021	First day to withdraw from classes with 50% refund
APRIL 19, 2021	Last day to change to/from Audit grade at Enrollment Services Last day to ADD/DROP a class Last day to withdraw from classes without a "W" grade on transcript
APRIL 20, 2021	First day to withdraw from classes will post "W" grade on transcript
APRIL 23, 2021	Last day to withdraw from classes with 50% refund.
MAY 4, 2021	Final Spring Quarter STEPP (Student Tuition Easy Pay Plan) Payment Due
MAY 5, 2021	Student Advising Day - Faculty Meeting Day/No Classes
MAY 19, 2021	Last day to withdraw from classes with "W" grade posted on transcript
<b>MAY 29-31, 2021</b>	<b>HOLIDAY (CAMPUS CLOSED) - MEMORIAL DAY</b>
JUNE 14, 2021	Instructor Briefcase opens for Spring Quarter faculty grading Instructor Briefcase page
<b>JUNE 23, 2021</b>	<b>SPRING QUARTER 2021 ENDS</b>
JUNE 23, 2021	Commencement
<b>JUNE 24 - 30, 2021</b>	<b>NO CLASSES - WORK DAY FOR FACULTY</b>
JUNE 28, 2021	All grades submitted online by NOON
JUNE 29, 2021	Spring Quarter 2021 grades available to access and view: Student Online Services page

# Admissions & Registration

## Getting Started at RTC

1. **Connect** with an Entry Advisor
  - Students interested in career training and direct transfer programs must meet with an Entry Adviser in Student Success.
  - Explore career pathways, college services, and discuss entry requirements.
  - If you are a Veteran or a military affiliated individual, please see Veterans Department (J-218).
2. **Apply** for Admission & Financial Aid
  - Apply for admission in person or online.
  - Complete your FAFSA online at [fafsa.gov](https://fafsa.gov) and visit the Financial Aid Department to submit necessary documents (I-205).
  - If you have questions or need assistance with your FAFSA, visit the Learning Resource & Career Center (C-102).
  - If you are a Veteran or using VA benefits call (425) 235-2352 ext. 5805 for an appointment.
3. **Assess** and Review Your Skills
  - Prep for the ACCUPLACER test by visiting the Learning Resource & Career Center (C-102).
  - Complete the Directed Self-Placement (DSP) and ACCUPLACER test in Testing Services (J-218) if necessary.
  - Review your assessments with an Entry Adviser and select a program of study (I-218).

## Admissions/Registration Office

### Contact Information:

- Building I - Robert C. Roberts Campus Center
- Email: [enrollmentservices@rtc.edu](mailto:enrollmentservices@rtc.edu)
- Call: (425) 235-2352 x5978
- Text: (425) 448-3493
- Website: <https://www.rtc.edu/enrollment-services>

### Registration & Cashier Hours:

- Monday - Thursday, 7:00 a.m. - 6:00 p.m.
- Friday, 9:00 a.m. - 4:00 p.m.
- *(Note: Admission/Registration Office hours will vary during summer months).*

## Counseling and Advising/Student Success Center

### Contact Information:

- Building I - Robert C. Roberts Campus Center
- Email: [advising@rtc.edu](mailto:advising@rtc.edu)
- Call: (425) 235-5840
- Text: (425) 448-3416
- Website: <https://www.rtc.edu/advising>

### Hours:

- Monday - Thursday, 7:30 a.m. - 4:00 p.m.
- Friday, 9:00 a.m. - 4:00 p.m.
- *(Note: Counseling and Advising Office hours will vary during summer months).*

## **Student Online Services**

Students can apply for admission, register for classes and drop classes online, using the Student Online Services webpage at <https://www.ctc.edu/~renton/wts/kiosk/index.html>.

## **Entrance Requirements**

Students must possess the vocational interest and goals related to their chosen program of study, and are able to benefit from instruction. Individual programs may have additional entrance requirements related to licensure or require specific educational credentials. Admission to the college may be initiated through online web admissions, in person, or by mail. Some programs require students to be 18 years of age or older; however, in some programs and evening classes, students can be 16 years of age.

## **Pre-Registration List**

If a student applies for entry into a program in which there is not a current opening, the student must complete an admissions application, pay a \$30 non-refundable admissions fee when registering for classes, take the required placement assessment, and fulfill any program specific entrance requirements in order to be placed on a pre-registration list. The applicant will be notified by telephone, mail or email when an opening becomes available.

## **Withdrawal**

A student withdrawing from a program must submit an Add/Drop form to the Enrollment Services Office. Tuition will be refunded if the withdrawal is within the refund period. A student who has withdrawn may re-enroll in the program if an immediate opening is available, or be placed on the pre-registration list.

# Financial Aid & Assistance

## Important Financial Aid Deadlines

The deadlines to have a completed file\* in order to be paid on the first day of the terms are as follows:

- 2020 Summer quarter: **May 29, 2020**
- 2020 Fall quarter: **July 24, 2020**
- 2021 Winter quarter: **November 6, 2020**
- 2021 Spring quarter: **February 5, 2021**

*\*A completed file is one that has been screened and no further documents are required.*

## How to Apply for Financial Aid

Website: <https://www.rtc.edu/how-to-apply-for-financial-aid>

It's easy to apply for financial aid. Students can submit the Free Application for Federal Student Aid (FAFSA) online. The FAFSA collects financial data and other information that is used to calculate the Expected Family Contribution (EFC) that ultimately determines a student's eligibility for aid.

### Step 1: Create your FSA ID and PIN

To submit a FAFSA, you first need to create a Federal Student Aid (FSA) ID and PIN.

### Step 2: Fill out a FAFSA

The key to obtaining financial aid is to apply early. Students should apply at least three months prior to the time they expect to enter school. Students may begin the process at any time; however, financial aid will not be awarded until a start date has been assigned. The federal code for **Renton Technical College is 014001**.

- The FAFSA worksheet can be picked up in the Financial Aid Office, Building I, Room 205.
- Students can submit the FAFSA electronically on the FAFSA website. This website is provided by the Department of Education and allows students to transmit the application online.
- If you are not eligible to complete the FAFSA due to your immigration status, you still may be eligible to apply for the State Need Grant by completing the Washington Application

for State Financial Aid (WASFA). For more information go to the WASFA website.

### Step 3: Additional Financial Aid Forms

Once your information has been processed, you will receive e-mail notification that your Student Aid Report is available to view and print out. Please print a copy, including the signature page, for your records.

- Complete the requested forms when you have been notified. Forms are available on our website on the Financial Aid Forms page. Include the signature page from your Student Aid Report (make sure you sign it) with your forms that you mail or bring in to us.
- Stay in touch with the Financial Aid Office to be certain that all information needed to complete your file has been turned in on time.

## Eligibility Requirements

All financial aid recipients must meet the following requirements:

- Be a citizen of the United States or an eligible non-citizen
- Have a high school diploma or high school equivalency
- Have a valid Social Security Number (unless you are applying for the WA Dream Act Funding)
- Not owe a repayment on a grant or be in default on a student loan
- Have financial need as determined by the Federal need analysis
- Be registered with Selective Service, if required
- Be enrolled in an eligible program and enroll only for classes that are required for that program. If enrolled in a class that is not part of the program, financial aid will not count those credits when awarding aid.

## Awards and Disbursements

The Renton Technical College Financial Aid Office processes the student's financial aid file and determines eligibility for grants, work study, and loans based on the student's enrollment level.

- Full-time: 12 credits or more
- Three-quarter-time: 9-11 credits
- Half-time: 6-8 credits
- Less-than-half-time: 5 credits or less

Students are notified of their financial aid eligibility with an award letter mailed to their address on file. Grants are prorated based on the student's enrollment level through the fifth day of the quarter. Because loans must be repaid with interest, an additional application is required. Student loans require a minimum enrollment in six credits.

### Maximum Time Frame for Funding

The maximum time frame for funding to complete a training program is 150% of the published length of the program. (For Washington State Need Grant recipients it is 125%.)

### Satisfactory Progress

It is important to remember that financial aid eligibility is based on academic standing as well as credits completed versus credits registered. We review your progress from your start date at RTC, even if you did not receive aid. It is possible to lose eligibility without ever having received aid.

In order to remain eligible for financial aid, you must meet the following satisfactory academic progress requirements: At the end of each grading period, you must maintain a minimum cumulative grade point average (GPA) of 2.0, successfully complete at least 67% of your cumulative attempted credits and not attempt more than 150% of the total credits required for your degree/certificate program.

### Warning

You are eligible to receive financial aid while on warning status.

If you fail to maintain the satisfactory academic requirements listed above, you will be placed on

financial aid warning at RTC for the next term. At the end of the term, progress will be reviewed.

### Suspension

If at the end of a warning period you have not met the cumulative completion and/or GPA satisfactory academic progress requirements, your aid will be suspended. You have the option to submit an appeal or complete credits at your own expense until the cumulative completion and/or GPA satisfactory academic progress requirements have been met.

You will be placed on financial aid suspension from financial aid at Renton Technical College if:

- You fall below a cumulative 2.0 GPA following a warning period.
- You fail to complete at least 67% of your cumulative attempted credits following a warning period.
- You have attempted 150% of the total credits required for your degree/certificate program.

### Reinstatement After Suspension

You may request reinstatement of eligibility after completing credits at your own expense which result in you meeting the cumulative completion and/or GPA satisfactory academic progress requirements. Sitting out a period of time in and of itself is not sufficient to re-establish your financial aid eligibility.

### Appeals

You have the option to appeal your financial aid suspension if you had a mitigating circumstance you would like us to review. Appeal forms are available in the financial aid office.

## Grants

Grants are considered gift aid and do not require repayment unless a student leaves school before completing more than 60% of the term. RTC participates in the Federal Pell Grant, Federal Supplemental Education Opportunity Grant (FSEOG), Opportunity Grant, and Washington State Need Grant programs.



## Loans

Federal Direct Loans are low-interest loans for students and parents to help pay for the cost of a student's education after high school. The lender is the US Department of Education rather than a bank or other financial institution. Repayment begins six months after completion or withdrawal from school. There are three types of loans available under this program:

- **Direct Subsidized Loans** are need-based. A student's eligibility to borrow is based on financial need as determined by the federal government which pays interest on the loan while the student is in school.
- **Direct Unsubsidized Loans** do not require a student to show financial need; however the cost of the student's education must exceed any other financial aid offered. The student, not the federal government, is responsible to pay all the interest that accrues on this loan.
- **Direct PLUS Loans** are loans a parent takes out in order to pay for their child's educational expenses. Contact the Financial Aid Office if you are interested in applying for a PLUS loan.

The Emergency Student Loan is a \$200 short-term institutional loan available to financial aid students who are making satisfactory progress. All loans must be repaid no later than the end of the quarter in which they are received. Funds are limited.

## Scholarships

The Renton Technical College Foundation, in partnership with various service, business and professional organizations in the community, provides more than \$30,000 in scholarships annually. Current students will receive scholarship announcements via their student email account throughout the year from the Director of Student Engagement.

Visit the Learning Resource & Career Center, Building C, Room 102, to browse a list of external scholarships or make an appointment with a tutor for personal guidance.

## Work Study Programs

Work Study programs provide part-time employment to eligible students, on and off campus. The maximum a student can earn is determined by financial need and funds available. Students can work up to 19 hours per week while school is in session. Every effort is made to place students in jobs which relate to their training. RTC participates in both the federal and state work study programs. A list of current Work Study jobs can be accessed online on the RTC Career Connections website at <https://rtc-csm.symplicity.com/>.

## Veterans Programs

Most of the training programs at Renton Technical College which offer a Certificate of Completion or an Associate of Applied Science degree are approved for benefits under the following Veterans Administration regulations:

- Chapter 31 (Vocational Rehabilitation)
- 30 (Montgomery Bill)
- 32 (VEAP)
- 35 (Survivors and Dependents Educational Assistance)
- 1606 (Reserves) of Title 38, U.S. Code.
- 33 (Post 9/11)
- VRAP

Students who plan to use their veteran's benefits are required to contact the Veteran's Specialist, Margo Izutsu at (425) 235-2352 ext. 5738.

A determination of eligibility by the Veterans Administration and the receipt of your first month's benefits can take 4 to 6 weeks, so it's a good idea to apply well in advance of your anticipated start date if you plan to use your benefits to pay for initial tuition costs.

Veterans who have not previously used their benefits must complete Form 22-1990 and submit a certified copy of their DD - 214 and eligibility letter.

Veterans who have used their educational benefits at a prior college must submit an academic transcript for evaluation of credits. All veterans are required to keep the Veterans' Specialist apprised of enrollment plans each quarter and are expected to

conform to the attendance and academic standards of the satisfactory progress policy to remain eligible for benefits.

## Agency Funded Students

The Financial Aid Office acts as the liaison between students and the various public and private agencies who offer funding, including:

- Division of Vocational Rehabilitation (DVR)
- Department of Labor and Industries (L&I)
- Bureau of Indian Affairs (BIA)
- Washington State Department of Social and Health Services (DSHS)
- Employment Security Department
- Private Insurance

For questions regarding outside funding plans, please contact Margo Izutsu at (425) 235-2352 ext. 5738.

## Workforce Education Funding

### Basic Food Employment & Training (BFET)

The Basic Food Employment and Training program (BFET) provides access to training and career services to food stamp recipients who are not participating in the TANF program. An RTC counselor will determine your eligibility.

For more information, call the Student Success Center at (425) 235-5840, or contact the counselors below:

#### Faye Melton

Worker Retraining and BFET Counselor  
[fmelton@rtc.edu](mailto:fmelton@rtc.edu)

#### Bilal Abdallah

Worker Retraining and BFET Counselor  
[babdallah@rtc.edu](mailto:babdallah@rtc.edu)

#### Taqwo Mohamoud

ABAWD Navigator  
[tmohamoud@rtc.edu](mailto:tmohamoud@rtc.edu)

### Opportunity Grant

Students eligible for the Opportunity Grant may receive funds to cover 45 credits of tuition/mandatory fees and up to \$1,000 for books

and supplies. Support services such as tutoring, college success workshops, emergency childcare, and emergency transportation are also part of the Opportunity Grant program. Due to limited availability of funds, submitting an application does not guarantee that you will receive an award. Student must be enrolled in an Opportunity Grant eligible program.

To apply or for additional information, please contact Kathy Tessier, Opportunity Grant case manager at 425-235-2352 ext. 5720.

### WorkFirst

Tuition assistance is available for Temporary Aid for Needy Families (TANF) recipients and working parents who meet income guidelines. You may be eligible if you are receiving Temporary Assistance for Needy Families (TANF), working for pay, and your Individual Responsibility Plan (IRP) includes training; or you are working for pay, low-income, a custodial or non-custodial parent financially responsible for a child, and not receiving any other form of financial aid. An RTC counselor will determine your eligibility.

For more information, call the Student Success Center at (425) 235-5840.

### Worker Retraining

Worker Retraining is designed to help students gain the skills and certification needed to be competitive in today's job market. The program is a partnership between technical and community colleges and Employment Security. Worker Retraining has provided an opportunity for job training to thousands of eligible Washington workers since 1993.

For an appointment or to sign up for the Worker Retraining Information, please call (425) 235-5840 or visit Start Next Quarter or visit the Student Success Center in Building I at Renton Technical College.

## Financial Aid Refund and Repayment Policy

### Return of Title IV Funds

Students who receive Title IV aid (Federal Pell, Federal SEOG, Federal Direct Subsidized and/or Federal Direct Unsubsidized Stafford loans and

Direct Parent PLUS loans) and withdraw from school are subject to the Return of Title IV aid regulations. Federal law requires that a student must earn the aid they receive. When a student withdraws, drops out or otherwise fails to complete more than 60% of the term for which they received federal funds, the school is required to determine the amount earned using the Return of Title IV aid regulations.

If a student completes more than 60% of the term, it is determined that all financial aid has been earned. If a student completes 60% or less of the term, the earned and unearned portion will be calculated.

The unearned portion of tuition will be returned by the college to the appropriate Title IV program. The college will then bill the student for the amount of tuition that was returned in excess of the college's refund policy.

*Notice: Renton Technical College does not and will not provide any commission, bonus, or other incentive payment based directly or indirectly on success in securing enrollment or financial aid to any persons or entities engaged in any student recruiting or admissions activities or in making decisions regarding the award of student financial assistance.*

# Tuition & Payments

## Tuition for Lower Division Courses

This tuition table is for certificate and associate degree credentials, effective Fall 2020.

# of Credits	Washington Resident	Non-Washington Resident	International Student
1	\$130.04	\$145.00	\$308.28
2	\$260.08	\$290.00	\$616.56
3	\$390.12	\$435.00	\$924.84
4	\$520.16	\$580.00	\$1,233.12
5	\$650.20	\$725.00	\$1,541.40
6	\$780.24	\$870.00	\$1,849.68
7	\$910.28	\$1,015.00	\$2,157.96
8	\$1,040.32	\$1,160.00	\$2,466.24
9	\$1,170.36	\$1,305.00	\$2,774.52
10	\$1,300.40	\$1,450.00	\$3,082.80
11	\$1,373.34	\$1,523.74	\$3,163.02
12	\$1,446.28	\$1,597.48	\$3,243.24
13	\$1,519.22	\$1,671.22	\$3,323.46
14	\$1,592.16	\$1,744.96	\$3,403.68
15	\$1,665.10	\$1,818.70	\$3,483.90
16	\$1,738.04	\$1,892.44	\$3,564.12
17	\$1,810.98	\$1,966.18	\$3,644.34
18	\$1,883.92	\$2,039.92	\$3,724.56
19	\$2,002.34	\$2,158.34	\$4,021.22
20	\$2,120.76	\$2,276.76	\$4,317.88
21	\$2,239.18	\$2,395.18	\$4,614.54
22	\$2,357.60	\$2,513.60	\$4,911.20
23	\$2,476.02	\$2,632.02	\$5,207.86
24	\$2,594.44	\$2,750.44	\$5,504.52
25	\$2,712.86	\$2,868.86	\$5,801.18
26	\$2,831.28	\$2,987.28	\$6,097.84
27	\$2,949.70	\$3,105.70	\$6,394.50
28	\$3,068.12	\$3,224.12	\$6,691.16
29	\$3,186.54	\$3,342.54	\$6,987.82
30	\$3,304.96	\$3,460.96	\$7,284.48
31	\$3,423.38	\$3,579.38	\$7,581.14
32	\$3,541.80	\$3,697.80	\$7,877.80
33	\$3,660.22	\$3,816.22	\$8,174.46
34	\$3,778.64	\$3,934.64	\$8,471.12
35	\$3,897.06	\$4,053.06	\$8,767.78

## Lower Division Tuition Rates

Per Credits	Washington Resident	Non-Washington Resident	International Student
Tuition, Credits 1-10	\$89.24	\$89.24	\$252.52
Tuition, Credits 11-18	\$44.90	\$44.90	\$51.38
Tuition, Credits 19+	\$101.42	\$101.42	\$279.66
Building Fee, credits 1-10	\$12.18	\$27.14	\$27.14
Building Fee, credits 11-18	\$4.29	\$5.09	\$5.09
Service & Activities Fee, credits 1-10	\$11.62	\$11.62	\$11.62
Service & Activities Fee, credits 11-18	\$6.75	\$6.75	\$6.75
Comprehensive Fee	\$13.00	\$13.00	\$13.00
Security Fee	\$3.00	\$3.00	\$3.00
Technology Fee	\$1.00	\$1.00	\$1.00

## Tuition for Upper Division Courses

This tuition table is for applied bachelor credentials, effective Fall 2020.

# of Credits	Washington Resident	Non-Washington Resident	International Student
1	\$237.51	\$252.47	\$637.30
2	\$475.02	\$504.94	\$1,274.60
3	\$712.53	\$757.41	\$1,911.90
4	\$950.04	\$1,009.88	\$2,549.20
5	\$1,187.55	\$1,262.35	\$3,186.50
6	\$1,425.06	\$1,514.82	\$3,823.80
7	\$1,662.57	\$1,767.29	\$4,461.10
8	\$1,900.08	\$2,019.76	\$5,098.40
9	\$2,137.59	\$2,272.23	\$5,735.70
10	\$2,375.10	\$2,524.70	\$6,373.00
11	\$2,403.14	\$2,553.54	\$6,401.84
12	\$2,431.18	\$2,582.38	\$6,430.68
13	\$2,459.22	\$2,611.22	\$6,459.52
14	\$2,487.26	\$2,640.06	\$6,488.36
15	\$2,515.30	\$2,668.90	\$6,517.20
16	\$2,543.34	\$2,697.74	\$6,546.04
17	\$2,571.38	\$2,726.58	\$6,574.88
18	\$2,599.42	\$2,755.42	\$6,603.72
19	\$2,825.31	\$2,981.31	\$7,229.40
20	\$3,051.20	\$3,207.20	\$7,855.08
21	\$3,277.09	\$3,433.09	\$8,480.76
22	\$3,502.98	\$3,658.98	\$9,106.44
23	\$3,728.87	\$3,884.87	\$9,732.12
24	\$3,954.76	\$4,110.76	\$10,357.80
25	\$4,180.65	\$4,336.65	\$10,983.48

## Upper Division Tuition Rates

Per Credits	Washington Resident	Non-Washington Resident	International Student
Building Fee, credits 1-10	\$12.18	\$27.14	\$27.14
Building Fee, credits 11-18	\$4.29	\$5.09	\$5.09
Service & Activities Fee, credits 1-10	\$11.62	\$11.62	\$11.62
Service & Activities Fee, credits 11-18	\$6.75	\$6.75	\$6.75
Comprehensive Fee	\$13.00	\$13.00	\$13.00
Security Fee	\$3.00	\$3.00	\$3.00
Technology Fee	\$1.00	\$1.00	\$1.00

## Additional Supply Fees by Program

The following programs charge an additional supply fee of the stated amount per credit.

### **\$5 per credit (max 15 credits per quarter)**

- Legal Assistant
- Medical Assistant
- Medical Assistant-Phlebotomy
- Nursing Assistant
- Pharmacy Technician
- Veterinary Assistant

### **\$10 per credit (max 15 credits per quarter)**

- Aerospace & Industrial Production Technologies
- Commercial Refrigeration Technology
- Culinary Arts
- Major Appliance & Refrigeration Technology
- Mechatronics
- Professional Baking
- Surgical Technologist

### **\$15 per credit (max 15 credits per quarter)**

- Autobody Repair & Refinishing
- Automotive Technology
- Automotive, Ford ASSET
- Construction Management
- Machining Technologies

### **\$20 per credit (max 15 credits per quarter)**

- Anesthesia Technologist
- Band Instrument Repair Technology
- Dental Assistant
- Massage Therapy Practitioner

### **\$30 per credit (max 15 credits per quarter)**

- Registered Nurse

### **\$40 per credit (max 10 credits per quarter)**

- Welding

## Additional Lab Fees by Course

The following courses charge a **\$25 fee per course**:

- BIOL 105
- BIOL& 100
- BIOL& 160
- BIOL& 241
- BIOL& 242
- BIOL& 260
- CHEM& 121
- CHEM& 131
- Computer Science - 100 and 200 level courses
- Computer Network Technology - 100 and 200 level courses
- BAS Application Development - 300 and 400 level courses
- BAS Computer Network Architecture - 300 and 400 level courses



## Other Fees (not included in the Tuition Schedule)

Name	Amount
Face-to-Face/Web Enhanced eLearning Fee	\$15 per course
Hybrid eLearning Fee	\$15 per course
Online eLearning Fee	\$12 per course
Flex eLearning Fee	\$15 per course
Culinary Arts Meal Fee	\$17.28 per credit
Clinical Placement Fee*	\$75/\$85 per 1-4 credit clinical course
Clinical Placement Fee*	\$100/\$110 per 5+ credit clinical course
Medical Malpractice Insurance	\$10.72 per quarter
General Liability Insurance	\$3.34 per quarter
Matriculation Service Fee	\$30.00
International Admissions Fee	\$50.00
STEPP Fee	\$25.00
Late Fee	\$75
ACCUPLACER Test Fees	\$10/exam; \$25 for three exams

### \*Clinical Placement Fees per Course

\$75	\$85	\$100	\$110
DENT 103	CST 191	DENT 113	ANES 191
DENT 192	MAST 191	DENT 193	ANES 192
VET 193	MAST 192	VET 104	ANES 193
VET 197	NA 131	VET 105	CST 192
	NURS 107		MEDA 192
	NURS 195		NURS 294
	NURS 198		NURS 295
	NURS 296		PHAR 190
	PHLEB 191		PHAR 191
			SURG 194
			SURG 195

*Notice: This is not a complete list of fees. Self-supporting classes are not subject to this fee schedule. Please note that all tuition and fee rates are set by the Washington State Legislature, the State Board for Community and Technical Colleges and the Board of Trustees at Renton Technical College (RTC). RTC reserves the right to change the fees without notice and change tuition rates, to comply with the State regulations.*

## Student Tuition Easy Payment Plan (STEPP)

The Student Tuition Easy Payment Plan (STEPP) program allows you to pay your tuition on an installment plan.

- To enroll, complete a STEPP enrollment form at the Cashier's office before the tuition due date, or at the time of registration (if later).
- Each quarter you must enroll with the Cashier before making your first payment.
- Payments are made in three installments (two for summer).
- There is a quarterly \$25 nonrefundable enrollment fee.
- Any partial payment made toward tuition without enrolling in STEPP could result in administrative withdrawal from classes.
- Admission fees are not eligible to be carried through STEPP.

More information about our Student Tuition Easy Payment Plan can be found on our website or by calling the cashier's office at 425-235-2352 ext. 5910.

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## Refund Policy

Tuition will be refunded as follows:

- From before the start of the quarter through calendar day five of the quarter: 100%\*
- From calendar day six through calendar day 20 of the quarter: 50%\*
- From calendar day 21 on: No refund

\*Once an online class begins the Online eLearning Fee is non-refundable.

If the duration of a class is other than ten weeks, the refund is calculated based on the equivalent percentage of time.

The general refund policy applies to all students in state-supported programs. It is the student's responsibility to complete a change of schedule form and submit it to the Enrollment Services office. Refunds are calculated based on the date the form is received.

- Refunds will not be granted for students withdrawn for disciplinary reasons.
- Students called for military active duty will be granted a refund of tuition and fees paid for the current payment period, subject to the rules and regulations of their respective funding sources. Presentation of written confirmation is required.
- The general refund policy applies to all Renton Technical College students, regardless of financial aid status.
- Refunds for special programs will be made directly to the funding agency administrator.
- Tuition and fees that are paid in cash will be refunded by check.

Renton Technical College's Veterans Refund Policy complies with CFR 21.4255. In the event the veteran or eligible person fails to enter the course, withdraws, or is dismissed at any time prior to completion, any unused portion of tuition, fees, and other charges is refunded. Any amount in excess of \$10 of the Admissions fee is subject to proration. The amount charged will not exceed the exact prorated portion of total charges. The length of the completed portion of the course will be prorated over its total length, and the exact proration will be determined by the ratio of the number of days of instruction completed by the student, to the total number of instructional days in the course. Refunds are made within 40 days of the last date of the student's attendance.

All tuition and fees will be refunded if the class is canceled by the college. Admissions and STEPP fees are non-refundable

# Student Services & Resources

## All-Gender Bathrooms

RTC transgender students, faculty, and staff have the right to use bathrooms that best match their gender identity. In an effort to make our campus safer for transgender people, there are single-occupant All Gender Bathrooms across campus. If you need help locating a bathroom, please ask in the Student Leadership office (J-216).

## Bookstore

The RTC Bookstore provides all required textbooks and course materials for your classes, as well as reference books, supplies, electronics, clothing, and gifts. You may also make purchases online via the RTC Bookstore website to have your order shipped to your home, or you can pickup in store at no extra cost.

Extended and Saturday hours are available for the first two weeks of Fall, Winter and Spring quarters. Please call the Bookstore or visit the Bookstore website for extended, school break, and summer hours.

### Contact Information:

- Building I - Robert C. Roberts Campus Center
- Email: [rtc@bkstr.com](mailto:rtc@bkstr.com)
- Call: (425) 235-2323
- Website: <https://www.bkstr.com/rtcstore/home>

### Hours:

- Monday - Thursday, 8:00 a.m. - 4:30 p.m.
- Friday, 8:00 a.m. - 2:00 p.m.
- *(Note: Bookstore hours will vary throughout the academic year).*

## Bus Routes

Metro buses serve the college's main campus. For bus schedules or information on bus routes to our other sites, please call the Metro Transit Information Line (206) 553-3000 or visit the Metro King County website.

## Campus Security

Renton Technical College is committed to providing a safe and secure learning and working environment for our campus community.

The Renton Technical College Security Department actively patrols campus buildings and grounds and responds to calls for service. All crimes and emergencies should be reported to RTC Security and/or 911. RTC Security also provides vehicle unlock and jump-start services with a completed release of liability.

RTC Security also coordinates emergency management and response on campus and works closely with City of Renton first responders. For daily crime log and Annual Security Report information please visit the RTC Campus Security webpage where you will also find other helpful information about parking, emergency mass notification, and campus closures.

### Contact Information:

- Building N, Room 103
- Email: [security@rtc.edu](mailto:security@rtc.edu)
- Call: (425) 235-7871
- Website: <https://www.rtc.edu/campus-security>

### Hours:

- Monday - Friday, 6:00 a.m. - 10:00 p.m.
- Saturday, 6:00 a.m. - midnight
- *(Note: Excludes campus closures or holidays)*

## Construction Center of Excellence

The Construction Center of Excellence partners with stakeholders throughout Washington State to provide best-in-class resources, trainings, and information.

### Core Expectations:

- **Economic Development Focus:** Serve as partners with various state and local agencies, regional, national, and global organizations to support economic vitality

and competitiveness in Washington's driver industries

- **Industry Sector Strategy Focus:** Collaboratively build, expand and leverage industry, labor and community and technical college partnerships to support and promote responsive, rigorous, and relevant workforce education and training.
- **Education, Innovation and Efficiency Focus:** Leverage resources and educational partnerships to create efficiencies and support development of curriculum and innovative delivery of educational strategies to build a diverse and competitive workforce.
- **Workforce Supply/Demand Focus:** Research, analyze and disseminate information related to training capacity, skill gaps, trends, and best practices within each industry sector to support a viable new and incumbent workforce.

Ten Centers across the state represent the Washington Community and Technical College system partnering with business, industry, and labor to build a competitive workforce for Washington state. Hosted at Renton Technical College, the Construction Center of Excellence serves all the Community and Technical colleges in the state that have construction programs.

#### **Contact Information:**

- Address: 3407 Northeast 2nd Street, Renton, WA, 98056
- Call: (425) 235-2352
- Website: <https://www.constructioncenterofexcellence.com/>

## **Counseling and Advising/Student Success Center**

Renton Technical College offers counseling services to prospective students to assist them in selecting college offerings that fit their interests, goals and aptitudes, as well as insights on other career-related issues.

#### **Contact Information:**

- Building I - Robert C. Roberts Campus Center
- Email: [advising@rtc.edu](mailto:advising@rtc.edu)
- Call: (425) 235-5840
- Text: (425) 448-3416
- Website: <https://www.rtc.edu/advising>

#### **Hours:**

- Monday - Thursday, 7:30 a.m. - 4:00 p.m.
- Friday, 9:00 a.m. - 4:00 p.m.
- *(Note: Counseling and Advising Office hours will vary during summer months).*

## **College Technology Services (CTS)**

College Technology Services (CTS) provides secure, reliable, integrated, and cost-effective technology solutions that align with instructional and administrative goals while delivering excellence in customer service.

#### **Contact Information:**

- Building J, Room 311
- Email: [servicedesk@rtc.edu](mailto:servicedesk@rtc.edu)
- Call: (425) 235-2500
- Website: <https://www.rtc.edu/cts>

#### **Hours:**

- Monday - Friday, 7:30 a.m. - 4:30 p.m.
- *(Note: Onsite visits by appointment only)*

## **Disability Resource Services**

The college is dedicated to providing equal access to all college programs and activities per Section 504 of the Rehabilitation Act and the Americans with Disabilities Act, as amended. Disability Resource Services offers accommodation services to students who are Deaf or hard of hearing, and students with disabilities or health conditions.

#### **Contact Information:**

- Building J, Room 218
- Email: [drs@rtc.edu](mailto:drs@rtc.edu)
- Call: (425) 235-5840
- Website: <https://www.rtc.edu/disability-resource-services>

## Enrollment Services

Enrollment Services supports students in applying for admission, registering for classes, and transferring of credits. This office also certifies RTC credentials and produces official transcripts for students. More information can be found on the Admissions & Registration page, or on the RTC Enrollment Services webpage.

### Contact Information:

- Building I - Robert C. Roberts Campus Center
- Email: [enrollmentservices@rtc.edu](mailto:enrollmentservices@rtc.edu)
- Call: (425) 235-2352 x5978
- Text: (425) 448-3493
- Website: <https://www.rtc.edu/enrollment-services>

### Registration & Cashier Hours:

- Monday - Thursday, 7:00 a.m. - 6:00 p.m.
- Friday, 9:00 a.m. - 4:00 p.m.
- *(Note: Enrollment Services Office hours will vary during summer months).*

## Financial Aid

The Financial Aid office assists students in applying for financial aid. Assistance through loans, grants, scholarships, and work study can help cover the costs of education. More information can be found on the Financial Aid & Assistance page, or on the RTC Financial Aid webpage.

### Contact Information:

- Building I - Robert C. Roberts Campus Center
- Email: [financialaid@rtc.edu](mailto:financialaid@rtc.edu)
- Call: (425) 235-5841
- Text: (425) 902-5266
- Fax: (425) 235-2434
- Website: <https://www.rtc.edu/financial-aid>

### Hours:

- Monday - Thursday, 10:00 a.m. - 4:30 p.m.

## Food Services

Our restaurants and bakery provide a hands-on environment for training students. Food services are available when school is in session. Limited food  
Renton Technical College

services are available when school is not in session. A wide variety of vending machines are available in Buildings A, B, C, I, K, L and RTC Downtown for all your night and weekend food needs.

The Culinary Arts facility is in the Robert C. Roberts Campus Center, Building I. Weekly menus are available on the RTC Student Dining Services webpage at <https://www.rtc.edu/dining-services>.

## Bakery

An assortment of freshly baked goods is prepared daily by students in the Professional Baking program and sold in the RTC Bakery. Special order cakes, pies or other breads and pastries are available, when school is in session. **Minimum three (3) day notice required for special orders.**

### Contact Information:

- Call: (425) 235-2352, ext. 5596

### Hours:

- Monday - Friday, 7:00 a.m. - 1:00 p.m.
- *(Note: Open hours during summer, holidays and between quarters will vary).*

## C.A.F.E.

The college cafeteria features daily specials from the grill, breakfast, deli, salad bar and beverage station.

### Hours:

- Monday - Friday, 7:00 a.m. - 1:00 p.m.
- *(Note: Open hours during summer, holidays and between quarters will vary).*

## Catering

Let RTC make your event special, whether it's a wedding, box lunch, sit-down meal, or special occasion at home or at work. Facilities on campus are available for rental for any size group, from small business meetings to weddings and conferences. Also available for rental are staging, draping, audiovisual and other equipment.

### Contact Information:

- Email: [catering@rtc.edu](mailto:catering@rtc.edu)
- Call: (425) 235-2352, ext. 5730
- Fax: (425) 235-2300 (fax)

- Website: <https://www.rtc.edu/catering-and-events>

## Culinaire Room

The Culinaire Room is a sit-down restaurant featuring upscale daily menus at reasonable prices. It offers a delicious selection of Northwest, ethnic and international cuisine.

### Hours:

- Monday - Friday, 11:15 a.m. - 1:00 p.m.
- *(Note: Open hours during summer, holidays and between quarters will vary).*

## Culinaire Express

Fast foods for people on the go! Quick burgers, wraps, baskets, pizza, and specials are offered daily.

### Hours:

- Monday - Friday, 11:00 a.m. - 2:45 p.m.
- *(Note: Open hours during summer, holidays and between quarters will vary).*

## International Students

The college can accept students with F-1 and M-1 visas. Student must provide the required documents and the college can help issue an I-20 to international students who plan to enroll in a vocational or academic program. For requirements please visit the RTC International Student Services webpage.

### Contact Information:

- Building I - Robert C. Roberts Campus Center
- Email: [advising@rtc.edu](mailto:advising@rtc.edu)
- Call: (425) 235-5840
- Text: (425) 448-3416
- Website: <https://www.rtc.edu/international-student-services>

## Lactation Room

Renton Technical College recognizes the breastfeeding needs of new mothers by providing a comfortable, private Lactation Room for students and employees. The Lactation Room includes a mini-refrigerator, comfortable seating and a side table,

and electrical outlets for breast pumps. To schedule, call Elaine Patrick, (425) 235-2470 (Office B-127).

### Contact Information:

- Building B, Room 122
- Call: (425) 235-2470
- Website: <https://www.rtc.edu/lactation-room>

## Learning Resource & Career Center (LRCC)

The Learning Resource & Career Center (LRCC) offers personalized assistance and specialized tools that help students achieve their academic and career goals. The LRCC staff is committed to helping students make connections between academic experiences and career paths. Providing compassionate, comprehensive assistance to RTC students and alumni is our top priority.

The LRCC is located in Building C, Room 102 and provides several free services to the students, staff, and alumni of RTC. Services provided include:

- **Three types of tutoring:** online eTutoring, drop-in tutoring, and program peer tutoring
- **Career services:** job search, resume, mock interview
- **Open work space:** tables, projector, whiteboards
- **Open computer lab with free printing**
- **CHIPS:** free computer help & repair
- **Financial aid and scholarship help**
- **Student ID cards**
- **Food Pantry**

### Contact Information:

- Building C, Room 102 - Technology Resource Center
- Email: [LRCC@rtc.edu](mailto:LRCC@rtc.edu)
- Call: (425) 235-2352, ext. 5721
- Website: <https://www.rtc.edu/LRCC>

### Hours:

- Monday - Thursday, 8:00 a.m. - 7:00 p.m.
- Friday, 8:00 a.m. - 4:00 p.m.
- Saturday, 10:00 a.m. - 3:00 p.m.



### Tutoring Services Hours:

- Monday - Thursday, 11:00 a.m. - 4:00 p.m.\*
- *(Note: Tutor availability may vary. If you want to guarantee that a tutor will be able to help, call ahead or make an appointment with the tutor).*

### CHIPS Hours:

- Monday - Thursday, Noon - 5:00 p.m.

## Library

The RTC Library is dedicated to providing quality research and information literacy services to support student success.

The Library is located on the second floor of the C building and provides the following for students, faculty, and staff of RTC:

- **Research assistance:** Students can book a faculty librarian to help them with their research or citations.
- **Open computer lab with scanning and printing**
- **Study rooms**
- **Reflection space for prayer or meditation**
- **A diverse collection of print books, textbooks, eBooks, magazines, and journal articles**
- **Technology borrowing program**

Even when the library is closed, through the RTC Library webpage students have access to more than 40,000 online books, 10,000 magazines and journals, and 24 hours a day 7 days a week, online chat consultation with a live librarian.

### Contact Information:

- Building C, 2nd Floor
- Email: [librarian@rtc.edu](mailto:librarian@rtc.edu)
- Text: (425) 336-2764
- Website: <https://www.rtc.edu/library>

### Hours:

- Monday - Thursday, 7:00 a.m. - 8:00 p.m.
- Friday, 7:00 a.m. - 4:30 p.m.

- *(Note: During COVID-19, the physical library will be closed until further notice. The Library will be providing assistance online, Monday through Friday from 7:30 a.m. through 4:00 p.m. To get help, please contact us at [librarian@rtc.edu](mailto:librarian@rtc.edu) or text us at (425) 336-2764).*

## Parking

Parking rules and regulations are enforced 24 hours a day, seven days a week throughout the calendar year. RTC students, employees and visitors are required to obtain parking permits for their vehicles. Parking permits are free of charge.

- Student parking permits are available at the Registration Office, Building I.
- Employee parking permits can be obtained from Campus Security.

For more information on parking rules and fees, visit the Parking Information webpage at <https://www.rtc.edu/parking>.

## Student Leadership

Student Leadership facilitates leadership development, provides opportunities for student involvement and supports student learning, creating connections for student success. Diverse activities and programs are supported in a nurturing learning environment. Student Leadership teams include the RTC Associated Student Government, Events & Activities Board, Student Ambassadors and diverse student organizations and clubs. The Student Leadership Office is located in J-216.

### Contact Information:

- Michelle Iko
- Student Leadership Program Manager
- Email: [miko@rtc.edu](mailto:miko@rtc.edu)
- Call: (425) 235-2352, ext. 7785
- Website: <https://www.rtc.edu/student-leadership>

## Testing Services

The Testing Services and Center at Renton Technical College engages a diverse student population

through educational opportunities for career readiness and advancement by providing a professional and quality testing services to our students, faculty, staff, community, and businesses. We provide a comfortable testing environment aligned with our commitment to Guided Pathways for your educational and career needs. All examinations administered required a valid state or government photo identification and a proof receipt of payment and for some exams a Renton Technical College student identification. Lockers are provided to store your personal and electronic belongings. No food or drinks are allowed in the testing center. Please note that children are not permitted in the Testing Center.

Testing Services and Center include:

- ASE: The National Institute for Automotive Service Excellence
- ATI-TEAS: Test of Essential Academic Skills
- CLEP: College Level Examination
- Certiport Exams: ACA, IC-3, MOS, and MTA
- Direct Self English Placement
- GED: General Education Development
- New Generation Accuplacer Exams
- Pearson Vue

- Proctoring Services for non-RTC students
- Prometric
- ProV: Government, Construction, Occupational, Professional and Regulatory Compliance Certifications

The Testing Services and Center is supportive of test takers that require test accommodations who demonstrate a documented need in partnership with Renton Technical College Disability Resource Services. For more information, visit the Disability Resource Services webpage.

To obtain a Renton Technical College student identification number please visit: Apply to RTC

Payments can be made at the Cashiering office in Building I.

**Contact Information:**

- Building J, Room 218
- Email: [testingcenter@rtc.edu](mailto:testingcenter@rtc.edu)
- Call: (425) 235-2352, ext. 5704
- Website: <https://www.rtc.edu/testing-services>

**Hours:**

- Monday - Friday, 7:30 a.m. - 4:30 p.m.

# Academic Information

## Degrees & Certificates

### Bachelor of Applied Science (BAS) Degree

An applied bachelor's degree builds on the education and training from a two-year technical associate degree. All Bachelor of Applied Science (BAS) students are required to take 60 credits of general education coursework, a minimum of 30 credits which are often satisfied at the Associate degree level, as confirmed by entrance requirements. The remaining credits will be satisfied over the course of the two-year BAS program.

### Associate of Applied Science (AAS) Degree

The Associate of Applied Science (AAS) degree is a two-year degree for students who want to start a career immediately after graduation. These degrees are at least 90 credits. All students enrolled in an AAS degree program must complete core program requirements and general education requirements.

### Associate of Applied Science-Transfer (AAS-T) Degree

Associate of Applied Science-Transfer (AAS-T) degrees are two-year, job-training degrees. These degrees are consistent with the dual purpose of transfer and preparation for direct employment. These degrees facilitate transfer to some institutions. The general education component is comprised of at least 20 credits of courses generally accepted in transfer, including a minimum of:

- 5 credits in Communication (English Composition)
- 5 credits in Quantitative Skills
- 10 credits in Science, Social Science, or Humanities

### Certificate of Completion

A Certificate of Completion is issued to a student enrolled in a certificate program when the student successfully completes the course competencies and requirements for an occupational program.

### Certificate of Award

A Certificate of Award is issued to a student upon request when the student has successfully completed a unit of study in apprenticeship, basic studies or community education classes.

### Direct Transfer Agreement/Major Related Program (DTA/MRP)

The Direct Transfer Agreement/Major Related Program (DTA/MRP) associate degree is designed to transfer to most Bachelor of Arts degrees at four-year colleges and universities in Washington state. These degrees will provide the transferring student with at least 90 credits upon entry to a four-year college or university.

### General Educational Development (GED)

A General Educational Development certificate is issued to an individual who successfully completes the General Education Development Test. The GED is generally accepted in lieu of a high school diploma.

### High School Diploma

The college awards a high school diploma through the College & Career Pathways' Youth High School Completion and High School+ Diploma programs who demonstrate competencies in reading, writing and math contextualized in science, history, government, occupational studies, and digital literacy. Competency is demonstrated through current coursework and previous learning and experience.

### General Education

General Education courses are an essential part of our associate degrees, enabling the student to attain necessary competencies in analysis, communication, qualitative and quantitative methods, synthesis, and teamwork for further growth as a productive member of society and providing a foundation for lifelong learning.

Whereas completion of the vocational training requirements demonstrates competency in the area of specialty, completion of the General Education

requirements demonstrates a competence in oral and written communications, computations, and human relations in the workplace.

General Education requirements vary for each program. Entry into General Education courses in writing and math are determined according to the College's course placement process. General Education credits may be transferred to other colleges within guidelines established by the State Board for Community and Technical Colleges. The testing calendar is available in Enrollment Services or on the RTC Testing Services webpage.

For a listing of current classes being offered each quarter, see the RTC Class Schedule or call the Enrollment Services Office at (425) 235-2352.

## Continuing Education

Renton Technical College offers many day and evening classes for credit to those who wish to upgrade their skills for job advancement or those who wish to develop new skills, perhaps in a different career.

For a listing of current classes being offered each quarter, see the RTC Class Schedule or call the Enrollment Services Office at (425) 235-2352.

## E-Learning

### Learning Modalities

- **Face-to-Face/Web-Enhanced:** Students and instructors meet together in a classroom. Class times are designated in the class schedule; syllabus, grades, assignments and other course elements available online.
- **Online:** Online classes consist entirely of online elements with no face-to-face component. Some online classes require students to interact with each other, the faculty, and content at specific times, while others are entirely self-paced.
- **Hybrid:** A combination of face-to-face meetings and online instruction. Required face-to-face class times are designated in the class schedule.

- **Flex:** Class exists fully online and fully face-to-face, and students have a choice of how to attend on any given day. Face-to-face class times are designated in the class schedule.

## Canvas

Renton Technical College uses Instructor Canvas, a Learning Management System (LMS) that requires individual student login for classroom, hybrid and online courses. All courses and students are automatically uploaded to the LMS. Faculty use the Canvas platform for their gradebook, syllabi, and course outcomes.

If you have questions regarding your online classes, you can contact [elearning@rtc.edu](mailto:elearning@rtc.edu) or call 425-235-2352, ext. 7905. You can also search the Canvas Guides or use the Help button on the upper right within Canvas search for answers or to report a problem. RTC's elearning page has a list of classes and other information.

## Cooperative Education

Many of the training programs offer a cooperative education component, a combination of classroom instruction and related work experience. Cooperative positions often become jobs when the training is over because employers want to retain proven workers. Instructors coordinate and seek out cooperative opportunities.

## Running Start

The Running Start program provides an opportunity for high school juniors and seniors to attend college-level classes, tuition-free, and earn both college and high school credits. However, Running Start students are responsible for textbooks, supplies, transportation, and any class fees.

Running Start students are treated as college students and are subject to the standards, rules and regulations of the college. To participate in Running Start students must demonstrate college-level skills. Students may demonstrate their readiness for college-level courses by taking the English and/or math placement test at RTC, or by providing another placement document (see Running Start application for more information).

For Running Start information call (425) 235-2352, ext. 5714 or (425) 235-5840.

## Career & Technical Education (CTE) Dual Credit

Renton Technical College encourages early pre-registration by high school students for their college program of choice, to assure timely entry. In some cases, advanced placement may be granted to students with CTE Dual credits. Through the Puget Sound Dual Credit Career Consortium, Renton Technical College has developed agreements with Auburn, Enumclaw, Federal Way, Highline, Kent, Puyallup, Renton, Sumner-Bonneylake, Tahoma, and Tukwila school districts, and the Puget Sound Skills Center. We also have articulation agreements outside of the consortium with Issaquah and Bellevue School Districts.

RTC currently has articulation agreements in the following program areas:

- Accounting
- Allied Health
- Autobody Repair & Refinishing
- Automotive Technology
- Computer Network Technology
- Computer Science
- Contemporary Business Administration
- Culinary Arts
- Engineering Design Technology
- Early Childhood Education
- Legal Assistant
- Machining Technologies
- Medical Administrative Programs
- Welding

Find out more about becoming a Dual Credit student on the Dual Credit Webpage. Contact your high school counselor or vocational teacher, or Renton Technical College's Student Services office at (425) 235-5840.

## Grading Policy

Grading criteria are determined by the instructor. These criteria and how grades are achieved must be shared in writing with students on the first day that

the course is taught. Grading policies must be on file and approved by the instructor's dean.

Grades will be submitted as decimals which students can convert as follows:

Decimal Grades-Letter Grades Equivalent	
Decimal Grade	Letter Equivalent
4.0-3.9	A
3.8-3.5	A -
3.4-3.2	B +
3.1-2.9	B
2.8-2.5	B -
2.4-2.2	C +
2.1-2.0	C
1.9-1.5	C -
1.4-1.2	D +
1.1-1.0	D
Grade and Symbol Definitions	
Grade Symbol	Grade Definition
S	<b>Satisfactory</b> An "S" grade is not figured into the grade-point average.
U	<b>Unsatisfactory</b> A "U" grade is figured as a "0."
Y	<b>In Progress</b> A "Y" grade is given to all the students in a class who are doing passing coursework but need additional instruction and time to complete course requirements or competencies. Students are required to re-register for the course and pay all tuition and any other charges. The Y remains on the transcript for the quarter assigned, while the final grade will be posted to the quarter in which the student re-enrolled in the course. The Y grade earns no credit and does not affect the GPA.
I	<b>Incomplete</b> When a student is not able to complete a class for reasons beyond his control an instructor may assign an incomplete. It

	should be given ONLY when there is a reasonable expectation that the student will complete the specified work in the time allowed without additional instructional time. To receive an "I" grade, the student MUST have an "Incomplete Contract" signed by the instructor and the dean and submitted to registration prior to the grade being submitted. An "I" grade reverts to the assigned "grade without completion" after one quarter (not including summer) unless otherwise specified on the incomplete contract. The original is sent to the registrar with copies to the student, instructor, dean and counselor or advisor.
<b>N</b>	<b>Audit</b> An audit means the student registers on a space-available basis to attend the class and to listen, but not do graded work. The student pays full tuition and fees, but attends class for information only. The N grade does not earn credit and does not affect the GPA. The audit grade option must be approved by the instructor and submitted to the registration office by the 10th day of the class. Once registered for an audit, the student cannot change to a graded option.
<b>R</b>	<b>Repeating a Course</b> The qualifier "R" on a transcript means a course has been repeated, and is excluded from credits and grade point average. All grades will still appear on the transcript whether repeated or not. The most recent grade will be used to compute the GPA. Students may not take a course more than twice without permission from the Vice President of Student Services. Repeating certain courses may require permission from the instructor or the appropriate administrator.
<b>V</b>	<b>Unofficial Withdrawal</b>

	Students who attend briefly, rarely, or not at all, and who fail to officially withdraw from a course or a program with a W grade, may be assigned a grade of "V" at the discretion of the instructor. The V grade does not earn credit and does not count in the GPA calculation.
<b>W</b>	<b>Withdrawal</b> A student may officially withdraw from a program or class by completing the appropriate form and submitting it to registration by the eighth week of the quarter. After the eighth week, the student cannot receive a "W" and will be graded based on the course requirements as described in the course syllabus. A withdrawal prior to the 10th day of the quarter is not listed on the transcript. After the 10th day of the class, a "W" will appear on the student's transcript but it is not computed in the GPA. An official withdrawal can only be initiated by a student or a counselor or advisor at the request of the student.
<b>HW</b>	<b>Hardship Withdrawal</b> Under very exceptional circumstances, instructors can request a hardship withdrawal for a student. This can be requested at any time during the quarter for a student who has attended class regularly and has completed assignments with passing grades but for reasons beyond his or her control must drop out. A hardship withdrawal must be signed by the instructor, the dean and the Vice President for Student Services.

### Grade Appeal

A student who feels he did not get the grade he earned must first speak to the instructor involved. If the dispute is not resolved, the student may file a grade appeal with the supervising dean.

Grade appeals must be based on:



- Errors were made in calculating or posting the official RTC grade,
- The instructor did not follow the grading criteria outlined in the course syllabus, or
- Grading criteria were not uniformly applied.

A grade appeal **MUST** be filed within two (2) instructional days of the end of the quarter. A grade appeal filed after one (1) quarter in which the grade was earned, will not be considered. The student will be notified of the result of their grade appeal via email within four (4) instructional days of filing. The Grad Appeal Form can be found on the Student Forms Library webpage.

## **Academic Standards of Progress**

Renton Technical College expects students to make academic progress. The academic standing of each Renton Technical College student is carefully monitored to support the full development of each student's academic potential. The faculty and staff are committed to student success and academic progress.

## **Progressive Intervention**

### ***Academic Alert***

Students must maintain an average of 2.0 or higher in the program and/or a grade of 2.0 or higher in designated courses. It is the responsibility of the instructor to inform the students doing less than 2.0 work of their status at least four weeks prior to the end of each quarter/reporting period. This is to be done in writing using the Student Academic Progress Report form. After the student and the instructor have signed the Progress Notice form, a copy must be forwarded to the program administrator. Students receive a progress notice indicating that academic performance is unsatisfactory and are advised to seek assistance.

### ***Academic Probation***

Registration will supply instructional administrators and financial aid with a list of all students receiving a grade average of less than a 2.0 in a program. These students are required to meet with a designated faculty advisor and program administrator to develop specific steps to improve their academic

record. An educational plan must be drafted and approved by the appropriate administrator.

### ***Academic Restriction***

Continued academic difficulties will result in academic restrictions to be determined by the Instructor and the appropriate administrator. Students are blocked from registration activity and must complete an academic plan, to be presented to a subcommittee of the Academic Standards Committee, prior to registration. Academic restrictions will be continued and/or increased each quarter the student's cumulative GPA remains below 2.0. Academic restrictions may include, but are not restricted to the following: reduced credit load, mandatory participation in tutoring services, academic suspension, and academic dismissal. Students on academic restriction are not eligible for financial aid.

Students who are suspended or dismissed must file an application for readmission and secure permission from the Academic Standards Committee before resuming their education.

This committee is comprised of the instructional administrator for the program or the department in question, a program or course instructor, and the Vice-President of Student Services. When financial aid has been canceled due to unsatisfactory progress, students may use one of the following options to reinstate eligibility:

- Successfully complete at least six credits, with a GPA of 2.0 or higher without the help of financial aid. (The student will need to notify Financial Aid at the end of the successful quarter); or
- Students who believe that they had circumstances beyond their control that prevented them from making satisfactory academic progress may submit an appeal for reinstatement of aid.
- Readmitted students will be placed on probation and will be subject to the normal standards of academic progress.



## Appeal

Only the Academic Suspension status can be appealed. The student must show proof of circumstances over which they did not have control and/or show proof of making measurable and substantial progress towards repairing their academic performance. The appeal is an informal meeting with the Academic Standards Committee. This committee reviews appeals on a case by case basis. The decision of the committee is final.

## Lifting Progressive Intervention

If a student raises their grade to an average of 2.0 or higher, the college will remove the student from Progressive Intervention.

## Leave of Absence

The college does not grant formal leaves of absences to students. However, Renton Technical College will grant reasonable accommodation so that grades are not impacted for students who are absent for reasons of faith or conscience, or for an organized activity conducted under the auspices of a religious denomination, church, or religious organization. Students must coordinate an absence with their instructor within the first two weeks of the course, and have their request in writing. The faculty member shall forward a copy of the request to the Academic Dean's office and must be approved in advance of the absence.

## Credits

The academic year for Career Training programs, General Education and College & Career Pathways at Renton Technical College is divided into three quarters of 11 weeks each, and a summer session of six or eight weeks.

One credit is earned for:

- 11 hours of Theory (lecture/discussion)
- 22 hours of Guided Practice (laboratory/clinical experience)
- 33 hours of Field-Based Experience (co-op/internship)

For Apprenticeship programs, one credit is earned per 16.5 hours of total instruction.

## Transfer of Credits

When a student transfers to another college, that college determines the transferability of specific courses and programs. RTC maintains credit reciprocity agreements with many institutions of higher learning, but students are advised to check carefully with the institution where they expect to transfer. Students transferring to RTC from other institutions must have an official transcript. Courses with less than a "C" grade will not be accepted by RTC.

## Credit Assessment

Students who have had program-related coursework at other institutions prior to attending Renton Technical College may be awarded credit for advanced placement. Credit transfer is awarded by the Registrar in the following ways:

### *College Credit*

For coursework which was completed at another college or university accredited by a regional or national accrediting agency recognized by the Department of Education.

### *CTE Dual Credit*

Credit earned through participation in CTE Dual Credit programs as determined by the Puget Sound Dual Credit Career Consortium Articulation Agreement and governed by the rules and regulations between the college and school districts.

### *Military Coursework*

Credit for coursework completed while the individual was in one of the branches of the U.S. Armed Services including the Coast Guard.

### *Credit by Testing*

Commonly accepted higher education equivalency exams that are documented via a transcript or other official record. Includes Advanced Placement (AP), International Baccalaureate (IB), College Level Examination Program (CLEP), and Cambridge (CI). Credit will be awarded on the basis of official test results, not transcript notation. A maximum of 45 credits can be awarded for credit by examination. Duplicate credit for the same subject taken on different exams will not be granted.

- **Advanced Placement (AP):** Washington state community and technical colleges will award unrestricted elective credit for an Advanced Placement (AP) score of 3 or higher. Credit will be awarded on the basis of official AP results, not transcript notation. Credits granted for general education or major requirements will be specified by the receiving institution's AP credit policies; otherwise, elective credit will be granted.
- **International Baccalaureate (IB):** Washington community and technical colleges will grant a minimum elective credit for an International Baccalaureate (IB) Higher Level (HL) exam score of 5 or higher. Credit will be awarded on the basis of official IB results, not transcript notation.
- **Cambridge International (CI):** Washington community and technical colleges will grant a minimum elective credit for each Cambridge International Examination for A-level exam with a passing grade or above for approved examinations. Credit will be awarded on the basis of official Cambridge International Examination results, not transcript notation. No grades are posted for A-level exams.
- **College-Level Examination Program (CLEP):** CLEP exams are computer-based tests that allow students to demonstrate their ability in a given subject. By obtaining a particular score, recommended by the American Council of Education, students can obtain college credit. Students must submit an official copy of their CLEP scores to the Credentials Evaluation office. Credit is posted to the student transcript at the time of graduation. Credit and/or placement will not be granted for scores below the ACE recommended score.

### ***Prior Experiential Learning***

Knowledge and skills acquired through experience alone, evaluated (subjectively) by faculty via evaluation of a compilation of work.

- Includes life experience/portfolio

- All prior learning assessment HS21+ credits are awarded through prior experiential learning portfolio review
- Will apply toward NWCCU's 25% limitation rule as determined in Standard 2.C.7

### ***Extra-Institutional Learning***

Knowledge and skills acquired outside the institution and objectively verified through third-party certifications, industry-recognized testing/training, and crosswalks.

- Includes ACE Training programs/institutes, industry certification (e.g. NCLEX-RN)
- Includes Occupational Crosswalks (Police, Fire, AmeriCorps, Military, etc.)

### ***Course Challenges***

Challenge examinations are sufficiently comprehensive to determine that the student has the same knowledge and skills as those students who enroll in, and successfully complete, the course. Only counts if ends up on transcript. A student should have previous training, private study, work experience, or other bona fide qualifications indicating the student has knowledge or abilities equivalent to course completers. Credit is awarded when the individual has passed a comprehensive test of the course content. There are limited opportunities to challenge individual courses at this time. Students are encouraged to contact the program Dean/Director for more information.

## **Program Completion Standards**

A Certificate of Completion will be issued when:

- A student completes all program requirements with a cumulative GPA of 2.0 or higher.
- A student meets the minimum GPA requirements for each course as defined in the College Catalog.
- A student earns all required credits in the program of study as identified in the official course outline on file with the Vice President of Instruction.

## Transcripts

Students may request official transcripts by submitting a completed transcript request from the Enrollment Services Office. Orders are generally processed within one week.

To obtain a transcript request form, call the Enrollment Services Office at (425) 235-2352 or go to the Transcripts Webpage at <https://www.rtc.edu/transcripts>.

## Academic Achievement

### All USA Academic Team

The All USA Academic Team Scholarship competition is for students who have been in an AAS program for at least two quarters, have excellent grades and a history of community service and have been nominated by their instructors for the campus competition. To compete, students must write an essay and obtain letters of recommendation. The college selects two representatives to go on to a state-wide competition, receive a monetary award and attend a luncheon with the Governor.

### President's Honor List

Students who complete a Certificate, AAS, or AAS-T degree of 21 credits or more with a GPA of 3.7 or higher by the end of the previous quarter earn the right to wear a gold cord during the graduation ceremony. If they continue to qualify after the grades for their graduating quarter are posted, students will receive a letter signed by the President of the college and a statement will appear on their transcript.

### Vice President's Honors List

To qualify for the Vice President's Honors List, students must be enrolled for a total of 12 credits or more during the quarter. Students must complete all courses for which they are registered with a GPA of 3.7 or higher. There is no limit to the number of quarters that a student may appear on the list.

Students who achieve this distinction will receive a letter signed by the Vice President of Instruction acknowledging their achievement.

## BAS Degree Honors Designations

For the Bachelor of Applied Science programs, honors designations are:

- **Cum Laude:** With distinction 3.85 - 3.89 GPA
- **Magna Cum Laude:** With great distinction 3.9 - 3.94 GPA
- **Summa Cum Laude:** With highest distinction 3.95 - 4.0 GPA

## Graduation

### Application for Graduation

To receive a Certificate or an Associate of Applied Science Degree or Direct Transfer Degree from Renton Technical College, a student must complete an Application for Degree or Certificate form.

The application is located on the Graduation & Commencement webpage or can be obtained at the Enrollment Services Office located in the Roberts Campus Center, Building I. The Application for Graduation must be completed by the first week of the quarter in which the student expects to graduate in order for the student to be listed in the graduation program.

### Commencement Ceremony

The Renton Technical College graduation ceremony is held each year in June on the last day of the Spring Quarter. Any eligible student completing a degree, certificate, high school diploma or GED through Renton Technical College at any time during the academic year (fall through summer) may participate. All students must complete and submit an Application for Graduation in order for the student to be listed in the graduation program. Caps and gowns are required and can be purchased in the RTC Bookstore.

## Career Training Programs

Renton Technical College offers specialized professional and technical training programs to people of a variety of ages and backgrounds. Our primary mission is to provide training, retraining and skills upgrading for employment in occupations that do not require a baccalaureate (or higher) degree. In most cases, RTC programs accept students with or without a high school diploma, and allow as many entry points as possible during the school year.

Renton Technical College strives to ensure that its programs are relevant and include skills required for success in employment. All instructors are experienced in the fields they teach. Programs emphasize the communicative, numerical, scientific and human relations skills necessary to be a good employee, as well as the technical skills that employers certify to be appropriate for the occupation.

### Advanced Manufacturing

The Advanced Manufacturing programs prepare students for careers in precision manufacturing, technical design, and the skilled trades. Most of these programs give students the opportunity to do hands-on work in the field. They are designed with input from their respective industries and taught by experts, so that students learn the most current techniques using the most modern technology.

### Aerospace & Industrial Production Technologies Certificate

**Certificate of Completion: 44 credits**

**Enrollment Point: Fall, Winter or Spring Quarter**

This program prepares students or incumbent workers for careers in production and fabrication in lean industrial and technologically advanced environments, with a focus on aerospace tooling and assembly. Students will learn proper fabrication techniques as well as material handling and trade specific machine and hand tool use. This course includes the evaluation of student comprehension in lecture, fabrication techniques and specialized equipment use from one lesson to the next. Students will learn to read and interpret engineering drawings to fabricate various parts or tools. Self-inspection and quality assurance standards are contextualized throughout the program, insuring critical thinking and just-in-time evaluative practices. Tooling Fabrication techniques and precision measurement are followed by applied training

in advanced metrology, aircraft assemblies drilling and riveting structures fundamentals in numerous manufacturing environments.

#### Program Learning Outcomes:

- Practice industry-standard, safe work habits in an industrial production environment.
- Communicate effectively verbally and in writing with co-workers and supervisors.
- Use mathematical concepts to accurately complete industrial production projects.
- Identify and properly use appropriate instruments, tools and equipment for aerospace or industrial production.
- Interpret measurements, blueprints and other data points to solve problems and create industrial products in aerospace and advanced manufacturing.
- Demonstrate professionalism in all aspects of work, including attendance, interactions, appearance and demeanor.

#### Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary. Quarter 2 and Quarter 3 alternate every quarter.

##### Quarter 1

- COL 101 - College Success 2 *Credits*
- MTEC 100 - Machining Essentials 7 *Credits*
- MTEC 161 - Math for Manufacturing 4 *Credits*
- MTEC 171 - Communications 1 1 *Credits*
- MTEC 185 - Human Relations 2 *Credits*
- BAST 091 - Oral Communications for College and Career 5 *Credits* (optional)
- BAST 092 - Math for Technical Careers 5 *Credits* (optional)

##### Quarter 2

- IPT 103 - Quality Control 2 *Credits*
- IPT 104 - Intro to Aircraft Structures 3 *Credits*
- IPT 218 - Introduction to Production 5 *Credits*
- IPT 219 - Service Life Evaluation Program 2 *Credits*

##### Quarter 3

- IPT 102 - Lean Manufacturing 3 *Credits*
- IPT 105 - Intro to Fabrication 5 *Credits*

- IPT 220 - Precision Fabrication 3 Credits
- IPT 221 - Intro to Measurement 3 Credits
- IPT 222 - Advanced Measurement 2 Credits

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Aerospace & Industrial Production Technologies, AAS

**Associate of Applied Science Degree: 95 credits**

**Enrollment Point: Fall, Winter or Spring Quarter**

This program prepares students or incumbent workers for careers in production and fabrication in lean industrial and technologically advanced environments, with a focus on aerospace tooling and assembly. Students will learn proper fabrication techniques as well as material handling and trade specific machine and hand tool use. This course includes the evaluation of student comprehension in lecture, fabrication techniques and specialized equipment use from one lesson to the next. Students will learn to read and interpret engineering drawings to fabricate various parts or tools. Self-inspection and quality assurance standards are contextualized throughout the program, insuring critical thinking and just-in-time evaluative practices. Tooling Fabrication techniques and precision measurement are followed by applied training in advanced metrology, aircraft assemblies drilling and riveting structures fundamentals in numerous manufacturing environments.

#### Program Learning Outcomes:

- Practice industry-standard, safe work habits in an industrial production environment.
- Communicate effectively verbally and in writing with co-workers and supervisors.
- Use mathematical concepts to accurately complete industrial production projects.
- Identify and properly use appropriate instruments, tools and equipment for aerospace or industrial production.
- Interpret measurements, blueprints and other data points to solve problems and create industrial products in aerospace and advanced manufacturing.
- Demonstrate professionalism in all aspects of work, including attendance, interactions, appearance and demeanor.

#### Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary. Quarter 2 and Quarter 3 alternate every quarter.

##### Quarter 1

- COL 101 - College Success 2 Credits
- MTEC 100 - Machining Essentials 7 Credits
- MTEC 161 - Math for Manufacturing 4 Credits
- MTEC 171 - Communications 1 1 Credits
- MTEC 185 - Human Relations 2 Credits
- BAST 091 - Oral Communications for College and Career 5 Credits (optional)
- BAST 092 - Math for Technical Careers 5 Credits (optional)

##### Quarter 2

- IPT 103 - Quality Control 2 Credits
- IPT 104 - Intro to Aircraft Structures 3 Credits
- IPT 218 - Introduction to Production 5 Credits
- IPT 219 - Service Life Evaluation Program 2 Credits

##### Quarter 3

- IPT 102 - Lean Manufacturing 3 Credits
- IPT 105 - Intro to Fabrication 5 Credits
- IPT 220 - Precision Fabrication 3 Credits
- IPT 221 - Intro to Measurement 3 Credits
- IPT 222 - Advanced Measurement 2 Credits

#### Course Requirements for AAS Degree

##### Quarter 4

- DFT 213 - Parametric Modeling 5 Credits
- WELD 102 - Oxyacetylene Welding and Brazing 7 Credits
- AMATH 190 - Financial Algebra 5 Credits
- or AMATH 195 - Advanced Applied Algebra 5 Credits
- or MATH& 107 - Math in Society 5 Credits
- or MATH& 146 - Introduction to Statistics 5 Credits

##### Quarter 5

- DFT 201 - Geometric Dimensioning and Tolerancing 3 Credits
- MTEC 231 - CNC Mill Set Up and Operation 8 Credits
- COMP 100 - Applied Composition 5 Credits
- or ENGL& 101 - English Composition I 5 Credits



## Quarter 6

- MTEC 232 - CNC Lathe Set Up and Operation 8 Credits
- ANTH& 106 - American Mosaic 5 Credits
- or ANTH& 234 - Religion and Culture 5 Credits
- or PSYC& 100 - General Psychology 5 Credits
- or SOC& 101 - Introduction to Sociology 5 Credits
- CMST& 101 - Introduction to Communication 5 Credits
- or CMST& 220 - Public Speaking 5 Credits
- or HUM& 101 - Introduction to Humanities 5 Credits
- or MUSC& 105 - Music Appreciation 5 Credits

## GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Band Instrument Repair Technology Certificate

**Certificate of Completion: 72 credits**

**Enrollment Point: Fall Quarter**

This program prepares graduates for entry-level employment in the band instrument repair and service trade. Students receive instruction in repair, maintenance, and adjustment of instruments belonging to the woodwind, brass, and percussion families. Special emphasis is placed on those skills, which make students employable in repair of these instruments. Related instruction is provided in safety, employment skills, and environmental concerns.

## Program Learning Outcomes:

- Perform padding and adjusting of woodwinds; cleaning, soldering, and dent removal of both brass and woodwinds.
- Equip and maintain shop.
- Interact with integrity and adaptability.
- Evaluate and diagnose musical instruments.

## Program Requirements

### Quarter 1

- COL 101 - College Success 2 Credits
- AMATH 161V - Mathematics for Band Instrument Repair 3 Credits

- BIR 101 - Introduction to Band Instrument Repair 1 Credits
- BIR 102 - Shop Practices and Safety for Band Instrument Repair 1 Credits
- BIR 103 - Band Instrument Cleaning and Sanitization 2 Credits
- BIR 104 - Soldering and Brazing Techniques 2 Credits
- BIR 123 - Woodwind Padding Techniques 4 Credits
- BIR 185 - Human Relations for Band Instrument Repair 1 Credits
- BIR 191 - String Instrument Repair for the Band Instrument Technician 4 Credits
- BIR 192 - Machining Topics for Band Instrument Repair Technology 4 Credits

### Quarter 2

- BIR 115 - Dent Removal Techniques 2 Credits
- BIR 122 - The Percussion Instruments 1 Credits
- BIR 124 - Clarinet Family Repair Techniques 6 Credits
- BIR 126 - Flute Family Repair Techniques 6 Credits
- BIR 134 - Woodwind Performance and Testing Techniques 1 Credits
- BIR 135 - Piston Valve Instrument Repair Techniques 4 Credits
- BIR 137 - Rotary Valve Instrument Repair Techniques 4 Credits
- BIR 144 - Brasswind Performance and Testing Techniques 1 Credits

### Quarter 3

- BIR 125 - Saxophone Family Repair Techniques 6 Credits
- BIR 130 - Advanced Woodwind Repair Techniques 4 Credits
- BIR 136 - Advanced Brass Repair Techniques 4 Credits
- BIR 138 - Trombone Repair Techniques 4 Credits
- BIR 150 - Capstone Project in Band Instrument Repair 1 Credits
- BIR 173 - Written and Oral Communications for Band Instrument Repair 3 Credits
- BIR 188 - Employment Skills for Band Instrument Repair 1 Credits

## GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**

- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Band Instrument Repair Technology, AAS

**Associate of Applied Science Degree: 92 credits**

**Enrollment Point: Fall Quarter**

This program prepares graduates for entry-level employment in the band instrument repair and service trade. Students receive instruction in repair, maintenance, and adjustment of instruments belonging to the woodwind, brass, and percussion families. Special emphasis is placed on those skills, which make students employable in repair of these instruments. Related instruction is provided in safety, employment skills, and environmental concerns.

### Program Learning Outcomes:

- Perform padding and adjusting of woodwinds; cleaning, soldering, and dent removal of both brass and woodwinds.
- Equip and maintain shop.
- Interact with integrity and adaptability.
- Evaluate and diagnose musical instruments.

### Program Requirements

#### Quarter 1

- COL 101 - College Success 2 Credits
- AMATH 161V - Mathematics for Band Instrument Repair 3 Credits
- BIR 101 - Introduction to Band Instrument Repair 1 Credits
- BIR 102 - Shop Practices and Safety for Band Instrument Repair 1 Credits
- BIR 103 - Band Instrument Cleaning and Sanitization 2 Credits
- BIR 104 - Soldering and Brazing Techniques 2 Credits
- BIR 123 - Woodwind Padding Techniques 4 Credits
- BIR 185 - Human Relations for Band Instrument Repair 1 Credits
- BIR 191 - String Instrument Repair for the Band Instrument Technician 4 Credits
- BIR 192 - Machining Topics for Band Instrument Repair Technology 4 Credits

#### Quarter 2

- BIR 115 - Dent Removal Techniques 2 Credits
- BIR 122 - The Percussion Instruments 1 Credits

- BIR 124 - Clarinet Family Repair Techniques 6 Credits
- BIR 126 - Flute Family Repair Techniques 6 Credits
- BIR 134 - Woodwind Performance and Testing Techniques 1 Credits
- BIR 135 - Piston Valve Instrument Repair Techniques 4 Credits
- BIR 137 - Rotary Valve Instrument Repair Techniques 4 Credits
- BIR 144 - Brasswind Performance and Testing Techniques 1 Credits

#### Quarter 3

- BIR 125 - Saxophone Family Repair Techniques 6 Credits
- BIR 130 - Advanced Woodwind Repair Techniques 4 Credits
- BIR 136 - Advanced Brass Repair Techniques 4 Credits
- BIR 138 - Trombone Repair Techniques 4 Credits
- BIR 150 - Capstone Project in Band Instrument Repair 1 Credits
- BIR 173 - Written and Oral Communications for Band Instrument Repair 3 Credits
- BIR 188 - Employment Skills for Band Instrument Repair 1 Credits

### Course Requirements for AAS Degree

#### Quarter 4

- AMATH 175 - Financial Math 5 Credits
- or MATH 075 - Pre-Algebra 5 Credits
- CMST& 101 - Introduction to Communication 5 Credits
- COMP 100 - Applied Composition 5 Credits
- PSYC& 100 - General Psychology 5 Credits

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each Certificate of Completion course: **2.0**
- Minimum grade for all other courses: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Commercial Building Engineering Certificate

**Certificate of Completion: 120 credits**

**Enrollment Point: Fall, Winter, Spring, or Summer Quarter**

This program is designed so students can enroll for mornings, afternoons, or evenings to better fit their



working schedule. Instruction areas include refrigeration and building systems, boiler operations, and hazardous waste management. Students learn to regulate and maintain heating, cooling, and ventilation systems for commercial buildings. An emphasis is placed on practical experience and hands-on training whenever possible. This program is a recognized "School of Technology" by the cities of Seattle and Tacoma advisory boards. This program offers a Commercial Building Engineering Certificate of Completion and an Associate of Applied Science degree in Commercial Building Engineering.

To earn an Associate of Applied Science Degree, the student must complete all requirements for the certificate program plus 15 credits of General Education. The General Education requirements are listed below. Transfer credit from other institutions will be considered upon validation of transcript and course work.

#### **Program Learning Outcomes:**

- Apply mathematical principles to problems commonly faced by commercial building and industrial engineers.
- Communicate effectively in writing and verbally with co-workers, supervisors, and tenants.
- Exhibit the interpersonal and human relations skills necessary to fulfill the expectations of the employer.
- Gather and use information from a variety of architectural and mechanical prints, technical manuals, codes, and manufactures specifications.
- Maintain the integrity of building, fire and life safety systems.
- Operate, repair, maintain, and troubleshoot building, boiler, refrigeration and electrical control systems by properly using tools and technology.

#### **Program Requirements**

Please check the Quarterly Class Schedule for class availability.

- CBE 101 - Fundamentals of Electricity and Lab 6 *Credits*
- CBE 102 - Advanced Electrical and Lab 5 *Credits*
- CBE 103 - National Electrical Code 4 *Credits*
- CBE 104 - Computer Fundamentals and Lab 2 *Credits*
- CBE 105 - Boiler Operators 8 *Credits*
- CBE 106 - Boiler Lab 4 *Credits*
- CBE 107 - Refrigeration and A/C Fundamentals & Lab 6 *Credits*

- CBE 111 - Control Fundamentals 7 *Credits*
- CBE 112 - Pneumatic Controls and Lab 5 *Credits*
- CBE 113 - Preventive Maintenance and Lab 4 *Credits*
- CBE 115 - Refrigeration and A/C Systems 5 *Credits*
- CBE 116 - HVAC/Plumbing Distribution 4 *Credits*
- CBE 117 - Safety and Health 1 *Credits*
- CBE 118 - Critical Systems 4 *Credits*
- CBE 150 - Hazardous Waste Management 3 *Credits*
- CBE 170 - Communications for the Stationary Engineer 2 *Credits*
- CBE 180 - Human Relations and Leadership Skills 2 *Credits*
- CBE 190 - LEED® Green Building 4 *Credits*
- CBE 201 - Direct Digital Controls and Lab 5 *Credits*
- CBE 202 - Advanced Direct Digital Controls and Lab 4 *Credits*
- CBE 203 - Energy Conservation 4 *Credits*
- CBE 204 - Architectural Prints and Lab 5 *Credits*
- CBE 205 - Fire and Life Safety Systems 6 *Credits*
- CBE 206 - Air and Water Balancing and Lab 6 *Credits*
- CBE 207 - Indoor Air Quality 6 *Credits*
- CBE 208 - Instrumentation for Stationary Engineers 3 *Credits*
- AMATH 190 - Financial Algebra 5 *Credits*

#### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## **Commercial Building Engineering, AAS**

**Associate of Applied Science Degree: 135 credits**

**Enrollment Point: Fall, Winter, Spring, or Summer Quarter**

This program is designed so students can enroll for mornings, afternoons, or evenings to better fit their working schedule. Instruction areas include refrigeration and building systems, boiler operations, and hazardous waste management. Students learn to regulate and maintain heating, cooling, and ventilation systems for commercial buildings. An emphasis is placed on practical experience and hands-on training whenever possible. This program is a recognized "School of Technology" by the cities of Seattle and Tacoma advisory boards. This program offers a Commercial Building Engineering

Certificate of Completion and an Associate of Applied Science degree in Commercial Building Engineering.

To earn an Associate of Applied Science Degree, the student must complete all requirements for the certificate program plus 15 credits of General Education. The General Education requirements are listed below. Transfer credit from other institutions will be considered upon validation of transcript and course work.

#### **Program Learning Outcomes:**

- Apply mathematical principles to problems commonly faced by commercial building and industrial engineers.
- Communicate effectively in writing and verbally with co-workers, supervisors, and tenants.
- Exhibit the interpersonal and human relations skills necessary to fulfill the expectations of the employer.
- Gather and use information from a variety of architectural and mechanical prints, technical manuals, codes, and manufactures specifications.
- Maintain the integrity of building, fire and life safety systems.
- Operate, repair, maintain, and troubleshoot building, boiler, refrigeration and electrical control systems by properly using tools and technology.

#### **Program Requirements**

Please check the Quarterly Class Schedule for class availability.

- CBE 101 - Fundamentals of Electricity and Lab 6 *Credits*
- CBE 102 - Advanced Electrical and Lab 5 *Credits*
- CBE 103 - National Electrical Code 4 *Credits*
- CBE 104 - Computer Fundamentals and Lab 2 *Credits*
- CBE 105 - Boiler Operators 8 *Credits*
- CBE 106 - Boiler Lab 4 *Credits*
- CBE 107 - Refrigeration and A/C Fundamentals & Lab 6 *Credits*
- CBE 111 - Control Fundamentals 7 *Credits*
- CBE 112 - Pneumatic Controls and Lab 5 *Credits*
- CBE 113 - Preventive Maintenance and Lab 4 *Credits*
- CBE 115 - Refrigeration and A/C Systems 5 *Credits*
- CBE 116 - HVAC/Plumbing Distribution 4 *Credits*
- CBE 117 - Safety and Health 1 *Credits*
- CBE 118 - Critical Systems 4 *Credits*

- CBE 150 - Hazardous Waste Management 3 *Credits*
- CBE 170 - Communications for the Stationary Engineer 2 *Credits*
- CBE 180 - Human Relations and Leadership Skills 2 *Credits*
- CBE 190 - LEED® Green Building 4 *Credits*
- CBE 201 - Direct Digital Controls and Lab 5 *Credits*
- CBE 202 - Advanced Direct Digital Controls and Lab 4 *Credits*
- CBE 203 - Energy Conservation 4 *Credits*
- CBE 204 - Architectural Prints and Lab 5 *Credits*
- CBE 205 - Fire and Life Safety Systems 6 *Credits*
- CBE 206 - Air and Water Balancing and Lab 6 *Credits*
- CBE 207 - Indoor Air Quality 6 *Credits*
- CBE 208 - Instrumentation for Stationary Engineers 3 *Credits*
- AMATH 190 - Financial Algebra 5 *Credits*

#### **Course Requirements for AAS Degree**

- CMST& 101 - Introduction to Communication 5 *Credits*
- COMP 100 - Applied Composition 5 *Credits*
- *or* ENGL& 101 - English Composition I 5 *Credits*
- PSYC& 100 - General Psychology 5 *Credits*

#### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## **Commercial Refrigeration Technology Certificate**

**Certificate of Completion: 61 credits**

**Enrollment Point: Fall, Winter or Spring Quarter**

This training program for Refrigeration Technicians enables students to develop the skills necessary to work as commercial service technicians on refrigeration, air conditioning and heat pump systems. Emphasis is placed on developing a thorough understanding of electrical and refrigeration theory through classroom and online experiences and practical application. Service, repair, and troubleshooting techniques are taught on late model equipment in a fully equipped training facility. Students are taught how to safely handle, store, and dispose of refrigerants according to EPA requirements, related to diagnostic, service, and repair procedures. Technical proficiency and competency are developed by using test

and service equipment to improve diagnostic and repair techniques. This program is approved as an electrical specialty training school by the Washington State Department of Labor and Industries, Electrical Section. This program is accredited by the Professional Service Association, a national appliance industry organization.

To earn an Associate of Applied Science Degree, the student must complete all requirements for the certificate program plus 20 credits of General Education. Transfer credit from other institutions will be considered upon validation of transcript and course work. Students holding a recent Certification of Completion from RTC should contact the Registrar for degree options.

#### **Program Learning Outcomes:**

- Practice industry safety standards for the installation and operation of all major appliance products.
- Select and properly use appropriate instruments, tools, and equipment.
- Utilize technology to access service and parts information.
- Demonstrate leadership, motivation, and problem solving skills in diverse and complex work situations.
- Communicate effectively in writing and verbally with customers, co-workers and supervisors.
- Diagnose and repair malfunctions on major appliance, home, residential and commercial refrigeration products.

#### **Program Requirements**

##### **Quarter 1**

- COL 101 - College Success *2 Credits*
- MART 111 - Industrial Direct Current (D-C) *3 Credits*
- MART 112 - Industrial Alternating Current (A-C) *3 Credits*
- WTD 109 - Safety, Tool and Equipment Certification *3 Credits*
- WTD 168 - Trades Math I *4 Credits*
- WTD 175 - Communications for the Trades *1 Credits*
- WTD 180 - Human Relations for the Trades *2 Credits*

##### **Quarter 2**

- AMATH 175S - Industrial Math for Thermodynamics *2 Credits*

- MART 123 - Diagnostic Techniques & Test Equipment *5 Credits*
- MART 125 - Electric Motors *2 Credits*
- MART 226 - Refrigeration Principles *4 Credits*
- MART 228 - EPA Regulations and Refrigerant Recovery *1 Credits*
- MART 230 - Brazing Principles and Techniques *5 Credits*
- MART 232 - Refrigeration Evacuation and Charging *2 Credits*

##### **Quarter 3**

- MART 237 - Commercial Refrigeration *5 Credits*
- MART 238 - HVAC Systems and Controls *3 Credits*
- MART 245 - Commercial Ice Machines *2 Credits*
- MART 251 - Light Commercial Refrigeration Service I *6 Credits*
- MART 252 - Light Commercial Refrigeration Service II *6 Credits*

##### **Optional Courses**

- WHFRS 101 - Forklift Training *1 Credits*
- WHFRS 201 - Forklift Recertification *0 Credits*

##### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## **Commercial Refrigeration Technology, AAS**

**Associate of Applied Science Degree: 91 credits**

**Enrollment Point: Fall, Winter or Spring Quarter**

This training program for Refrigeration Technicians enables students to develop the skills necessary to work as commercial service technicians on refrigeration, air conditioning and heat pump systems. Emphasis is placed on developing a thorough understanding of electrical and refrigeration theory through classroom and online experiences and practical application. Service, repair, and troubleshooting techniques are taught on late model equipment in a fully equipped training facility. Students are taught how to safely handle, store, and dispose of refrigerants according to EPA requirements, related to diagnostic, service, and repair procedures. Technical proficiency and competency are developed by using test and service equipment to improve diagnostic and repair techniques. This program is approved as an electrical specialty training school by the Washington State Department of Labor and Industries, Electrical

Section. This program is accredited by the Professional Service Association, a national appliance industry organization.

To earn an Associate of Applied Science Degree, the student must complete all requirements for the certificate program plus 20 credits of General Education. Transfer credit from other institutions will be considered upon validation of transcript and course work. Students holding a recent Certification of Completion from RTC should contact the Registrar for degree options.

#### **Program Learning Outcomes:**

- Practice industry safety standards for the installation and operation of all major appliance products.
- Select and properly use appropriate instruments, tools, and equipment.
- Utilize technology to access service and parts information.
- Demonstrate leadership, motivation, and problem solving skills in diverse and complex work situations.
- Communicate effectively in writing and verbally with customers, co-workers and supervisors.
- Diagnose and repair malfunctions on major appliance, home, residential and commercial refrigeration products.

#### **Program Requirements**

##### **Quarter 1**

- COL 101 - College Success *2 Credits*
- MART 111 - Industrial Direct Current (D-C) *3 Credits*
- MART 112 - Industrial Alternating Current (A-C) *3 Credits*
- WTD 109 - Safety, Tool and Equipment Certification *3 Credits*
- WTD 168 - Trades Math I *4 Credits*
- WTD 175 - Communications for the Trades *1 Credits*
- WTD 180 - Human Relations for the Trades *2 Credits*

##### **Quarter 2**

- AMATH 175S - Industrial Math for Thermodynamics *2 Credits*
- MART 123 - Diagnostic Techniques & Test Equipment *5 Credits*
- MART 125 - Electric Motors *2 Credits*
- MART 226 - Refrigeration Principles *4 Credits*

- MART 228 - EPA Regulations and Refrigerant Recovery *1 Credits*
- MART 230 - Brazing Principles and Techniques *5 Credits*
- MART 232 - Refrigeration Evacuation and Charging *2 Credits*

##### **Quarter 3**

- MART 237 - Commercial Refrigeration *5 Credits*
- MART 238 - HVAC Systems and Controls *3 Credits*
- MART 245 - Commercial Ice Machines *2 Credits*
- MART 251 - Light Commercial Refrigeration Service I *6 Credits*
- MART 252 - Light Commercial Refrigeration Service II *6 Credits*

#### **Course Requirements for AAS Degree**

##### **Quarter 4**

- MART 239 - Advanced HVAC Systems and Controls *5 Credits*

##### **Quarter 5**

- AMATH 185 - Applied Algebra for Business and Industry *5 Credits*
- *or* MATH& 107 - Math in Society *5 Credits*
- *or* MATH& 146 - Introduction to Statistics *5 Credits*
- CMST& 101 - Introduction to Communication *5 Credits*
- COMP 100 - Applied Composition *5 Credits*
- *or* ENGL& 101 - English Composition I *5 Credits*
- PSYC& 100 - General Psychology *5 Credits*

#### **Optional Courses**

- WHFRS 101 - Forklift Training *1 Credits*
- WHFRS 201 - Forklift Recertification *0 Credits*

#### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

### **Electrical Plant Maintenance Certificate**

**Certificate of Completion: 29 credits**

**Enrollment Point: See current Class Schedule**

This program is designed for plant and machine maintenance trainees. Students learn AC and DC theory, related math, and various types of electrical equipment. Students learn troubleshooting skills to prepare them to

diagnose and solve electrical problems in an industrial setting.

### Program Requirements

- ELECS 115 - Basic Electricity (Plant & Machine Maintenance Electrical I) *7 Credits*
- ELECS 116 - Plant & Machine Maintenance Electrical II *7 Credits*
- ELECS 117 - Plant & Machine Maintenance Electrical III *6 Credits*
- ELECS 118 - Plant & Machine Maintenance Electrical IV *6 Credits*

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**

## Engineering Design Technology Certificate

**Certificate of Completion: 45 credits**

**Enrollment Point: Fall, Winter or Spring Quarter**

This program is designed to provide entry-level skills for students seeking employment in the drafting profession as an architectural, structural, civil, or mechanical drafter. Students receive substantial training in drafting, design, and industrial practices building foundation with manual (board) techniques and CADD (Computer Aided Drafting) techniques. Application of building codes, with emphasis on standards used in commercial building design and aerospace manufacturing.

Students become familiar with document control procedures, and materials science and processes. Related instruction in mathematics, oral and written communications, employment skills, and basic computer/word processing are also provided. Ample time is devoted to hands-on instruction throughout the program.

To earn an Associate of Applied Science degree, the student must complete all requirements for the certificate program plus 45-49 credits of advanced program General Education and electives.

### Program Learning Outcomes:

- Utilize 2D and 3D CAD/BIM software, drawings, engineer's sketches, calculations, notes, building codes, and standards to produce civil, architectural, structural, and mechanical product information for a commercial building.
- Demonstrate job readiness through work ethic, a commitment to positive human relations,

diversity, inclusion, and equity in the workplace, and navigation of employment tasks.

### Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary. 45 core credits are required for certificate.

#### Quarter 1

- COL 101 - College Success *2 Credits*
- DFT 101 - Introduction to Drafting *3 Credits*
- AMATH 175J - Technical Mathematics for Advanced Manufacturing *5 Credits*
- COMP 100 - Applied Composition *5 Credits*
- *or* ENGL& 101 - English Composition I *5 Credits*

#### Quarter 2

- DFT 113 - Introduction to Computer Aided Design *5 Credits*
- DFT 117 - Introduction to BIM Applications *5 Credits*
- DFT 121 - Commercial Architecture *5 Credits*

#### Quarter 3

- DFT 115 - Structural Detailing *3 Credits*
- DFT 122 - Working with As-Builts *3 Credits*
- DFT 124 - Materials in Manufacturing and Construction *3 Credits*
- DFT 128 - Civil Drafting *4 Credits*
- DFT 185 - Job Readiness *2 Credits*

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Engineering Design Technology, AAS

**Associate of Applied Science Degree: 90-94 credits**

**Enrollment Point: Fall, Winter or Spring Quarter**

This program is designed to provide entry-level skills for students seeking employment in the drafting profession as an architectural, structural, civil, or mechanical drafter. Students receive substantial training in drafting, design, and industrial practices building foundation with manual (board) techniques and CADD (Computer Aided Drafting) techniques. Application of building codes, ANSI, ISO, and AIA standards is presented, with emphasis on standards used in commercial building design and aerospace manufacturing.



Students become familiar with document control procedures, and materials science and processes. Related instruction in mathematics, oral and written communications, human relations/business leadership, employment skills, and basic computer, word processing, and spreadsheet applications are also provided. Ample time is devoted to hands-on instruction throughout the program.

To earn an Associate of Applied Science degree, the student must complete all requirements for the certificate program plus 45-49 credits of advanced program courses, General Education and electives.

#### **Program Learning Outcomes:**

- Utilize 2D and 3D CAD/BIM software, drawings, engineer's sketches, calculations, notes, building codes, and standards to produce civil, architectural, structural, and mechanical product information for a commercial building.
- Produce Data Packages (DP's) that achieve full product definition for mechanical assemblies and parts using drawing-based definition and model-based definition.
- Apply mechanical design principles, mathematics, materials, and manufacturing process knowledge to design a mechanical assembly along a single digital thread.
- Organize and produce geometric & non-geometric product data using spreadsheet software, windows file organization, and cloud storage organization.
- Demonstrate job readiness through work ethic, a commitment to positive human relations, diversity, inclusion, and equity in the workplace, and navigation of employment tasks.

#### **Program Requirements**

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

##### **Quarter 1**

- COL 101 - College Success *2 Credits*
- DFT 101 - Introduction to Drafting *3 Credits*
- AMATH 175J - Technical Mathematics for Advanced Manufacturing *5 Credits*
- COMP 100 - Applied Composition *5 Credits*
- or ENGL& 101 - English Composition I *5 Credits*

##### **Quarter 2**

- DFT 113 - Introduction to Computer Aided Design *5 Credits*
- DFT 117 - Introduction to BIM Applications *5 Credits*
- DFT 121 - Commercial Architecture *5 Credits*

##### **Quarter 3**

- DFT 115 - Structural Detailing *3 Credits*
- DFT 122 - Working with As-Builts *3 Credits*
- DFT 124 - Materials in Manufacturing and Construction *3 Credits*
- DFT 128 - Civil Drafting *4 Credits*
- DFT 185 - Job Readiness *2 Credits*

#### **Course Requirements for AAS Degree**

- 25 Advanced Core Credits
- SOC&101, PSYC&100, or PSYC&200
- Five (5) Approved General Education Credits
- Ten (10) Approved Elective Credits

##### **Quarter 4**

- DFT 106 - Mechanical Drafting *5 Credits*
- DFT 154 - Software Applications for Drafting *2 Credits*
- DFT 201 - Geometric Dimensioning and Tolerancing *3 Credits*
- PSYC& 100 - General Psychology *5 Credits*
- or PSYC& 200 - Lifespan Psychology *5 Credits*
- or SOC& 101 - Introduction to Sociology *5 Credits*

##### **Quarter 5**

- DFT 213 - Parametric Modeling *5 Credits*
- Approved General Education Option (5 credits)
- Approved Elective Option (5-7 credits)

##### **Quarter 6**

- DFT 206 - Mechanical Design *5 Credits*
- DFT 215 - Model-Based Definition *2 Credits*
- DFT 295 - Engineering Design Technology Practicum *3 Credits*

#### **Approved Elective Option (5-7 credits)**

- DFT 294 - Engineering Design Technology Cooperative Education (optional) *5 Credits \**

*\*Students may take DFT 294 in place of DFT 295 and DFT 154. Instructor permission is required.*

#### **Approved General Education Courses**

- ANTH& 106 - American Mosaic *5 Credits*
- BIOL& 100 - Survey of Biology *5 Credits*

- BIOL& 160 - General Biology 5 Credits
- CMST& 101 - Introduction to Communication 5 Credits
- GEOL& 101 - Introduction to Physical Geology 5 Credits
- HUM& 101 - Introduction to Humanities 5 Credits
- NUTR& 101 - Human Nutrition 5 Credits
- POLS 150 - Contemporary World Issues 5 Credits
- PSYC& 200 - Lifespan Psychology 5 Credits

#### Approved Electives

- AMATH 185 - Applied Algebra for Business and Industry 5 Credits
- AMATH 190 - Financial Algebra 5 Credits
- DFT 111 - Engineering Static Analysis 5 Credits
- DFT 112 - Engineering Strength of Materials 5 Credits
- DFT 296 - Engineering Design Technology Internship 10 Credits \*
- MTEC 100 - Machining Essentials 7 Credits
- MTECS 186 - Advanced SolidWorks 3 Credits
- SURS 110 - Basic Surveying I 4 Credits
- WELD 102 - Oxyacetylene Welding and Brazing 7 Credits

*\*Students may take DFT 296 to receive 10 elective credits. Instructor permission is required.*

*\*\*DFT 111 and DFT 112 is required for the Mechanical Engineering Design Certificate but optional electives for the Engineering Design Technology AAS.*

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Field Surveying Technician Certificate

**Certificate of Completion: 40 credits**

**Enrollment Point: Fall, Winter, or Spring Quarter**

This program prepares students for work as a field surveying technician, starting with technician and advancing to crew chief. Students learn field survey techniques, calculation and office skills through extensive hands-on training using a variety of up-to-date instruments, including total stations with data collectors, hand-held calculators and computers. Group projects in the classroom and in the field develop both experience and leadership skills. Projects involve all aspects of work, from planning, measuring and presentation of results.

Transfer credit from other institutions will be considered upon validation of transcript and course work.

#### Program Learning Outcomes:

- Participate fully in field crew activities.
- Be an effective team member.
- Communicate effectively in written form.
- Solve applied math problems.
- Prepare complete field records.
- Participate fully in data processing.
- Practice professional code of ethics.

#### Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

##### Quarter 1

- COL 101 - College Success 2 Credits
- SUR 101 - Control Surveying 4 Credits
- SUR 174 - Office Computer Applications 2 Credits
- SUR 181 - Human Relations 2 Credits
- AMATH 179J - Basic Mathematics for Field Surveying 4 Credits

##### Quarter 2

- SUR 102 - Topographic Surveying 4 Credits
- SUR 145 - Public Land System I 3 Credits
- SUR 175 - Communications 3 Credits
- AMATH 189J - Intermediate Mathematics for Field Surveying 4 Credits

##### Quarter 3

- SUR 103 - Construction Surveying 4 Credits
- SUR 150 - CAD for Surveying I 4 Credits
- SUR 164 - Field Survey Calculations 4 Credits

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Industrial Engineering Certificate

**Certificate of Completion: 114 credits**

**Enrollment Point: Fall, Winter, Spring, or Summer Quarter**

This program is designed so students can enroll for mornings, afternoons, or evenings to better fit their work schedule. Instruction areas include electrical;



refrigeration; boiler operations; basic welding, brazing and pipe sweating; programmable logic controls; and mechanical maintenance. Students learn to maintain, troubleshoot and repair equipment for industrial environments such as coffee companies, bakeries, and breweries. An emphasis is placed on practical experience and hands-on training whenever possible. This program offers an Industrial Engineering Certificate of Completion and an Associate of Applied Science degree in Industrial Engineering.

To earn an Associate of Applied Science Degree, the student must complete all requirements for the certificate program plus 15 credits of General Education. Transfer credit from other institutions will be considered upon validation of transcript and course work.

#### **Program Learning Outcomes:**

- Apply mathematical principles to problems commonly faced by commercial building and industrial engineers.
- Communicate effectively in writing and verbally with co-workers, supervisors, and tenants.
- Exhibit the interpersonal and human relations skills necessary to fulfill the expectations of the employer.
- Gather and use information from a variety of architectural and mechanical prints, technical manuals, codes, and manufactures specifications.
- Maintain the integrity of building, fire and life safety systems.
- Operate, repair, maintain, and troubleshoot building, boiler, refrigeration and electrical control systems by properly using tools and technology.

#### **Program Requirements**

Please check the Quarterly Class Schedule for class availability.

- CBE 101 - Fundamentals of Electricity and Lab 6 *Credits*
- CBE 102 - Advanced Electrical and Lab 5 *Credits*
- CBE 103 - National Electrical Code 4 *Credits*
- CBE 104 - Computer Fundamentals and Lab 2 *Credits*
- CBE 105 - Boiler Operators 8 *Credits*
- CBE 106 - Boiler Lab 4 *Credits*
- CBE 107 - Refrigeration and A/C Fundamentals & Lab 6 *Credits*
- CBE 111 - Control Fundamentals 7 *Credits*
- CBE 112 - Pneumatic Controls and Lab 5 *Credits*

- CBE 113 - Preventive Maintenance and Lab 4 *Credits*
- CBE 115 - Refrigeration and A/C Systems 5 *Credits*
- CBE 116 - HVAC/Plumbing Distribution 4 *Credits*
- CBE 117 - Safety and Health 1 *Credits*
- CBE 118 - Critical Systems 4 *Credits*
- CBE 150 - Hazardous Waste Management 3 *Credits*
- CBE 170 - Communications for the Stationary Engineer 2 *Credits*
- CBE 180 - Human Relations and Leadership Skills 2 *Credits*
- CBE 190 - LEED® Green Building 4 *Credits*
- CBE 210 - Programmable Logic Controls - Allen-Bradley 3 *Credits*
- CBE 211 - Programmable Logic Controls - Siemens 3 *Credits*
- CBE 212 - Programmable Logic Controls I 4 *Credits*
- CBE 213 - Motor Control Principles and Lab 5 *Credits*
- CBE 214 - Mechanical Prints and Lab 6 *Credits*
- CBE 215 - Mechanical Maintenance and Lab 4 *Credits*
- CBE 216 - Welding Fundamentals and Lab 4 *Credits*
- CBE 218 - Programmable Logic Controls II 4 *Credits*
- AMATH 190 - Financial Algebra 5 *Credits*

#### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

### **Industrial Engineering, AAS**

**Associate of Applied Science Degree: 129 credits**

**Enrollment Point: Fall, Winter, Spring, or Summer Quarter**

This program is designed so students can enroll for mornings, afternoons, or evenings to better fit their work schedule. Instruction areas include electrical; refrigeration; boiler operations; basic welding, brazing and pipe sweating; programmable logic controls; and mechanical maintenance. Students learn to maintain, troubleshoot and repair equipment for industrial environments such as coffee companies, bakeries, and breweries. An emphasis is placed on practical experience and hands-on training whenever possible. This program offers an Industrial Engineering Certificate of Completion

and an Associate of Applied Science degree in Industrial Engineering.

To earn an Associate of Applied Science Degree, the student must complete all requirements for the certificate program plus 15 credits of General Education. Transfer credit from other institutions will be considered upon validation of transcript and course work.

#### **Program Learning Outcomes:**

- Apply mathematical principles to problems commonly faced by commercial building and industrial engineers.
- Communicate effectively in writing and verbally with co-workers, supervisors, and tenants.
- Exhibit the interpersonal and human relations skills necessary to fulfill the expectations of the employer.
- Gather and use information from a variety of architectural and mechanical prints, technical manuals, codes, and manufactures specifications.
- Maintain the integrity of building, fire and life safety systems.
- Operate, repair, maintain, and troubleshoot building, boiler, refrigeration and electrical control systems by properly using tools and technology.

#### **Program Requirements**

Please check the Quarterly Class Schedule for class availability.

- CBE 101 - Fundamentals of Electricity and Lab 6 *Credits*
- CBE 102 - Advanced Electrical and Lab 5 *Credits*
- CBE 103 - National Electrical Code 4 *Credits*
- CBE 104 - Computer Fundamentals and Lab 2 *Credits*
- CBE 105 - Boiler Operators 8 *Credits*
- CBE 106 - Boiler Lab 4 *Credits*
- CBE 107 - Refrigeration and A/C Fundamentals & Lab 6 *Credits*
- CBE 111 - Control Fundamentals 7 *Credits*
- CBE 112 - Pneumatic Controls and Lab 5 *Credits*
- CBE 113 - Preventive Maintenance and Lab 4 *Credits*
- CBE 115 - Refrigeration and A/C Systems 5 *Credits*
- CBE 116 - HVAC/Plumbing Distribution 4 *Credits*
- CBE 117 - Safety and Health 1 *Credits*
- CBE 118 - Critical Systems 4 *Credits*
- CBE 150 - Hazardous Waste Management 3 *Credits*

- CBE 170 - Communications for the Stationary Engineer 2 *Credits*
- CBE 180 - Human Relations and Leadership Skills 2 *Credits*
- CBE 190 - LEED® Green Building 4 *Credits*
- CBE 210 - Programmable Logic Controls - Allen-Bradley 3 *Credits*
- CBE 211 - Programmable Logic Controls - Siemens 3 *Credits*
- CBE 212 - Programmable Logic Controls I 4 *Credits*
- CBE 213 - Motor Control Principles and Lab 5 *Credits*
- CBE 214 - Mechanical Prints and Lab 6 *Credits*
- CBE 215 - Mechanical Maintenance and Lab 4 *Credits*
- CBE 216 - Welding Fundamentals and Lab 4 *Credits*
- CBE 218 - Programmable Logic Controls II 4 *Credits*
- AMATH 190 - Financial Algebra 5 *Credits*

#### **Course Requirements for AAS Degree**

- CMST& 101 - Introduction to Communication 5 *Credits*
- COMP 100 - Applied Composition 5 *Credits*
- *or* ENGL& 101 - English Composition I 5 *Credits*
- PSYC& 100 - General Psychology 5 *Credits*

#### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

### **Land Surveying Technician - Geospatial Science, AAS**

**Associate of Applied Science Degree: 97 credits**

**Enrollment Point: Fall, Winter, or Spring Quarter (Fall preferred).** Consult program instructor or counselor for details.

This three-quarter program is a follow-on to the Field Surveying Technician certificate program. This program emphasizes professional land surveying practices to enable graduates to continue their careers toward their Professional Land Surveyor licenses. Students train on the industry's most popular software for survey reduction, coordinate geometry and drafting. This is an online program adaptable to on-ground instruction, with special time set aside for in-person labs and on-campus proctored tests.

To earn a Land Surveying - Geospatial Science Associate of Applied Science Degree, the student must complete all requirements for the Land Surveying Technician certificate program plus all requirements for the Field Surveying Technician certificate program and 15 credits of General Education. The General Education requirements are listed below.

Transfer credit from other institutions is considered upon validation of transcript and course work.

#### **Program Learning Outcomes:**

- Participate fully in field crew activities.
- Be an effective team member.
- Communicate effectively in written form.
- Solve applied math problems.
- Prepare complete field records.
- Participate fully in data processing.
- Practice professional code of ethics.

#### **Program Requirements**

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

##### **Quarter 1**

- SUR 205 - Survey Adjustments *3 Credits*
- SUR 245 - Public Land System II *5 Credits*
- SUR 255 - Global Navigation Satellite Systems *3 Credits*
- SUR 257 - Geodetic Surveying *4 Credits*

##### **Quarter 2**

- SUR 235 - Boundary Law *4 Credits*
- SUR 247 - Emerging Technologies *3 Credits*
- SUR 251 - Advanced Computer Applications *5 Credits*
- SUR 281 - Business Fundamentals and Ethics *2 Credits*

##### **Quarter 3**

- SUR 242 - Legal Descriptions *4 Credits*
- SUR 248 - Introduction to Geographic Information Systems *3 Credits*
- SUR 249 - Survey Research and Project Planning *3 Credits*
- SUR 256 - Land Development *3 Credits*

#### **Additional Requirements for AAS Degree**

- Field Surveying Technician Certificate - 40 credits

#### **General Education Course Requirements for AAS Degree**

Renton Technical College

- CMST& 101 - Introduction to Communication *5 Credits*
- COMP 100 - Applied Composition *5 Credits*
- *or* ENGL& 101 - English Composition I *5 Credits*
- PSYC& 100 - General Psychology *5 Credits*

#### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each Certificate of Completion course: **2.0**
- Minimum grade for all other courses: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

### **Land Surveying Technician Certificate**

#### **Certificate of Completion: 42 credits**

**Enrollment Point: Fall, Winter, or Spring Quarter (Fall preferred).** Consult program instructor or counselor for details.

This three-quarter program is a follow-on to the Field Surveying Technician certificate program. This program emphasizes professional land surveying practices to enable graduates to continue their careers toward their Professional Land Surveyor licenses. Students train on the industry's most popular software for survey reduction, coordinate geometry and drafting. This is an online program adaptable to on-ground instruction, with special time set aside for in-person labs and on-campus proctored tests.

To earn a Land Surveying - Geospatial Science Associate of Applied Science Degree, the student must complete all requirements for the Land Surveying Technician certificate program plus all requirements for the Field Surveying Technician certificate program and 15 credits of General Education.

Transfer credit from other institutions is considered upon validation of transcript and course work.

#### **Program Learning Outcomes:**

- Participate fully in field crew activities.
- Be an effective team member.
- Communicate effectively in written form.
- Solve applied math problems.
- Prepare complete field records.
- Participate fully in data processing.
- Practice professional code of ethics.

#### **Program Requirements**

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

#### Quarter 1

- SUR 205 - Survey Adjustments *3 Credits*
- SUR 245 - Public Land System II *5 Credits*
- SUR 255 - Global Navigation Satellite Systems *3 Credits*
- SUR 257 - Geodetic Surveying *4 Credits*

#### Quarter 2

- SUR 235 - Boundary Law *4 Credits*
- SUR 247 - Emerging Technologies *3 Credits*
- SUR 251 - Advanced Computer Applications *5 Credits*
- SUR 281 - Business Fundamentals and Ethics *2 Credits*

#### Quarter 3

- SUR 242 - Legal Descriptions *4 Credits*
- SUR 248 - Introduction to Geographic Information Systems *3 Credits*
- SUR 249 - Survey Research and Project Planning *3 Credits*
- SUR 256 - Land Development *3 Credits*

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Machining Technologies Certificate

**Certificate of Completion: 83 credits**

**Enrollment Point: Fall, Winter, or Spring Quarter**

These machining programs are designed to help students acquire and develop skills necessary to work in the manufacturing industry. The programs integrate theory and practical applications in a fully equipped machine shop facility.

In the six-quarter Machining Technologies program, students study machining processes and procedures, properties of metals, blueprint reading, applied math, inspection techniques, and the operation of Computer Numerical Control (CNC) machines. The CNC equipment includes vertical and horizontal machining centers as well as CNC lathes.

Transfer credit from other institutions will be considered upon validation of transcript and course work. Students holding a recent Certificate of Completion from RTC should contact the Registrar for degree options.

This program articulates with Tech Prep programs through the Puget Sound Dual Credit Career Consortium.

#### Program Learning Outcomes:

- Practice safe work standards expected in a machine shop environment.
- Solve problems to carry out manufacturing tasks in a timely and efficient manner.
- Apply the principles of mathematics, precision measurement and machining, and blueprint reading to the production of parts and tools to industry standards.
- Select and properly use appropriate instruments, tools, and equipment for machining operations.
- Demonstrate professionalism in all aspects of work, including attendance, interaction with co-workers and supervisors, appearance, and demeanor.
- Communicate effectively in writing and verbally with co-workers and supervisors.
- Work effectively in a multicultural, team environment and demonstrate good conflict resolution skills.

#### Program Requirements

##### Quarter 1

- COL 101 - College Success *2 Credits*
- MTEC 100 - Machining Essentials *7 Credits*
- MTEC 161 - Math for Manufacturing *4 Credits*
- MTEC 171 - Communications *1 1 Credits*
- MTEC 185 - Human Relations *2 Credits*
- BAST 091 - Oral Communications for College and Career *5 Credits (optional)*
- BAST 092 - Math for Technical Careers *5 Credits (optional)*

##### Quarter 2

- AMATH 176S - Math for Machine Technology *1 5 Credits*
- MTEC 101 - Machine Technology *1 2 Credits*
- MTEC 111 - Blueprint Reading *1 2 Credits*
- MTEC 121 - Machining Fundamentals - Lathe and Mill *8 Credits*
- MTEC 172 - Communications *2 1 Credits*

##### Quarter 3

- AMATH 186S - Math for Machine Technology 2 5 Credits
- MTEC 103 - Machine Technology 2 2 Credits
- MTEC 113 - Blueprint Reading 2 2 Credits
- MTEC 231 - CNC Mill Set Up and Operation 8 Credits

#### Quarter 4

- MTEC 105 - Machine Technology 3 2 Credits
- MTEC 140 - Geometric Dimensioning and Tolerancing 1 2 Credits
- MTEC 232 - CNC Lathe Set Up and Operation 8 Credits

#### Quarter 5

- MTEC 141 - Geometric Dimensioning and Tolerancing 2 4 Credits
- MTEC 173 - Communications 3 1 Credits
- MTEC 236 - Machining Projects 8 Credits

#### Quarter 6

- MTEC 220 - Hazardous Materials 1 Credits
- MTEC 237 - Materials Science 5 Credits
- MTEC 240 - Manufacturing Trends 1 Credits

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Machining Technologies, AAS

**Associate of Applied Science Degree: 98 credits**

**Enrollment Point: Fall, Winter, or Spring Quarter**

These machining programs are designed to help students acquire and develop skills necessary to work in the manufacturing industry. The programs integrate theory and practical applications in a fully equipped machine shop facility.

In the six-quarter Machining Technologies program, students study machining processes and procedures, properties of metals, blueprint reading, applied math, inspection techniques, and the operation of Computer Numerical Control (CNC) machines. The CNC equipment includes vertical and horizontal machining centers as well as CNC lathes.

Transfer credit from other institutions will be considered upon validation of transcript and course work. Students holding a recent Certificate of Completion from RTC should contact the Registrar for degree options.

Renton Technical College

This program articulates with Tech Prep programs through the Puget Sound Dual Credit Career Consortium.

#### Program Learning Outcomes:

- Practice safe work standards expected in a machine shop environment.
- Solve problems to carry out manufacturing tasks in a timely and efficient manner.
- Apply the principles of mathematics, precision measurement and machining, and blueprint reading to the production of parts and tools to industry standards.
- Select and properly use appropriate instruments, tools, and equipment for machining operations.
- Demonstrate professionalism in all aspects of work, including attendance, interaction with co-workers and supervisors, appearance, and demeanor.
- Communicate effectively in writing and verbally with co-workers and supervisors.
- Work effectively in a multicultural, team environment and demonstrate good conflict resolution skills.

#### Program Requirements

##### Quarter 1

- COL 101 - College Success 2 Credits
- MTEC 100 - Machining Essentials 7 Credits
- MTEC 161 - Math for Manufacturing 4 Credits
- MTEC 171 - Communications 1 1 Credits
- MTEC 185 - Human Relations 2 Credits
- BAST 091 - Oral Communications for College and Career 5 Credits (optional)
- BAST 092 - Math for Technical Careers 5 Credits (optional)

##### Quarter 2

- AMATH 176S - Math for Machine Technology 1 5 Credits
- MTEC 101 - Machine Technology 1 2 Credits
- MTEC 111 - Blueprint Reading 1 2 Credits
- MTEC 121 - Machining Fundamentals - Lathe and Mill 8 Credits
- MTEC 172 - Communications 2 1 Credits

##### Quarter 3

- AMATH 186S - Math for Machine Technology 2 5 Credits
- MTEC 103 - Machine Technology 2 2 Credits
- MTEC 113 - Blueprint Reading 2 2 Credits



- MTEC 231 - CNC Mill Set Up and Operation 8 Credits

#### Quarter 4

- MTEC 105 - Machine Technology 3 2 Credits
- MTEC 140 - Geometric Dimensioning and Tolerancing 1 2 Credits
- MTEC 232 - CNC Lathe Set Up and Operation 8 Credits

#### Quarter 5

- MTEC 141 - Geometric Dimensioning and Tolerancing 2 4 Credits
- MTEC 173 - Communications 3 1 Credits
- MTEC 236 - Machining Projects 8 Credits

#### Quarter 6

- MTEC 220 - Hazardous Materials 1 Credits
- MTEC 237 - Materials Science 5 Credits
- MTEC 240 - Manufacturing Trends 1 Credits

#### Course Requirements for AAS Degree

- CMST& 101 - Introduction to Communication 5 Credits
- COMP 100 - Applied Composition 5 Credits
- or ENGL& 101 - English Composition I 5 Credits
- PSYC& 100 - General Psychology 5 Credits

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each Certificate of Completion course: **2.0**
- Minimum grade for all other courses: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Major Appliance & Refrigeration Technology Certificate

**Certificate of Completion: 60 credits**

**Enrollment Point: Fall, Winter or Spring Quarter**

This program offers practical technical training in the repair and troubleshooting of all major appliances. Instruction is designed to duplicate conditions and requirements experienced by a technician working in the field. Emphasis is placed on developing a thorough understanding of electrical, mechanical, and refrigeration theory through classroom experiences and practical application. Proficiency is developed by using test equipment to improve diagnostic and repair techniques. Students are introduced to all aspects of the industry

including parts procurement, work order/parts development, and industrial communications. This program is approved as an electrical specialty training school for Appliance Repair (07D) by the Washington State Department of Labor and Industries, Electrical Section. This program is accredited by the Professional Service Association, a national appliance industry organization.

To earn an Associate of Applied Science Degree, the student must complete all requirements for the advanced certificate program plus 20 credits of General Education. The General Education requirements are listed below. Transfer credit from other institutions will be considered upon validation of transcript and course work. Students holding a recent *Certificate of Completion* from RTC should contact the Registrar for degree options.

#### Program Learning Outcomes:

- Practice industry safety standards for the installation and operation of all major appliance products.
- Select and properly use appropriate instruments, tools, and equipment.
- Utilize technology to access service and parts information.
- Demonstrate leadership, motivation, and problem solving skills in diverse and complex work situations.
- Communicate effectively in writing and verbally with customers, co-workers and supervisors.
- Diagnose and repair malfunctions on major appliance, home, residential and commercial refrigeration products.

#### Program Requirements

##### Quarter 1

- COL 101 - College Success 2 Credits
- WTD 109 - Safety, Tool and Equipment Certification 3 Credits
- WTD 168 - Trades Math I 4 Credits
- WTD 175 - Communications for the Trades 1 Credits
- WTD 180 - Human Relations for the Trades 2 Credits
- MART 111 - Industrial Direct Current (D-C) 3 Credits
- MART 112 - Industrial Alternating Current (A-C) 3 Credits

##### Quarter 2

- MART 123 - Diagnostic Techniques & Test Equipment *5 Credits*
- MART 125 - Electric Motors *2 Credits*
- MART 143 - Dishwashers *5 Credits*
- MART 204 - Automatic Washers *5 Credits*
- MART 217 - Clothes Dryers *5 Credits*

### Quarter 3

- MART 222 - Cooking Equipment *5 Credits*
- MART 226 - Refrigeration Principles *4 Credits*
- MART 228 - EPA Regulations and Refrigerant Recovery *1 Credits*
- MART 230 - Brazing Principles and Techniques *5 Credits*
- MART 234 - Domestic Refrigeration Servicing *5 Credits*

### Optional Courses

- WHFRS 101 - Forklift Training *1 Credits*
- WHFRS 201 - Forklift Recertification *0 Credits*

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Major Appliance & Refrigeration Technology, AAS

**Associate of Applied Science Degree: 94 credits**

**Enrollment Point: Fall, Winter or Spring Quarter**

This program offers practical technical training in the repair and troubleshooting of all major appliances. Instruction is designed to duplicate conditions and requirements experienced by a technician working in the field. Emphasis is placed on developing a thorough understanding of electrical, mechanical, and refrigeration theory through classroom experiences and practical application. Proficiency is developed by using test equipment to improve diagnostic and repair techniques. Students are introduced to all aspects of the industry including parts procurement, work order/parts development, and industrial communications. This program is approved as an electrical specialty training school for Appliance Repair (07D) by the Washington State Department of Labor and Industries, Electrical Section. This program is accredited by the Professional Service Association, a national appliance industry organization.

To earn an Associate of Applied Science Degree, the student must complete all requirements for the advanced certificate program plus 20 credits of General Education. The General Education requirements are listed below. Transfer credit from other institutions will be considered upon validation of transcript and course work. Students holding a recent *Certificate of Completion* from RTC should contact the Registrar for degree options.

### Program Learning Outcomes:

- Practice industry safety standards for the installation and operation of all major appliance products.
- Select and properly use appropriate instruments, tools, and equipment.
- Utilize technology to access service and parts information.
- Demonstrate leadership, motivation, and problem solving skills in diverse and complex work situations.
- Communicate effectively in writing and verbally with customers, co-workers and supervisors.
- Diagnose and repair malfunctions on major appliance, home, residential and commercial refrigeration products.

### Program Requirements

#### Quarter 1

- COL 101 - College Success *2 Credits*
- WTD 109 - Safety, Tool and Equipment Certification *3 Credits*
- WTD 168 - Trades Math I *4 Credits*
- WTD 175 - Communications for the Trades *1 Credits*
- WTD 180 - Human Relations for the Trades *2 Credits*
- MART 111 - Industrial Direct Current (D-C) *3 Credits*
- MART 112 - Industrial Alternating Current (A-C) *3 Credits*

#### Quarter 2

- MART 123 - Diagnostic Techniques & Test Equipment *5 Credits*
- MART 125 - Electric Motors *2 Credits*
- MART 143 - Dishwashers *5 Credits*
- MART 204 - Automatic Washers *5 Credits*
- MART 217 - Clothes Dryers *5 Credits*

#### Quarter 3

- MART 222 - Cooking Equipment *5 Credits*



- MART 226 - Refrigeration Principles *4 Credits*
- MART 228 - EPA Regulations and Refrigerant Recovery *1 Credits*
- MART 230 - Brazing Principles and Techniques *5 Credits*
- MART 234 - Domestic Refrigeration Servicing *5 Credits*

### Course Requirements for AAS Degree

#### Quarter 4

- MART 223 - Advanced Cooking Equipment *5 Credits*
- MART 235 - Window Air and Wall AC/HP Servicing *4 Credits*
- MART 236 - Advanced Refrigeration *5 Credits*

#### Quarter 5

- AMATH 185 - Applied Algebra for Business and Industry *5 Credits*
- *or* MATH& 107 - Math in Society *5 Credits*
- *or* MATH& 146 - Introduction to Statistics *5 Credits*
- CMST& 101 - Introduction to Communication *5 Credits*

#### Quarter 6

- COMP 100 - Applied Composition *5 Credits*
- *or* ENGL& 101 - English Composition I *5 Credits*
- PSYC& 100 - General Psychology *5 Credits*

### Optional Courses

- WHFRS 101 - Forklift Training *1 Credits*
- WHFRS 201 - Forklift Recertification *0 Credits*

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Manufacturing Assembly Certificate

**Certificate of Completion: 29 credits**

**Enrollment Point: Fall, Winter or Spring Quarter**

This program prepares students or incumbent workers for careers in production and fabrication in lean industrial and technologically advanced environments, with a focus on aerospace tooling and assembly. Students will learn proper fabrication techniques as well as material handling and trade specific machine and hand tool use. This course includes the evaluation of student comprehension in

lecture, fabrication techniques and specialized equipment use from one lesson to the next. Students will learn to read and interpret engineering drawings to fabricate various parts or tools. Self-inspection and quality assurance standards are contextualized throughout the program, insuring critical thinking and just-in-time evaluative practices. Tooling Fabrication techniques and precision measurement are followed by applied training in advanced metrology, aircraft assemblies drilling and riveting structures fundamentals in numerous manufacturing environments.

### Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary. Quarter 2 and Quarter 3 alternate every quarter.

#### Quarter 1

- COL 101 - College Success *2 Credits*
- MTEC 100 - Machining Essentials *7 Credits*
- MTEC 161 - Math for Manufacturing *4 Credits*
- MTEC 171 - Communications 1 *1 Credits*
- MTEC 185 - Human Relations *2 Credits*
- BAST 091 - Oral Communications for College and Career *5 Credits (optional)*
- BAST 092 - Math for Technical Careers *5 Credits (optional)*

#### Quarter 2

- IPT 103 - Quality Control *2 Credits*
- IPT 104 - Intro to Aircraft Structures *3 Credits*

#### Quarter 3

- IPT 102 - Lean Manufacturing *3 Credits*
- IPT 105 - Intro to Fabrication *5 Credits*

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Manufacturing Tooling Certificate

**Certificate of Completion: 31 credits**

**Enrollment Point: Fall, Winter or Spring Quarter**

This program prepares students or incumbent workers for careers in production and fabrication in lean industrial and technologically advanced environments, with a focus on aerospace tooling and assembly. Students will learn

proper fabrication techniques as well as material handling and trade specific machine and hand tool use. This course includes the evaluation of student comprehension in lecture, fabrication techniques and specialized equipment use from one lesson to the next. Students will learn to read and interpret engineering drawings to fabricate various parts or tools. Self-inspection and quality assurance standards are contextualized throughout the program, insuring critical thinking and just-in-time evaluative practices. Tooling Fabrication techniques and precision measurement are followed by applied training in advanced metrology, aircraft assemblies drilling and riveting structures fundamentals in numerous manufacturing environments.

### Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary. Quarter 2 and Quarter 3 alternate every quarter.

#### Quarter 1

- COL 101 - College Success 2 *Credits*
- MTEC 100 - Machining Essentials 7 *Credits*
- MTEC 161 - Math for Manufacturing 4 *Credits*
- MTEC 171 - Communications 1 1 *Credits*
- MTEC 185 - Human Relations 2 *Credits*
- BAST 091 - Oral Communications for College and Career 5 *Credits* (optional)
- BAST 092 - Math for Technical Careers 5 *Credits* (optional)

#### Quarter 2

- IPT 218 - Introduction to Production 5 *Credits*
- IPT 219 - Service Life Evaluation Program 2 *Credits*

#### Quarter 3

- IPT 220 - Precision Fabrication 3 *Credits*
- IPT 221 - Intro to Measurement 3 *Credits*
- IPT 222 - Advanced Measurement 2 *Credits*

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Mechanical Engineering Technology Certificate

**Certificate of Completion: 39 credits**

Renton Technical College

### Enrollment Point: Fall Quarter

This program prepares students for entering the mechanical design profession, working for manufacturing and product development companies close to mechanical engineering and design of products like planes, cars, heavy machinery, consumer products and pretty much anything you can think of that assembles. Students take classes at night so that they can work during the day. When students are finished with the program, they will be able to create complete product data packages according to ASME, ANSI, and ISO standards of drawings and models using industry standard modeling tools that most of the major manufacturing companies are using.

Students will learn how to create drawings, mechanical part and assembly models, fully define models without drawings, and design using mechanical design engineering theory and concepts. Students will also learn how to use material information and mathematics to analyze mechanical designs and provide proof of concepts.

### Program Learning Outcomes:

- Produce Data Packages (DP's) that achieve full product definition for mechanical assemblies and parts using drawing-based definition and model-based definition.
- Apply mechanical design principles, mathematics, materials, and manufacturing process knowledge to design a mechanical assembly along a single digital thread.
- Organize and produce geometric & non-geometric product data using spreadsheet software, windows file organization, and cloud storage organization.

### Program Requirements

Below is the course sequence for students who enter in Fall (Evening) Quarter. The course sequence for other entry points may vary.

#### Quarter 1

- COL 101 - College Success 2 *Credits*
- DFT 106 - Mechanical Drafting 5 *Credits*
- DFT 201 - Geometric Dimensioning and Tolerancing 3 *Credits*

#### Quarter 2

- DFT 213 - Parametric Modeling 5 *Credits*
- AMATH 175J - Technical Mathematics for Advanced Manufacturing 5 *Credits*

### Quarter 3

- DFT 154 - Software Applications for Drafting 2 Credits
- DFT 206 - Mechanical Design 5 Credits
- DFT 215 - Model-Based Definition 2 Credits

### Quarter 4

- DFT 111 - Engineering Static Analysis 5 Credits
- DFT 112 - Engineering Strength of Materials 5 Credits

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Mechatronics Certificate

**Certificate of Completion: 44 credits**

**Enrollment Point: Fall, Winter or Spring Quarter**

This program prepares students or incumbent workers for careers in electrical, mechanical, manufacturing, automation, and robotics maintenance in lean industrial and technologically advanced environments, with a focus on mechatronics and advanced manufacturing. Students will learn proper techniques as well as material handling and trade specific machine use. This course includes the evaluation of student comprehension in lecture, manufacturing techniques and specialized equipment use from one lesson to the next. Students will learn to read and interpret blueprints and schematic drawings to various industry parts or tools. Self-inspection and quality assurance standards are contextualized throughout the program, insuring critical thinking and just-in-time evaluative practices. Machining essentials and preventive maintenance intelligence are followed by applied training in advanced manufacturing, electrical, robotics, and mechanical and production fundamentals in numerous industrial environments.

### Program Learning Outcomes:

- Practice industry-standard, safe work habits in an industrial production environment.
- Communicate effectively verbally and in writing with co-workers and supervisors.
- Use mathematical concepts to accurately complete industrial production projects.
- Identify and properly use appropriate instruments, tools and equipment for aerospace or industrial production.

- Interpret measurements, blueprints and other data points to solve problems and manage control systems in advanced manufacturing.
- Demonstrate professionalism in all aspects of work, including attendance, interactions, appearance and demeanor.

### Program Requirements

#### Quarter 1

- COL 101 - College Success 2 Credits
- MEC 102 - Industrial Direct Current 3 Credits
- MEC 103 - Industrial Alternating Current 3 Credits
- WTD 109 - Safety, Tool and Equipment Certification 3 Credits
- WTD 168 - Trades Math I 4 Credits
- WTD 175 - Communications for the Trades 1 Credits
- WTD 180 - Human Relations for the Trades 2 Credits

#### Selection of Courses (26 credits required)

Please check the Quarterly Class Schedule for class availability.

- MEC 101 - Machining Essentials 4 Credits
- MEC 104 - Pneumatics and Hydraulics Controls 5 Credits
- MEC 105 - Programmable Logic Controls - Allen Bradley 3 Credits
- MEC 106 - Mechanical Prints and Lab 5 Credits
- MEC 107 - Mechanical Maintenance and Lab 5 Credits
- MEC 109 - Programmable Logic Controls - Siemens 3 Credits
- MEC 111 - Programmable Logic Controls I 4 Credits
- MEC 113 - Programmable Logic Controls II 4 Credits
- MEC 201 - Computer Fundamentals and Lab 2 Credits
- MEC 202 - Preventive Maintenance and Lab 4 Credits
- MEC 203 - Robotics - Mechatronics 5 Credits
- MEC 204 - Motor Control Principles and Lab 5 Credits
- MEC 205 - Welding Fundamentals 4 Credits

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**

- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## **Mechatronics, AAS**

**Associate of Applied Science Degree: 91 credits**

**Enrollment Point: Fall, Winter or Spring Quarter**

This program prepares students or incumbent workers for careers in electrical, mechanical, manufacturing, automation, and robotics maintenance in lean industrial and technologically advanced environments, with a focus on mechatronics and advanced manufacturing. Students will learn proper techniques as well as material handling and trade specific machine use. This course includes the evaluation of student comprehension in lecture, manufacturing techniques and specialized equipment use from one lesson to the next. Students will learn to read and interpret blueprints and schematic drawings to various industry parts or tools. Self-inspection and quality assurance standards are contextualized throughout the program, insuring critical thinking and just-in-time evaluative practices. Machining essentials and preventive maintenance intelligence are followed by applied training in advanced manufacturing, electrical, robotics, and mechanical and production fundamentals in numerous industrial environments.

### **Program Learning Outcomes:**

- Practice industry-standard, safe work habits in an industrial production environment.
- Communicate effectively verbally and in writing with co-workers and supervisors.
- Use mathematical concepts to accurately complete industrial production projects.
- Identify and properly use appropriate instruments, tools and equipment for aerospace or industrial production.
- Interpret measurements, blueprints and other data points to solve problems and manage control systems in advanced manufacturing.
- Demonstrate professionalism in all aspects of work, including attendance, interactions, appearance and demeanor.

### **Program Requirements**

#### **Quarter 1**

- COL 101 - College Success 2 Credits
- MEC 102 - Industrial Direct Current 3 Credits
- MEC 103 - Industrial Alternating Current 3 Credits
- WTD 109 - Safety, Tool and Equipment Certification 3 Credits

- WTD 168 - Trades Math I 4 Credits
- WTD 175 - Communications for the Trades 1 Credits
- WTD 180 - Human Relations for the Trades 2 Credits

### **Additional Course Requirements**

Please check the Quarterly Class Schedule for class availability.

- MEC 101 - Machining Essentials 4 Credits
- MEC 104 - Pneumatics and Hydraulics Controls 5 Credits
- MEC 105 - Programmable Logic Controls - Allen Bradley 3 Credits
- MEC 106 - Mechanical Prints and Lab 5 Credits
- MEC 107 - Mechanical Maintenance and Lab 5 Credits
- MEC 109 - Programmable Logic Controls - Siemens 3 Credits
- MEC 111 - Programmable Logic Controls I 4 Credits
- MEC 113 - Programmable Logic Controls II 4 Credits
- MEC 201 - Computer Fundamentals and Lab 2 Credits
- MEC 202 - Preventive Maintenance and Lab 4 Credits
- MEC 203 - Robotics - Mechatronics 5 Credits
- MEC 204 - Motor Control Principles and Lab 5 Credits
- MEC 205 - Welding Fundamentals 4 Credits

### **General Education Course Requirements**

- AMATH 185 - Applied Algebra for Business and Industry 5 Credits
- or MATH& 107 - Math in Society 5 Credits
- or MATH& 146 - Introduction to Statistics 5 Credits
- CMST& 101 - Introduction to Communication 5 Credits
- COMP 100 - Applied Composition 5 Credits
- or ENGL& 101 - English Composition I 5 Credits
- PSYC& 100 - General Psychology 5 Credits

### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Property Maintenance for Multi-Family Residences Certificate

**Certificate of Completion: 18 credits**

**Enrollment Point: Fall, Winter or Spring Quarter**

Students gain skills necessary to secure positions in property maintenance for multi-family residences. Students can enroll for the quarter to receive a certificate of completion or enroll in particular components of interest for skills upgrades. Training components include: safety and emergency procedures; painting and drywall repairs; maintaining an attractive outdoor environment; basic electrical theory, repairs and replacements; basic plumbing repairs and replacements; basic appliance repairs; customer service; First Aid; and job search skills.

Students who are incumbent workers are encouraged to take optional courses in this program, and continue into the Leadership in the Trades program upon completion of this certificate.

### Program Learning Outcomes:

- Communicate professionally to represent company values, solve problems, resolve conflicts and provide assistance while responding to service requests in occupied units and working in public spaces.
- Demonstrate safe work practices in the property maintenance environment.
- Apply appropriate property maintenance techniques in carpentry, plumbing, electrical work, drywall, painting, flooring appliance repair and grounds keeping.
- Assess deficiencies in vacated units and determine steps to take to make unit ready for new occupant.
- Analyze resident maintenance complaints to determine the best process to resolve problems.

### Program Requirements

#### Fall Quarter

- MEC 201 - Computer Fundamentals and Lab 2 *Credits*
- PROP 102 - Professionalism in Property Maintenance *1 Credits*
- PROP 104 - Basic Plumbing Repairs *3 Credits*

#### Winter Quarter

- PROP 112 - Basic Electrical Repairs *6 Credits*

#### Spring Quarter

- PROP 122 - Painting and Drywall Repairs *6 Credits*
- PROP 196 - Cooperative Work Experience (Optional) *2 Credits (optional)*
- BLRS 110 - Boiler Operator Licensing Class 3 & 4 *8 Credits (optional)*
- ELECS 115 - Basic Electricity (Plant & Machine Maintenance Electrical I) *7 Credits (optional)*

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Stationary Engineering Certificate

**Certificate of Completion: 81 credits**

**Enrollment Point: Fall, Winter, Spring, or Summer Quarter**

This program prepares students for entry level positions to regulate and maintain equipment such as boilers, chillers, heat pumps, generators, and turbines used in large buildings to supply heat, air conditioning, ventilation or power. This training program also prepares students to pass boiler operator licensing and refrigeration licensing tests.

To earn an Associate of Applied Science Degree, the student must complete all requirements for the certificate program plus 15 credits of General Education. The General Education requirements are listed below. Transfer credit from other institutions will be considered upon validation of transcript and course work.

### Program Learning Outcomes:

- Apply mathematical principles to problems commonly faced by stationary engineers.
- Communicate effectively in writing and verbally with co-workers, supervisors, and tenants.
- Exhibit the interpersonal and human relations skills necessary to fulfill the expectations of the employer.
- Gather and use information from a variety of architectural and mechanical prints, technical manuals, codes, and manufactures specifications.
- Maintain the integrity of building, fire and life safety systems.
- Operate, repair, maintain, and troubleshoot building, boiler, refrigeration and electrical



control systems by properly using tools and technology.

### Program Requirements

Please check the Quarterly Class Schedule for class availability.

- CBE 101 - Fundamentals of Electricity and Lab 6 *Credits*
- CBE 102 - Advanced Electrical and Lab 5 *Credits*
- CBE 103 - National Electrical Code 4 *Credits*
- CBE 104 - Computer Fundamentals and Lab 2 *Credits*
- CBE 105 - Boiler Operators 8 *Credits*
- CBE 106 - Boiler Lab 4 *Credits*
- CBE 107 - Refrigeration and A/C Fundamentals & Lab 6 *Credits*
- CBE 111 - Control Fundamentals 7 *Credits*
- CBE 112 - Pneumatic Controls and Lab 5 *Credits*
- CBE 113 - Preventive Maintenance and Lab 4 *Credits*
- CBE 115 - Refrigeration and A/C Systems 5 *Credits*
- CBE 116 - HVAC/Plumbing Distribution 4 *Credits*
- CBE 117 - Safety and Health 1 *Credits*
- CBE 118 - Critical Systems 4 *Credits*
- CBE 150 - Hazardous Waste Management 3 *Credits*
- CBE 170 - Communications for the Stationary Engineer 2 *Credits*
- CBE 180 - Human Relations and Leadership Skills 2 *Credits*
- CBE 190 - LEED® Green Building 4 *Credits*
- AMATH 190 - Financial Algebra 5 *Credits*

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Stationary Engineering, AAS

**Associate of Applied Science Degree: 96 credits**

**Enrollment Point: Fall, Winter, Spring, or Summer Quarter**

This program prepares students for entry level positions to regulate and maintain equipment such as boilers, chillers, heat pumps, generators, and turbines used in large buildings to supply heat, air conditioning, ventilation or power. This training program also prepares

students to pass boiler operator licensing and refrigeration licensing tests.

To earn an Associate of Applied Science Degree, the student must complete all requirements for the certificate program plus 15 credits of General Education. The General Education requirements are listed below. Transfer credit from other institutions will be considered upon validation of transcript and course work.

### Program Learning Outcomes:

- Apply mathematical principles to problems commonly faced by stationary engineers.
- Communicate effectively in writing and verbally with co-workers, supervisors, and tenants.
- Exhibit the interpersonal and human relations skills necessary to fulfill the expectations of the employer.
- Gather and use information from a variety of architectural and mechanical prints, technical manuals, codes, and manufactures specifications.
- Maintain the integrity of building, fire and life safety systems.
- Operate, repair, maintain, and troubleshoot building, boiler, refrigeration and electrical control systems by properly using tools and technology.

### Program Requirements

Please check the Quarterly Class Schedule for class availability.

- CBE 101 - Fundamentals of Electricity and Lab 6 *Credits*
- CBE 102 - Advanced Electrical and Lab 5 *Credits*
- CBE 103 - National Electrical Code 4 *Credits*
- CBE 104 - Computer Fundamentals and Lab 2 *Credits*
- CBE 105 - Boiler Operators 8 *Credits*
- CBE 106 - Boiler Lab 4 *Credits*
- CBE 107 - Refrigeration and A/C Fundamentals & Lab 6 *Credits*
- CBE 111 - Control Fundamentals 7 *Credits*
- CBE 112 - Pneumatic Controls and Lab 5 *Credits*
- CBE 113 - Preventive Maintenance and Lab 4 *Credits*
- CBE 115 - Refrigeration and A/C Systems 5 *Credits*
- CBE 116 - HVAC/Plumbing Distribution 4 *Credits*
- CBE 117 - Safety and Health 1 *Credits*
- CBE 118 - Critical Systems 4 *Credits*
- CBE 150 - Hazardous Waste Management 3 *Credits*



- CBE 170 - Communications for the Stationary Engineer *2 Credits*
- CBE 180 - Human Relations and Leadership Skills *2 Credits*
- CBE 190 - LEED® Green Building *4 Credits*
- AMATH 190 - Financial Algebra *5 Credits*

#### Course Requirements for AAS Degree

- CMST& 101 - Introduction to Communication *5 Credits*
- COMP 100 - Applied Composition *5 Credits*
- *or* ENGL& 101 - English Composition I *5 Credits*
- PSYC& 100 - General Psychology *5 Credits*

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Welding - Certified Welder Certificate

**Certificate of Completion: 80 credits**

**Enrollment Point: Fall, Winter or Spring Quarter**

This program is designed to prepare welders for job entry in most phases of the welding industry. The certifications in this program are progressively sequenced for multiple completion points, and the student must take each certification in order, unless prior learning is deemed satisfactory.

Classroom and practical experience is offered in the seven most common manual and semi-automatic welding processes; OFW (gas), SMAW, GMAW, FCAW, GTAW, SAW (arc) (MIG and TIG) welding. The instruction in this program is hands on individualized as well as group lessons. Previous experience determines a student's starting point. A student's motivation and ability to move through the program competencies will determine the level of achievement in each welding process. Washington state welder certification, WABO (Washington Association of Building Officials) is available in six of the arc welding processes. This program articulates with Tech Prep programs through the Puget Sound Dual Credit Career Consortium.

#### Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

#### Quarter 1

Renton Technical College

- COL 101 - College Success *2 Credits*
- WTD 109 - Safety, Tool and Equipment Certification *3 Credits*
- WTD 168 - Trades Math I *4 Credits*
- WTD 175 - Communications for the Trades *1 Credits*
- WTD 180 - Human Relations for the Trades *2 Credits*
- WELD 101 - Thermal Cutting *3 Credits*
- WELD 102 - Oxyacetylene Welding and Brazing *7 Credits*

#### Quarter 2

- WELD 105 - Shielded Metal Arc Welding I *7 Credits*
- WELD 106 - Shielded Metal Arc Welding II *7 Credits*
- WELD 130 - Blueprint Reading *3 Credits*
- WELD 135 - Welding Processes and Application *3 Credits*

#### Quarter 3

- WELD 110 - Flux Cored Arc Welding *7 Credits*
- WELD 136 - Welding Metallurgy *3 Credits*
- WELD 138 - Certification SMAW *7 Credits*

#### Quarter 4

- WELD 111 - Gas Metal Arc Welding *7 Credits*

#### Quarter 5

- WELD 104 - Introduction to Arc Welding *3 Credits*
- WELD 120 - MIG Aluminum *5 Credits*
- WELD 140 - Certification GMAW/FCAW *6 Credits*

#### Optional Courses

- WHFRS 101 - Forklift Training *1 Credits*
- WHFRS 201 - Forklift Recertification *0 Credits*

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Welding - Entry Welder Certificate

**Certificate of Completion: 49 credits**

**Enrollment Point: Fall, Winter or Spring Quarter**

This program is designed to prepare welders for job entry in most phases of the welding industry. The certifications in this program are progressively sequenced for multiple

completion points, and the student must take each certification in order, unless prior learning is deemed satisfactory.

Classroom and practical experience is offered in the seven most common manual and semi-automatic welding processes; OFW (gas), SMAW, GMAW, FCAW, GTAW, SAW (arc) (MIG and TIG) welding. The instruction in this program is hands on individualized as well as group lessons. Previous experience determines a student's starting point. A student's motivation and ability to move through the program competencies will determine the level of achievement in each welding process. Washington state welder certification, WABO (Washington Association of Building Officials) is available in six of the arc welding processes. This program articulates with Tech Prep programs through the Puget Sound Dual Credit Career Consortium.

### Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

#### Quarter 1

- COL 101 - College Success *2 Credits*
- WTD 109 - Safety, Tool and Equipment Certification *3 Credits*
- WTD 168 - Trades Math I *4 Credits*
- WTD 175 - Communications for the Trades *1 Credits*
- WTD 180 - Human Relations for the Trades *2 Credits*
- WELD 101 - Thermal Cutting *3 Credits*
- WELD 102 - Oxyacetylene Welding and Brazing *7 Credits*

#### Quarter 2

- WELD 105 - Shielded Metal Arc Welding I *7 Credits*
- WELD 106 - Shielded Metal Arc Welding II *7 Credits*
- WELD 130 - Blueprint Reading *3 Credits*

#### Quarter 3

- WELD 138 - Certification SMAW *7 Credits*

#### Quarter 4

- WELD 104 - Introduction to Arc Welding *3 Credits*

### Optional Courses

- WHFRS 101 - Forklift Training *1 Credits*

- WHFRS 201 - Forklift Recertification *0 Credits*

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Welding - Welder Helper Certificate

### Certificate of Completion: 22 credits

#### Enrollment Point: Fall, Winter or Spring Quarter

This program is designed to prepare welders for job entry in most phases of the welding industry. The certifications in this program are progressively sequenced for multiple completion points, and the student must take each certification in order, unless prior learning is deemed satisfactory.

Classroom and practical experience is offered in the seven most common manual and semi-automatic welding processes; OFW (gas), SMAW, GMAW, FCAW, GTAW, SAW (arc) (MIG and TIG) welding. The instruction in this program is hands on individualized as well as group lessons. Previous experience determines a student's starting point. A student's motivation and ability to move through the program competencies will determine the level of achievement in each welding process. Washington state welder certification, WABO (Washington Association of Building Officials) is available in six of the arc welding processes. This program articulates with Tech Prep programs through the Puget Sound Dual Credit Career Consortium.

### Program Requirements

#### Quarter 1

- COL 101 - College Success *2 Credits*
- WTD 109 - Safety, Tool and Equipment Certification *3 Credits*
- WTD 168 - Trades Math I *4 Credits*
- WTD 175 - Communications for the Trades *1 Credits*
- WTD 180 - Human Relations for the Trades *2 Credits*
- WELD 101 - Thermal Cutting *3 Credits*
- WELD 102 - Oxyacetylene Welding and Brazing *7 Credits*

### Optional Courses

- WHFRS 101 - Forklift Training *1 Credits*
- WHFRS 201 - Forklift Recertification *0 Credits*

## GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Welding Certificate of Completion

### Certificate of Completion: 105 credits

#### Enrollment Point: Fall, Winter or Spring Quarter

This program is designed to prepare welders for job entry in most phases of the welding industry. The certifications in this program are progressively sequenced for multiple completion points, and the student must take each certification in order, unless prior learning is deemed satisfactory.

Classroom and practical experience is offered in the seven most common manual and semi-automatic welding processes; OFW (gas), SMAW, GMAW, FCAW, GTAW, SAW (arc) (MIG and TIG) welding. The instruction in this program is hands on individualized as well as group lessons. Previous experience determines a student's starting point. A student's motivation and ability to move through the program competencies will determine the level of achievement in each welding process. Washington state welder certification, WABO (Washington Association of Building Officials) is available in six of the arc welding processes. This program articulates with Tech Prep programs through the Puget Sound Dual Credit Career Consortium.

#### Program Learning Outcomes:

- Practice professional and safe work habits expected in the welding industry.
- Operate common welding and fabrication equipment safely and with proficiency.
- Communicate effectively in writing and verbally with co-workers and supervisors.
- Evaluate and solve problems as a welder.
- Use mathematical concepts to accurately complete welding projects.
- Pursue employment in the welding industry with appropriate job search, interview and resume development skills.

## Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

### Quarter 1

Renton Technical College

- COL 101 - College Success 2 *Credits*
- WTD 109 - Safety, Tool and Equipment Certification 3 *Credits*
- WTD 168 - Trades Math I 4 *Credits*
- WTD 175 - Communications for the Trades 1 *Credits*
- WTD 180 - Human Relations for the Trades 2 *Credits*
- WELD 101 - Thermal Cutting 3 *Credits*
- WELD 102 - Oxyacetylene Welding and Brazing 7 *Credits*

### Quarter 2

- WELD 105 - Shielded Metal Arc Welding I 7 *Credits*
- WELD 106 - Shielded Metal Arc Welding II 7 *Credits*
- WELD 130 - Blueprint Reading 3 *Credits*
- WELD 135 - Welding Processes and Application 3 *Credits*

### Quarter 3

- WELD 110 - Flux Cored Arc Welding 7 *Credits*
- WELD 136 - Welding Metallurgy 3 *Credits*
- WELD 138 - Certification SMAW 7 *Credits*

### Quarter 4

- WELD 111 - Gas Metal Arc Welding 7 *Credits*

### Quarter 5

- WELD 104 - Introduction to Arc Welding 3 *Credits*
- WELD 120 - MIG Aluminum 5 *Credits*
- WELD 140 - Certification GMAW/FCAW 6 *Credits*

### Quarter 6

- WELD 114 - Gas Tungsten Arc Welding I 7 *Credits*
- WELD 115 - Gas Tungsten Arc Welding II 6 *Credits*

### Quarter 7

- WELD 142 - Pipe Welding I 6 *Credits*
- WELD 143 - Pipe Welding II 6 *Credits*

### Optional Courses

- WHFRS 101 - Forklift Training 1 *Credits*
- WHFRS 201 - Forklift Recertification 0 *Credits*

## GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Welding, AAS

### Associate of Applied Science Degree: 125 credits

#### Enrollment Point: Fall, Winter or Spring Quarter

This program is designed to prepare welders for job entry in most phases of the welding industry. The certifications in this program are progressively sequenced for multiple completion points, and the student must take each certification in order, unless prior learning is deemed satisfactory.

Classroom and practical experience is offered in the seven most common manual and semi-automatic welding processes; OFW (gas), SMAW, GMAW, FCAW, GTAW, SAW (arc) (MIG and TIG) welding. The instruction in this program is hands on individualized as well as group lessons. Previous experience determines a student's starting point. A student's motivation and ability to move through the program competencies will determine the level of achievement in each welding process. Washington state welder certification, WABO (Washington Association of Building Officials) is available in six of the arc welding processes. This program articulates with Tech Prep programs through the Puget Sound Dual Credit Career Consortium.

#### Program Learning Outcomes:

- Practice professional and safe work habits expected in the welding industry.
- Operate common welding and fabrication equipment safely and with proficiency.
- Communicate effectively in writing and verbally with co-workers and supervisors.
- Evaluate and solve problems as a welder.
- Use mathematical concepts to accurately complete welding projects.
- Pursue employment in the welding industry with appropriate job search, interview and resume development skills.

#### Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

##### Quarter 1

- COL 101 - College Success 2 Credits
- WTD 109 - Safety, Tool and Equipment Certification 3 Credits
- WTD 168 - Trades Math I 4 Credits

- WTD 175 - Communications for the Trades 1 Credits
- WTD 180 - Human Relations for the Trades 2 Credits
- WELD 101 - Thermal Cutting 3 Credits
- WELD 102 - Oxyacetylene Welding and Brazing 7 Credits

##### Quarter 2

- WELD 105 - Shielded Metal Arc Welding I 7 Credits
- WELD 106 - Shielded Metal Arc Welding II 7 Credits
- WELD 130 - Blueprint Reading 3 Credits
- WELD 135 - Welding Processes and Application 3 Credits

##### Quarter 3

- WELD 110 - Flux Cored Arc Welding 7 Credits
- WELD 136 - Welding Metallurgy 3 Credits
- WELD 138 - Certification SMAW 7 Credits

##### Quarter 4

- WELD 111 - Gas Metal Arc Welding 7 Credits
- Optional General Education

##### Quarter 5

- WELD 104 - Introduction to Arc Welding 3 Credits
- WELD 120 - MIG Aluminum 5 Credits
- WELD 140 - Certification GMAW/FCAW 6 Credits

##### Quarter 6

- WELD 114 - Gas Tungsten Arc Welding I 7 Credits
- WELD 115 - Gas Tungsten Arc Welding II 6 Credits

##### Quarter 7

- WELD 142 - Pipe Welding I 6 Credits
- WELD 143 - Pipe Welding II 6 Credits

##### Quarter 8

- AMATH 175 - Financial Math 5 Credits
- CMST& 101 - Introduction to Communication 5 Credits
- COMP 100 - Applied Composition 5 Credits
- or ENGL& 101 - English Composition I 5 Credits
- PSYC& 100 - General Psychology 5 Credits

#### Optional Courses

- WHFRS 101 - Forklift Training 1 Credits
- WHFRS 201 - Forklift Recertification 0 Credits

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each Certificate of Completion course: **2.0**
- Minimum grade for all other courses: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Business Management

The Business Management programs are designed to give students skills and experience in the highly competitive fields of business support, management, and entrepreneurship. From accounting, to legal assistant, to construction management, these programs give students the theoretical tools and the practical experience to advance in their current jobs or to enter a new career.

### Accounting Clerk Certificate

**Certificate of Completion: 32 credits**

**Enrollment Point: Fall Quarter**

Accounting is the "language of business." This program provides basic fundamental skills in accounting theory and procedures, and basic computer training in word processing, database, electronic spreadsheets and general ledger. Upon completion of this program the student will have the fundamental skills for entry into the job market and will also have the foundation for additional accounting training.

#### Program Learning Outcomes:

- Communicate verbally and in writing with customers, colleagues and vendors.
- Differentiate and identify skill-appropriate issues.
- Identify and categorize data, and record financial transactions.
- Practice ethical and professional behavior.

#### Program Requirements

##### Quarter 1

- COL 101 - College Success 2 Credits
- ACCT 132 - Basic Excel 5 Credits
- ACCT& 201 - Principles of Accounting I 5 Credits
- COMP 100 - Applied Composition 5 Credits

##### Quarter 2

- ACCT 130 - Payroll Accounting 5 Credits
- ACCT& 202 - Principles of Accounting II 5 Credits
- AMATH 175 - Financial Math 5 Credits

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each core course (ACCT& 201 and ACCT& 202): **2.0**
- Minimum grade for all other courses: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Accounting Paraprofessional Certificate

**Certificate of Completion: 60 credits**

**Enrollment Point: Fall Quarter**

This program builds upon the fundamental skills learned in the Accounting Clerk program. This program provides additional training in specialized areas including small business accounting, income tax preparation, partnership and corporation accounting, financial applications, and also provides an introduction to business law as it relates to the business environment.

To earn an Associate of Applied Science degree, the student must complete all requirements for the certificate program as well as 30 credits of additional accounting and General Education coursework. Transfer credit from other institutions is considered upon validation of transcript and course work.

#### Program Learning Outcomes:

- Communicate verbally and in writing with customers, colleagues and vendors.
- Differentiate and identify skill-appropriate issues.
- Identify and categorize data, and record financial transactions.
- Practice ethical and professional behavior.
- Perform functions of accounting clerk when required.
- Compile and organize and record data according to GAAP and/or government regulations.
- Analyze and summarize financial information.

#### Program Requirements

##### Quarter 1

- COL 101 - College Success 2 Credits
- ACCT 132 - Basic Excel 5 Credits
- ACCT& 201 - Principles of Accounting I 5 Credits
- COMP 100 - Applied Composition 5 Credits

##### Quarter 2

- ACCT 130 - Payroll Accounting 5 Credits
- ACCT 179 - Taxation I - Individuals 5 Credits
- ACCT& 202 - Principles of Accounting II 5 Credits

##### Quarter 3



- ACCT 124 - Small Business Accounting 5 Credits
- ACCT 275 - Taxation II - Business Entities 5 Credits
- AMATH 175 - Financial Math 5 Credits

#### Quarter 4

- ACCT 150 - Bookkeeping Certification Preparation 8 Credits
- ANTH& 106 - American Mosaic 5 Credits
- or PSYC& 100 - General Psychology 5 Credits
- or SOC& 101 - Introduction to Sociology 5 Credits

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each core course (ACCT& 201 and ACCT& 202): **2.0**
- Minimum grade for all other courses: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Accounting Paraprofessional, AAS

**Associate of Applied Science Degree: 90 credits**

#### Enrollment Point: Fall Quarter

This program builds upon the fundamental skills learned in the Accounting Clerk program. This program provides additional training in specialized areas including small business accounting, income tax preparation, partnership and corporation accounting, financial applications, and also provides an introduction to business law as it relates to the business environment.

To earn an Associate of Applied Science degree, the student must complete all requirements for the certificate program as well as 30 credits of additional accounting and General Education coursework. Transfer credit from other institutions is considered upon validation of transcript and course work.

#### Program Learning Outcomes:

- Communicate verbally and in writing with customers, colleagues and vendors.
- Differentiate and identify skill-appropriate issues.
- Identify and categorize data, and record financial transactions.
- Practice ethical and professional behavior.
- Perform functions of accounting clerk when required.
- Compile and organize and record data according to GAAP and/or government regulations.
- Analyze and summarize financial information.

## Program Requirements

#### Quarter 1

- COL 101 - College Success 2 Credits
- ACCT 132 - Basic Excel 5 Credits
- ACCT& 201 - Principles of Accounting I 5 Credits
- COMP 100 - Applied Composition 5 Credits

#### Quarter 2

- ACCT 130 - Payroll Accounting 5 Credits
- ACCT 179 - Taxation I - Individuals 5 Credits
- ACCT& 202 - Principles of Accounting II 5 Credits

#### Quarter 3

- ACCT 124 - Small Business Accounting 5 Credits
- ACCT 275 - Taxation II - Business Entities 5 Credits
- AMATH 175 - Financial Math 5 Credits

#### Quarter 4

- ACCT 150 - Bookkeeping Certification Preparation 8 Credits
- ANTH& 106 - American Mosaic 5 Credits
- or PSYC& 100 - General Psychology 5 Credits
- or SOC& 101 - Introduction to Sociology 5 Credits

#### Course Requirements for AAS Degree

#### Quarter 5

- ACCT& 203 - Principles of Accounting III 5 Credits
- BIOL& 100 - Survey of Biology 5 Credits
- HUM& 101 - Introduction to Humanities 5 Credits

#### Quarter 6

- Fifteen (15) Approved General Education Credits\*

#### Approved General Education Courses

*\*Not all courses are offered every quarter. Alternative general education options must be approved by the program Dean.*

- AMATH 190 - Financial Algebra 5 Credits
- ANTH& 234 - Religion and Culture 5 Credits
- ART& 100 - Art Appreciation 5 Credits
- BUS& 201 - Business Law 5 Credits
- CMST& 101 - Introduction to Communication 5 Credits
- CMST& 220 - Public Speaking 5 Credits
- ECON& 201 - Microeconomics 5 Credits
- ECON& 202 - Macroeconomics 5 Credits
- ENGL& 102 - Composition II 5 Credits



- GEOL& 101 - Introduction to Physical Geology 5 Credits
- HIST 110 - Survey of American History 5 Credits
- MUSC& 105 - Music Appreciation 5 Credits
- NUTR& 101 - Human Nutrition 5 Credits
- POLS& 202 - American Government 5 Credits
- SPAN& 121 - Spanish I 5 Credits

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each core course (ACCT& 201 and ACCT& 202): **2.0**
- Minimum grade for all other courses: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Accounting Specialist, AAS-T

**Associate of Applied Science - Transfer Degree:**  
**90 credits**

**Enrollment Point: Fall, Winter, or Spring Quarter**

This program builds upon the fundamental skills learned in the Accounting Paraprofessional program. This program provides additional training in specialized areas including managerial/cost accounting, governmental and non-profit accounting, federal and state business taxes, and additional studies of business law. Students enrolled in the Accounting Specialist program earn an Associate of Applied Science-Transfer (AAS-T) degree.

### Program Learning Outcomes:

- Communicate verbally and in writing with customers, colleagues and vendors.
- Differentiate and identify skill-appropriate issues.
- Identify and categorize data, and record financial transactions.
- Practice ethical and professional behavior.
- Compile and organize and record data according to GAAP and/or government regulations.
- Analyze and summarize financial information.
- Perform functions of accounting clerk or paraprofessional when required.
- Exercise professional judgment with minimal supervision when applying accounting principles.

### Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

#### Quarter 1

Renton Technical College

- COL 101 - College Success 2 Credits
- ACCT 132 - Basic Excel 5 Credits
- ACCT& 201 - Principles of Accounting I 5 Credits
- ENGL& 101 - English Composition I 5 Credits

#### Quarter 2

- ACCT 130 - Payroll Accounting 5 Credits
- ACCT 179 - Taxation I - Individuals 5 Credits
- ACCT& 202 - Principles of Accounting II 5 Credits

#### Quarter 3

- ACCT 124 - Small Business Accounting 5 Credits
- ACCT 275 - Taxation II - Business Entities 5 Credits
- AMATH 190 - Financial Algebra 5 Credits

#### Quarter 4

- ACCT 150 - Bookkeeping Certification Preparation 8 Credits
- ANTH& 106 - American Mosaic 5 Credits
- or PSYC& 100 - General Psychology 5 Credits
- or SOC& 101 - Introduction to Sociology 5 Credits

#### Quarter 5

- ACCT& 203 - Principles of Accounting III 5 Credits
- BIOL& 100 - Survey of Biology 5 Credits
- MATH& 107 - Math in Society 5 Credits
- or MATH& 146 - Introduction to Statistics 5 Credits

#### Quarter 6

- BUS& 201 - Business Law 5 Credits
- Ten (10) Approved General Education Credits\*

### Approved General Education Courses

*\*Not all courses are offered every quarter. Alternative general education options must be approved by the program Dean.*

- ANTH& 234 - Religion and Culture 5 Credits
- ART& 100 - Art Appreciation 5 Credits
- CMST& 101 - Introduction to Communication 5 Credits
- CMST& 220 - Public Speaking 5 Credits
- ECON& 201 - Microeconomics 5 Credits
- ECON& 202 - Macroeconomics 5 Credits
- ENGL& 102 - Composition II 5 Credits
- GEOL& 101 - Introduction to Physical Geology 5 Credits
- HIST 110 - Survey of American History 5 Credits
- HUM& 101 - Introduction to Humanities 5 Credits
- MATH& 141 - Precalculus I 5 Credits

- MUSC& 105 - Music Appreciation 5 Credits
- NUTR& 101 - Human Nutrition 5 Credits
- POLS& 202 - American Government 5 Credits
- SPAN& 121 - Spanish I 5 Credits

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each core course (ACCT& 201, ACCT& 202, ACCT& 203, and ENGL& 101): **2.0**
- Minimum grade for all other courses: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

### Construction Management Certificate

**Certificate of Completion: 70 credits**

**Enrollment Point: Fall Quarter (or instructor permission)**

Prepare for careers in construction management as a project manager, superintendent, estimator, safety officer, and other administrators. Students learn estimating, scheduling, project management, human resources management, and other skills that are critical in the construction management field. Students can enroll on a part-time or full-time basis, and can earn a certificate of an Associate of Applied Science (AAS) degree.

#### Program Learning Outcomes:

- Create schedules and budgets from estimating plans that can be used to keep projects running smoothly.
- Demonstrate leadership and problem solving skills in diverse and complex work situations.
- Demonstrate responsibility for safety and productivity measures in construction management settings.
- Determine personnel, material, and contractor resources necessary to manage construction projects.
- Synthesize information from building codes, plans and specifications, and other pertinent industry resources.
- Write bids, manage contracts and other construction management documents in accordance with industry best practices.

#### Program Requirements

- COL 101 - College Success 2 Credits

- CONST 101 - Introduction to Construction and Architecture 2 Credits
- CONST 103 - Introduction to Computers 2 Credits
- CONST 115 - Budgeting and Accounting for Construction Management 5 Credits
- CONST 140 - Construction Plan Reading 3 Credits
- CONST 160 - Materials, Methods & Equipment 3 Credits
- CONST 183 - Mechanical and Electrical Systems 3 Credits
- CONST 185 - Civil Construction 3 Credits
- CONST 202 - Quantity Survey and Estimating 4 Credits
- CONST 225 - Contract Administration and Procurement 3 Credits
- CONST 230 - Project Management - Planning and Scheduling 5 Credits
- CONST 250 - Project Safety and Accident Prevention 4 Credits
- CONST 251 - Safety Planning and Administration 3 Credits
- CONST 260 - Project Management - Execution of Work 5 Credits
- CONST 261 - Human Relations for the Construction Industry 3 Credits
- CONST 266 - Advanced Technology for Construction I 2 Credits
- CONST 267 - Advanced Technology for Construction II 2 Credits
- CONST 269 - LEED Green Associate Preparation 2 Credits
- CONST 270 - Understanding Structural Design 2 Credits
- CONST 280 - Building Codes 2 Credits
- AMATH 185 - Applied Algebra for Business and Industry 5 Credits
- ENGL& 101 - English Composition I 5 Credits

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each core CONST course (CONST 101, 140, 160, 183, 185, 202, 225, 230, 250, 251, 260, 261, 269, 270, 280): **2.0**
- Minimum grade for all other courses: **1.0 each (2.0 average)**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

### Construction Management, AAS

**Associate of Applied Science Degree: 91 credits**

**Enrollment Point: Fall Quarter (or instructor permission)**

Prepare for careers in construction management as a project manager, superintendent, estimator, safety officer, and other administrators. Students learn estimating, scheduling, project management, human resources management, and other skills that are critical in the construction management field. Students can enroll on a part-time or full-time basis, and can earn a certificate of an Associate of Applied Science (AAS) degree.

**Program Learning Outcomes:**

- Create schedules and budgets from estimating plans that can be used to keep projects running smoothly.
- Demonstrate leadership and problem solving skills in diverse and complex work situations.
- Demonstrate responsibility for safety and productivity measures in construction management settings.
- Determine personnel, material, and contractor resources necessary to manage construction projects.
- Synthesize information from building codes, plans and specifications, and other pertinent industry resources.
- Write bids, manage contracts and other construction management documents in accordance with industry best practices.

**Program Requirements**

- COL 101 - College Success *2 Credits*
- CONST 101 - Introduction to Construction and Architecture *2 Credits*
- CONST 103 - Introduction to Computers *2 Credits*
- CONST 115 - Budgeting and Accounting for Construction Management *5 Credits*
- CONST 140 - Construction Plan Reading *3 Credits*
- CONST 160 - Materials, Methods & Equipment *3 Credits*
- CONST 183 - Mechanical and Electrical Systems *3 Credits*
- CONST 185 - Civil Construction *3 Credits*
- CONST 202 - Quantity Survey and Estimating *4 Credits*
- CONST 225 - Contract Administration and Procurement *3 Credits*
- CONST 230 - Project Management - Planning and Scheduling *5 Credits*

- CONST 250 - Project Safety and Accident Prevention *4 Credits*
- CONST 251 - Safety Planning and Administration *3 Credits*
- CONST 260 - Project Management - Execution of Work *5 Credits*
- CONST 261 - Human Relations for the Construction Industry *3 Credits*
- CONST 266 - Advanced Technology for Construction I *2 Credits*
- CONST 267 - Advanced Technology for Construction II *2 Credits*
- CONST 269 - LEED Green Associate Preparation *2 Credits*
- CONST 270 - Understanding Structural Design *2 Credits*
- CONST 280 - Building Codes *2 Credits*
- AMATH 185 - Applied Algebra for Business and Industry *5 Credits*
- ENGL& 101 - English Composition I *5 Credits*

**Elective Options**

5 credits required

- CONST 105 - Spanish for Construction Supervisors *3 Credits*
- CONST 171 - American Architecture History and Design *3 Credits*
- CONST 190 - Cooperative Work Experience, Trades *3 Credits*
- CONST 265 - Customer Engagement for Construction Proposals *3 Credits*
- CONST 290 - Cooperative Work Experience, Construction Management *3 Credits*
- DFTS 112 - AutoCAD Level I & II *6 Credits*
- DFTS 114 - AutoCAD Level I *3 Credits*
- DFTS 116 - AutoCAD Level II *3 Credits*
- DFTS 136 - Revit Architecture Essentials *3 Credits*
- DFTS 137 - Revit Architecture Advanced *0 Credits*
- MATH& 142 - Precalculus II *5 Credits*
- SURS 110 - Basic Surveying I *4 Credits*

**General Education Course Requirements**

- CMST& 101 - Introduction to Communication *5 Credits*
- GEOL& 101 - Introduction to Physical Geology *5 Credits*
- PSYC& 100 - General Psychology *5 Credits*
- or SOC& 101 - Introduction to Sociology *5 Credits*

**GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each core CONST course (CONST 101, 140, 160, 183, 185, 202, 225, 230, 250, 251, 260, 261, 269, 270, 280): **2.0**
- Minimum grade for all other courses: **1.0 each (2.0 average)**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Contemporary Business Administration Certificate

**Certificate of Completion: 62 credits**

**Enrollment Point: Fall, Winter or Spring Quarter**

Learn skills to start and run a small business or manage someone else's with skills in management, accounting, marketing, human relations and other skills.

To earn an Associate of Applied Science (AAS) degree, the student must complete all requirements for the certificate program plus 30 credits of additional general education classes.

Transfer credit from other institutions will be considered upon validation of transcript and course work.

### Program Learning Outcomes:

- Formulate effective operational decisions in a legal, ethical, and economic environment.
- Apply core marketing principles to improve profitability, customer satisfaction, and social welfare.
- Develop business decision-making strategies using financial management techniques.
- Develop critical thinking skills to evaluate alternatives and make effective business decisions.
- Build a diverse knowledge base to identify different management practices and leadership styles that impact organizational effectiveness.

### Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

#### Quarter 1

- COL 101 - College Success 2 Credits
- BUS 125 - Concept to Commercialization 5 Credits
- BUS 180 - Principles of Management 5 Credits
- BUS& 101 - Introduction to Business 5 Credits

#### Quarter 2

- BUS 130 - Small Business Marketing 5 Credits
- BUS 230 - Principles of Operations Management 5 Credits
- BUS& 201 - Business Law 5 Credits

#### Quarter 3

- BUS 135 - Financing a Small Business 5 Credits
- BUS 240 - Principles of Selling and Negotiation 5 Credits
- BUS 280 - Office Procedures 5 Credits (or approved General Education elective)

#### Quarter 4

- BUS 110 - Social Media Marketing 5 Credits
- BUS 270 - Human Resources Management 5 Credits
- COMP 100 - Applied Composition 5 Credits
- or ENGL& 101 - English Composition I 5 Credits

### Approved General Education Courses

Approved General Education classes are listed below. Students should choose options that meet their career and educational goals. Transfer credits and requests to take a class not listed below must be approved by the program Dean.

- ACCT& 201 - Principles of Accounting I 5 Credits
- ACCT& 202 - Principles of Accounting II 5 Credits
- ACCT& 203 - Principles of Accounting III 5 Credits
- ART& 100 - Art Appreciation 5 Credits
- BIOL& 100 - Survey of Biology 5 Credits
- CMST& 101 - Introduction to Communication 5 Credits
- CMST& 220 - Public Speaking 5 Credits
- ECON& 201 - Microeconomics 5 Credits
- ECON& 202 - Macroeconomics 5 Credits
- ENGL& 102 - Composition II 5 Credits
- GEOL& 101 - Introduction to Physical Geology 5 Credits
- HUM& 101 - Introduction to Humanities 5 Credits
- MATH& 107 - Math in Society 5 Credits
- MATH& 141 - Precalculus I 5 Credits
- MATH& 146 - Introduction to Statistics 5 Credits
- MATH& 148 - Business Calculus 5 Credits
- MUSC& 105 - Music Appreciation 5 Credits
- NUTR& 101 - Human Nutrition 5 Credits
- PSYC& 100 - General Psychology 5 Credits
- SOC& 101 - Introduction to Sociology 5 Credits

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Contemporary Business Administration, AAS

**Associate of Applied Science Degree: 92 credits**

**Enrollment Point: Fall, Winter or Spring Quarter**

Learn skills to start and run a small business or manage someone else's with skills in management, accounting, marketing, human relations and other skills.

To earn an Associate of Applied Science (AAS) degree, the student must complete all requirements for the certificate program plus 30 credits of additional general education classes.

Transfer credit from other institutions will be considered upon validation of transcript and course work.

### Program Learning Outcomes:

- Formulate effective operational decisions in a legal, ethical, and economic environment.
- Apply core marketing principles to improve profitability, customer satisfaction, and social welfare.
- Develop business decision-making strategies using financial management techniques.
- Develop critical thinking skills to evaluate alternatives and make effective business decisions.
- Build a diverse knowledge base to identify different management practices and leadership styles that impact organizational effectiveness.

### Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

#### Quarter 1

- COL 101 - College Success *2 Credits*
- BUS 125 - Concept to Commercialization *5 Credits*
- BUS 180 - Principles of Management *5 Credits*
- BUS& 101 - Introduction to Business *5 Credits*

#### Quarter 2

- BUS 130 - Small Business Marketing *5 Credits*
- BUS 230 - Principles of Operations Management *5 Credits*
- BUS& 201 - Business Law *5 Credits*

#### Quarter 3

- BUS 135 - Financing a Small Business *5 Credits*
- BUS 240 - Principles of Selling and Negotiation *5 Credits*
- BUS 280 - Office Procedures *5 Credits* (or approved General Education elective\*)

#### Quarter 4

- BUS 110 - Social Media Marketing *5 Credits*
- BUS 270 - Human Resources Management *5 Credits*
- COMP 100 - Applied Composition *5 Credits*
- *or* ENGL& 101 - English Composition I *5 Credits*

### Course Requirements for AAS Degree

#### Quarter 5

- AMATH 175 - Financial Math *5 Credits* (or more advanced AMATH or MATH& class)
- Approved General Education Options (10 credits)

#### Quarter 6

- Approved General Education Options (15 credits)

### Approved General Education Courses

Approved General Education classes are listed below. Students should choose options that meet their career and educational goals. Transfer credits and requests to take a class not listed below must be approved by the program Dean.

- ACCT& 201 - Principles of Accounting I *5 Credits*
- ACCT& 202 - Principles of Accounting II *5 Credits*
- ACCT& 203 - Principles of Accounting III *5 Credits*
- ART& 100 - Art Appreciation *5 Credits*
- BIOL& 100 - Survey of Biology *5 Credits*
- CMST& 101 - Introduction to Communication *5 Credits*
- CMST& 220 - Public Speaking *5 Credits*
- ECON& 201 - Microeconomics *5 Credits*
- ECON& 202 - Macroeconomics *5 Credits*
- ENGL& 102 - Composition II *5 Credits*
- GEOL& 101 - Introduction to Physical Geology *5 Credits*
- HUM& 101 - Introduction to Humanities *5 Credits*
- MATH& 107 - Math in Society *5 Credits*
- MATH& 141 - Precalculus I *5 Credits*
- MATH& 146 - Introduction to Statistics *5 Credits*
- MATH& 148 - Business Calculus *5 Credits*
- MUSC& 105 - Music Appreciation *5 Credits*
- NUTR& 101 - Human Nutrition *5 Credits*



- PSYC& 100 - General Psychology 5 Credits
- SOC& 101 - Introduction to Sociology 5 Credits

#### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## **Entrepreneurship Certificate**

**Certificate of Completion: 32 credits**

**Enrollment Point: Fall or Winter Quarter**

Learn skills to start and run a small business or manage someone else's with skills in management, accounting, marketing, human relations and other skills.

The 2-quarter certificate in Entrepreneurship focuses on business fundamentals, business-plan writing, marketing, and management.

Students may choose to continue in the Contemporary Business Administration certificate (4 quarters) or Associate of Applied Science (AAS) degree option (6 quarters).

Transfer credit from other institutions will be considered upon validation of transcript and course work.

#### **Program Learning Outcomes:**

- Formulate effective operational decisions in a legal, ethical, and economic environment.
- Apply core marketing principles to improve profitability, customer satisfaction, and social welfare.
- Develop business decision-making strategies using financial management techniques.
- Develop critical thinking skills to evaluate alternatives and make effective business decisions.
- Build a diverse knowledge base to identify different management practices and leadership styles that impact organizational effectiveness.

#### **Program Requirements**

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

#### **Quarter 1**

- COL 101 - College Success 2 Credits
- BUS 125 - Concept to Commercialization 5 Credits
- BUS& 101 - Introduction to Business 5 Credits

- Approved Elective Option (5 credits)

#### **Quarter 2**

- BUS 130 - Small Business Marketing 5 Credits
- BUS 230 - Principles of Operations Management 5 Credits
- Approved Elective Option (5 credits)

#### **Approved Electives**

Not all electives are available every quarter. Students may have to enroll in the classes that are offered in order to complete quickly.

- BUS 110 - Social Media Marketing 5 Credits
- BUS 135 - Financing a Small Business 5 Credits
- BUS 180 - Principles of Management 5 Credits
- BUS 240 - Principles of Selling and Negotiation 5 Credits
- BUS 270 - Human Resources Management 5 Credits
- BUS& 201 - Business Law 5 Credits

#### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## **Leadership in the Trades Certificate**

**Certificate of Completion: 19 credits**

**Enrollment Point: Fall Quarter**

Introduces leadership concepts needed for advancement in construction and manufacturing careers. Certificates specifically present the topics of risk management, human resources management, contract management and compliance, safety management, job site control, scheduling and external relations. Targeted audiences include: RTC program graduates, RTC current students, apprentices, journey workers, and professionals in the construction, energy or manufacturing sectors.

#### **Program Learning Outcomes:**

- Create schedules and budgets from estimating plans that can be used to keep projects running smoothly.
- Demonstrate leadership and problem solving skills in diverse and complex work situations.
- Demonstrate responsibility for safety and productivity measures in construction management settings.



- Determine personnel, material, and contractor resources necessary to manage construction projects.
- Synthesize information from building codes, plans and specifications, and other pertinent industry resources.
- Write bids, manage contracts and other construction management documents in accordance with industry best practices.

#### Program Requirements

- CONST 101 - Introduction to Construction and Architecture 2 Credits
- CONST 103 - Introduction to Computers 2 Credits
- CONST 225 - Contract Administration and Procurement 3 Credits
- CONST 250 - Project Safety and Accident Prevention 4 Credits
- CONST 251 - Safety Planning and Administration 3 Credits
- CONST 261 - Human Relations for the Construction Industry 3 Credits
- CONST 266 - Advanced Technology for Construction I 2 Credits
- CONST 262 - Labor Agreements (optional) 1 Credits

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each core CONST course (CONST 101, 225, 250, 251, 261): **2.0**
- Minimum grade for all other courses: **1.0 each (2.0 average)**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

### Legal Assistant Certificate

**Certificate of Completion: 78 credits**

**Enrollment Point: Fall, Winter or Spring Quarter**

This program prepares students to work in law firms, law-related offices, including the courts, government agencies, non-profits, and corporate legal departments as legal assistants, paralegal assistants, legal receptionists, clerks, litigation practice assistants, and legal support professionals.

To earn an Associate of Applied Science Degree, the student must complete an additional 15 credits of general education courses. Transfer credit from other institutions

is considered upon validation of transcript and course work.

#### Program Learning Outcomes:

- Be able to work effectively and professionally in a legal environment.
- Demonstrate confidentiality and knowledge of ethics in the legal environment.
- Be able to prepare correspondence, pleadings, and a variety of legal documents from scratch, rough draft, forms, and boilerplate language.
- Demonstrate core level computer skills using current and widely used computer software such as Word, Excel, PowerPoint, Outlook, and Access.
- Demonstrate critical thinking skills to prioritize, anticipate, and analyze problems, and then to evaluate and implement solutions.
- Demonstrate effective written and oral communication skills to work effectively with clients, attorneys, paralegals, and other support staff.
- Demonstrate knowledge of basic legal office skills, such as proofreading, time and billing procedures, basic math computations, client intake, records management, handling mail, telephone and receptionist procedures, making travel and meeting arrangements and using office equipment.

#### Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

##### Quarter 1

- COL 101 - College Success 2 Credits
- LGL 105 - Legal Keyboarding 1 Credits
- LGL 120 - Human Relations in the Legal Office 3 Credits
- LGL 127 - Office Applications I 4 Credits
- LGL 201 - Civil Litigation 5 Credits

##### Quarter 2

- LGL 113 - Business Law Procedures 5 Credits
- LGL 128 - Office Applications II 4 Credits
- ENGL 085 - Business Communication 4 Credits

##### Quarter 3

- LGL 110 - Family Law and Estate Planning Procedures 5 Credits

- LGL 117 - Law Office Procedures III *5 Credits*
- LGL 121 - Word Processing *5 Credits*

#### Quarter 4

- LGL 109 - Law Office Procedures II *5 Credits*
- LGL 140 - Technology in the Law Office *4 Credits*
- LGL 192 - Job Search *4 Credits*
- AMATH 163V - Business Math *3 Credits*

#### Quarter 5

- LGL 101 - Introduction to the Legal Profession *5 Credits*
- LGL 108 - Law Office Procedures I *5 Credits*
- LGL 199 - Field Experience *5 Credits*
- ENGL 075 - Business English *4 Credits*

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**

## Legal Assistant, AAS

**Associate of Applied Science Degree: 93 credits**

**Enrollment Point: Fall, Winter or Spring Quarter**

This program prepares students to work in law firms, law-related offices, including the courts, government agencies, non-profits, and corporate legal departments as legal assistants, legal receptionists, clerks, litigation practice assistants, and legal support professionals.

To earn an Associate of Applied Science Degree, the student must complete an additional 15 credits of general education courses. Transfer credit from other institutions is considered upon validation of transcript and course work.

#### Program Learning Outcomes:

- Be able to work effectively and professionally in a legal environment.
- Demonstrate confidentiality and knowledge of ethics in the legal environment.
- Be able to prepare correspondence, pleadings, and a variety of legal documents from scratch, rough draft, forms, and boilerplate language.
- Demonstrate core level computer skills using current and widely used computer software such as Word, Excel, PowerPoint, Outlook, and Access.
- Demonstrate critical thinking skills to prioritize, anticipate, and analyze problems, and then to evaluate and implement solutions.

- Demonstrate effective written and oral communication skills to work effectively with clients, attorneys, paralegals, and other support staff.
- Demonstrate knowledge of basic legal office skills, such as proofreading, time and billing procedures, basic math computations, client intake, records management, handling mail, telephone and receptionist procedures, making travel and meeting arrangements and using office equipment.

#### Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

#### Quarter 1

- COL 101 - College Success *2 Credits*
- LGL 105 - Legal Keyboarding *1 Credits*
- LGL 120 - Human Relations in the Legal Office *3 Credits*
- LGL 127 - Office Applications I *4 Credits*
- LGL 201 - Civil Litigation *5 Credits*

#### Quarter 2

- LGL 113 - Business Law Procedures *5 Credits*
- LGL 128 - Office Applications II *4 Credits*
- ENGL 085 - Business Communication *4 Credits*

#### Quarter 3

- LGL 110 - Family Law and Estate Planning Procedures *5 Credits*
- LGL 117 - Law Office Procedures III *5 Credits*
- LGL 121 - Word Processing *5 Credits*

#### Quarter 4

- LGL 109 - Law Office Procedures II *5 Credits*
- LGL 140 - Technology in the Law Office *4 Credits*
- LGL 192 - Job Search *4 Credits*
- AMATH 163V - Business Math *3 Credits*

#### Quarter 5

- LGL 101 - Introduction to the Legal Profession *5 Credits*
- LGL 108 - Law Office Procedures I *5 Credits*
- LGL 199 - Field Experience *5 Credits*
- ENGL 075 - Business English *4 Credits*

#### Course Requirements for AAS Degree

- AMATH 175 - Financial Math *5 Credits*

- or AMATH 190 - Financial Algebra 5 Credits
- CMST& 101 - Introduction to Communication 5 Credits
- or CMST& 220 - Public Speaking 5 Credits
- COMP 100 - Applied Composition 5 Credits
- or ENGL& 101 - English Composition I 5 Credits

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**

### Office Assistant/Receptionist Certificate

#### Certificate of Completion: 19 credits

#### Enrollment Point: Fall, Winter or Spring Quarter

Students prepare for entry-level careers in the office occupations. In addition to keyboarding and hands-on training on computers using Microsoft Office applications, students study business math, business English, human relations and customer service, and develop general clerical skills. Eligibility: WorkFirst funding

#### Program Learning Outcomes:

- Create clear and accurate business documents, spreadsheets, database and presentations that are professional in appearance.
- Operate office equipment with proficiency while maintaining a safe office environment.
- Manage schedules and correspondence in a professional office environment.
- Communicate professionally to collaborate, solve problems, resolve conflicts, and provide assistance while respecting the diverse styles, values and cultures of internal and external customers.
- Demonstrate ethical behavior, maintain confidentiality, and follow employer policies and procedures.
- Pursue professional advancement by applying knowledge of career pathways and job search.

#### Program Requirements

##### Quarter 1

- ASST 095 - Clerical Skills Review 3 Credits
- ASST 110 - Introduction to Business Writing 3 Credits
- ASST 120 - Keyboarding/Data Entry 3 Credits
- ASST 144 - Computer Applications 5 Credits

- ASST 181 - Human Relations/Career Readiness 5 Credits

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

### Culinary Arts

The Culinary Arts programs prepare students for a rewarding career in the food, baking, and restaurant management industries. We offer programs in culinary arts and professional baking, teaching students both the science and the art of transforming raw ingredients into delicious, nutritious, and visually appealing dishes. Students in these programs will hone their skills working in kitchens and a bakery on campus.

### Culinary Arts Certificate

#### Certificate of Completion: 96 credits

#### Enrollment Point: Fall, Winter or Spring Quarter

The Culinary Arts certificate program is accredited with the American Culinary Federation Education Foundation Accrediting Commission (ACFEFAC). It is designed to train students for work in the hospitality industry. All phases of basic fundamental cookery are addressed in a concise curriculum within a well-equipped industry kitchen and professional classroom. Emphasis is on the development of skills and techniques necessary for advancement within the industry. This program offers both lecture-based and lab-based courses. Beginning courses include fundamentals of knife skills, culinary safety/sanitation and introduction to the industry. In addition, the advanced lab-based courses include various cooking methodologies, garde manger techniques, advanced techniques, internship and more.

Upon completion of Renton Technical College's Culinary Arts program graduates who have received an AAS or AAS-T degree and are current American Culinary Federation members have the opportunity to be certified as a "Certified Culinarian" by the ACFEF.

To earn an Associate of Applied Science (AAS) or Associate of Applied Science-Transfer (AAS-T) degree, the student must complete all requirements for the certificate program plus 20 credits of General Education.

Transfer credit from other institutions will be considered upon validation of transcript and course work. Students

holding a recent Certification of Completion from RTC should contact the Registrar for degree options.

### **Program Learning Outcomes:**

- Manage a multitude of tasks in an intense, ever changing commercial food production environment.
- Interpret weights and measurements, execute standard recipe conversions and implement cost controls in a kitchen setting.
- Demonstrate interpersonal and organizational skills to adapt quickly in a diverse team environment.
- Demonstrate and apply food safety and sanitation practices.
- Demonstrate knowledge and ability to apply all forms of cookery and methodologies.
- Employ outstanding guest service skills, professional presentation and sophisticated communication skills.
- Apply standards that meet American Culinary Federation Education Foundation requirements in a kitchen environment.

### **Program Requirements**

#### **Quarter 1-6**

- COL 101 - College Success 2 *Credits*
- CUL 103 - Knife Skills I 3 *Credits*
- CUL 104 - Boucher 3 *Credits*
- CUL 105 - Foundations 3 *Credits*
- CUL 106 - Nutrition 3 *Credits*
- CUL 107 - Saucier I 3 *Credits*
- CUL 108 - Saucier II 3 *Credits*
- CUL 109 - Entremetier I 3 *Credits*
- CUL 110 - Fundamentals I 3 *Credits*
- CUL 111 - Fundamentals II 3 *Credits*
- CUL 112 - Fundamentals III 3 *Credits*
- CUL 113 - CAFÉ Lead 3 *Credits*
- CUL 114 - Delicatessen I 3 *Credits*
- CUL 115 - Delicatessen II 3 *Credits*
- CUL 116 - Garde Manger I 3 *Credits*
- CUL 117 - Garde Manger II 3 *Credits*
- CUL 118 - Breakfast Cookery 3 *Credits*
- CUL 119 - Bakery Basics 3 *Credits*
- CUL 120 - Purchasing and Receiving 3 *Credits*
- CUL 121 - Dining Room Service 3 *Credits*
- CUL 122 - Wine Appreciation 2 *Credits*
- CUL 123 - Entremetier II 3 *Credits*
- CUL 124 - Fry Station 3 *Credits*
- CUL 125 - Sauté Station 3 *Credits*

- CUL 126 - Broiler Station 3 *Credits*
- CUL 127 - Lead Line 3 *Credits*
- CUL 128 - Pantry 3 *Credits*
- CUL 129 - Advanced Techniques - Capstone 3 *Credits*
- CUL 130 - Sous Chef 3 *Credits*
- CUL 180 - Industry Communications - Human Relations 3 *Credits*
- CUL 190 - Co-operative/Internship/Work Experience 5 *Credits*
- AMATH 160R - Mathematics - Cost Control 3 *Credits*

### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## **Culinary Arts, AAS**

**Associate of Applied Science Degree: 116 credits**

**Enrollment Point: Fall, Winter or Spring Quarter**

The Culinary Arts certificate program is accredited with the American Culinary Federation Education Foundation Accrediting Commission (ACFEFAC). It is designed to train students for work in the hospitality industry. All phases of basic fundamental cookery are addressed in a concise curriculum within a well-equipped industry kitchen and professional classroom. Emphasis is on the development of skills and techniques necessary for advancement within the industry. This program offers both lecture-based and lab-based courses. Beginning courses include fundamentals of knife skills, culinary safety/sanitation and introduction to the industry. In addition, the advanced lab-based courses include various cooking methodologies, garde manger techniques, advanced techniques, internship and more.

Upon completion of Renton Technical College's Culinary Arts program graduates who have received an AAS or AAS-T degree and are current American Culinary Federation members have the opportunity to be certified as a "Certified Culinarian" by the ACFEF.

To earn an Associate of Applied Science (AAS) or Associate of Applied Science-Transfer (AAS-T) degree, the student must complete all requirements for the certificate program plus 20 credits of General Education.

Transfer credit from other institutions will be considered upon validation of transcript and course work. Students

holding a recent Certification of Completion from RTC should contact the Registrar for degree options.

#### **Program Learning Outcomes:**

- Manage a multitude of tasks in an intense, ever changing commercial food production environment.
- Interpret weights and measurements, execute standard recipe conversions and implement cost controls in a kitchen setting.
- Demonstrate interpersonal and organizational skills to adapt quickly in a diverse team environment.
- Demonstrate and apply food safety and sanitation practices.
- Demonstrate knowledge and ability to apply all forms of cookery and methodologies.
- Employ outstanding guest service skills, professional presentation and sophisticated communication skills.
- Apply standards that meet American Culinary Federation Education Foundation requirements in a kitchen environment.

#### **Program Requirements**

##### **Quarter 1-6**

- COL 101 - College Success 2 *Credits*
- CUL 103 - Knife Skills I 3 *Credits*
- CUL 104 - Boucher 3 *Credits*
- CUL 105 - Foundations 3 *Credits*
- CUL 106 - Nutrition 3 *Credits*
- CUL 107 - Saucier I 3 *Credits*
- CUL 108 - Saucier II 3 *Credits*
- CUL 109 - Entremetier I 3 *Credits*
- CUL 110 - Fundamentals I 3 *Credits*
- CUL 111 - Fundamentals II 3 *Credits*
- CUL 112 - Fundamentals III 3 *Credits*
- CUL 113 - CAFÉ Lead 3 *Credits*
- CUL 114 - Delicatessen I 3 *Credits*
- CUL 115 - Delicatessen II 3 *Credits*
- CUL 116 - Garde Manger I 3 *Credits*
- CUL 117 - Garde Manger II 3 *Credits*
- CUL 118 - Breakfast Cookery 3 *Credits*
- CUL 119 - Bakery Basics 3 *Credits*
- CUL 120 - Purchasing and Receiving 3 *Credits*
- CUL 121 - Dining Room Service 3 *Credits*
- CUL 122 - Wine Appreciation 2 *Credits*
- CUL 123 - Entremetier II 3 *Credits*
- CUL 124 - Fry Station 3 *Credits*
- CUL 125 - Sauté Station 3 *Credits*

- CUL 126 - Broiler Station 3 *Credits*
- CUL 127 - Lead Line 3 *Credits*
- CUL 128 - Pantry 3 *Credits*
- CUL 129 - Advanced Techniques - Capstone 3 *Credits*
- CUL 130 - Sous Chef 3 *Credits*
- CUL 180 - Industry Communications - Human Relations 3 *Credits*
- CUL 190 - Co-operative/Internship/Work Experience 5 *Credits*
- AMATH 160R - Mathematics - Cost Control 3 *Credits*

#### **Course Requirements for AAS Degree**

- AMATH 175 - Financial Math 5 *Credits*
- CMST& 101 - Introduction to Communication 5 *Credits*
- COMP 100 - Applied Composition 5 *Credits*
- *or* ENGL& 101 - English Composition I 5 *Credits*
- PSYC& 100 - General Psychology 5 *Credits*

#### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

### **Culinary Arts, AAS-T**

**Associate of Applied Science - Transfer Degree:  
116 credits**

#### **Enrollment Point: Fall, Winter or Spring Quarter**

The Culinary Arts certificate program is accredited with the American Culinary Federation Education Foundation Accrediting Commission (ACFEFAC). It is designed to train students for work in the hospitality industry. All phases of basic fundamental cookery are addressed in a concise curriculum within a well-equipped industry kitchen and professional classroom. Emphasis is on the development of skills and techniques necessary for advancement within the industry. This program offers both lecture-based and lab-based courses. Beginning courses include fundamentals of knife skills, culinary safety/sanitation and introduction to the industry. In addition, the advanced lab-based courses include various cooking methodologies, garde manger techniques, advanced techniques, internship and more.

Upon completion of Renton Technical College's Culinary Arts program graduates who have received an AAS or AAS-T degree and are current American Culinary



Federation members have the opportunity to be certified as a "Certified Culinarian" by the ACFEF.

To earn an Associate of Applied Science (AAS) or Associate of Applied Science-Transfer (AAS-T) degree, the student must complete all requirements for the certificate program plus 20 credits of General Education.

Transfer credit from other institutions will be considered upon validation of transcript and course work. Students holding a recent Certification of Completion from RTC should contact the Registrar for degree options.

#### **Program Learning Outcomes:**

- Manage a multitude of tasks in an intense, ever changing commercial food production environment.
- Interpret weights and measurements, execute standard recipe conversions and implement cost controls in a kitchen setting.
- Demonstrate interpersonal and organizational skills to adapt quickly in a diverse team environment.
- Demonstrate and apply food safety and sanitation practices.
- Demonstrate knowledge and ability to apply all forms of cookery and methodologies.
- Employ outstanding guest service skills, professional presentation and sophisticated communication skills.
- Apply standards that meet American Culinary Federation Education Foundation requirements in a kitchen environment.

#### **Program Requirements**

##### **Quarter 1-6**

- COL 101 - College Success *2 Credits*
- CUL 103 - Knife Skills I *3 Credits*
- CUL 104 - Boucher *3 Credits*
- CUL 105 - Foundations *3 Credits*
- CUL 106 - Nutrition *3 Credits*
- CUL 107 - Saucier I *3 Credits*
- CUL 108 - Saucier II *3 Credits*
- CUL 109 - Entremetier I *3 Credits*
- CUL 110 - Fundamentals I *3 Credits*
- CUL 111 - Fundamentals II *3 Credits*
- CUL 112 - Fundamentals III *3 Credits*
- CUL 113 - CAFÉ Lead *3 Credits*
- CUL 114 - Delicatessen I *3 Credits*
- CUL 115 - Delicatessen II *3 Credits*
- CUL 116 - Garde Manger I *3 Credits*
- CUL 117 - Garde Manger II *3 Credits*

- CUL 118 - Breakfast Cookery *3 Credits*
- CUL 119 - Bakery Basics *3 Credits*
- CUL 120 - Purchasing and Receiving *3 Credits*
- CUL 121 - Dining Room Service *3 Credits*
- CUL 122 - Wine Appreciation *2 Credits*
- CUL 123 - Entremetier II *3 Credits*
- CUL 124 - Fry Station *3 Credits*
- CUL 125 - Sauté Station *3 Credits*
- CUL 126 - Broiler Station *3 Credits*
- CUL 127 - Lead Line *3 Credits*
- CUL 128 - Pantry *3 Credits*
- CUL 129 - Advanced Techniques - Capstone *3 Credits*
- CUL 130 - Sous Chef *3 Credits*
- CUL 180 - Industry Communications - Human Relations *3 Credits*
- CUL 190 - Co-operative/Internship/Work Experience *5 Credits*
- AMATH 160R - Mathematics - Cost Control *3 Credits*

#### **Course Requirements for AAS-T Degree**

- ENGL& 101 - English Composition I *5 Credits*
- MATH& 107 - Math in Society *5 Credits*
- PSYC& 100 - General Psychology *5 Credits*
- SPAN& 121 - Spanish I *5 Credits*

#### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

### **Professional Baking Certificate**

#### **Certificate of Completion: 71 credits**

#### **Enrollment Point: Fall, Winter or Spring Quarter**

Students have the opportunity to learn baking basics and the science of baking in an exciting well-equipped bakery setting. This course is a fast-paced program following industry standards and practices of classical and contemporary baking. A variety of learning competencies and learning methods designed for our progressive program enables us to offer highly concentrated, focused, and hands-on curriculum.

Students participate in scaling and mixing, dough production, retail operations, and oven work in our production kitchen. The courses reviewed include: breads, pies, pastries, cookies, doughnuts, cakes, and specialty decorating. A ServSafe National Restaurant



Association training is offered and national sanitation certification is available. Math, customer service and human relations courses assist the student with developing a portfolio. The program supports a retail bakery offering a broad selection of baked goods, cakes and pastries finished to industry standards. If you enjoy teamwork, bakery production, timelines, and creating delicious baked goods in a commercial baking environment, this program is for you!

#### **Program Learning Outcomes:**

- Manage a multitude of tasks in an ever-changing bakery production facility.
- Convert weights and measurements in a baking environment to correctly calculate industry recipes/formulas.
- Utilize positive communication and human relations skills in a diverse bakery.
- Apply proper safety and sanitation standards in a bakery environment.
- Utilize bakery equipment and terminology to produce a variety of bakery products.
- Demonstrate knowledge and ability to create breads, pies, pastries, cookies and doughnuts in a production bakery.

#### **Program Requirements**

##### **Quarter 1-4**

- COL 101 - College Success *2 Credits*
- BAK 101 - Ovens I *3 Credits*
- BAK 102 - Ovens II *3 Credits*
- BAK 103 - Doughnuts *3 Credits*
- BAK 104 - Scaling *3 Credits*
- BAK 105 - Mixing I *3 Credits*
- BAK 106 - Mixing II *3 Credits*
- BAK 107 - Cookies *3 Credits*
- BAK 108 - Pies and Tarts *3 Credits*
- BAK 109 - Pastries *3 Credits*
- BAK 110 - Yeast Doughs I *3 Credits*
- BAK 111 - Yeast Doughs II *3 Credits*
- BAK 112 - Puff Pastries *3 Credits*
- BAK 113 - Cakes I *3 Credits*
- BAK 114 - Cakes II *3 Credits*
- BAK 115 - Artisan Bread I *3 Credits*
- BAK 116 - Artisan Bread II *3 Credits*
- BAK 117 - Bakery Operations I *3 Credits*
- BAK 118 - Bakery Operations II *3 Credits*
- BAK 119 - Cakes III *3 Credits*
- BAK 120 - French Pastries *3 Credits*
- CUL 105 - Foundations *3 Credits*

- CUL 180 - Industry Communications - Human Relations *3 Credits*
- AMATH 160R - Mathematics - Cost Control *3 Credits*

#### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## **Professional Baking, AAS**

### **Associate of Applied Science Degree: 91 credits**

#### **Enrollment Point: Fall, Winter or Spring Quarter**

Students have the opportunity to learn baking basics and the science of baking in an exciting well-equipped bakery setting. This course is a fast-paced program following industry standards and practices of classical and contemporary baking. A variety of learning competencies and learning methods designed for our progressive program enables us to offer highly concentrated, focused, and hands-on curriculum.

Students participate in scaling and mixing, dough production, retail operations, and oven work in our production kitchen. The courses reviewed include: breads, pies, pastries, cookies, doughnuts, cakes, and specialty decorating. A ServSafe National Restaurant Association training is offered and national sanitation certification is available. Math, customer service and human relations courses assist the student with developing a portfolio. The program supports a retail bakery offering a broad selection of baked goods, cakes and pastries finished to industry standards. If you enjoy teamwork, bakery production, timelines, and creating delicious baked goods in a commercial baking environment, this program is for you!

#### **Program Learning Outcomes:**

- Manage a multitude of tasks in an ever-changing bakery production facility.
- Convert weights and measurements in a baking environment to correctly calculate industry recipes/formulas.
- Utilize positive communication and human relations skills in a diverse bakery.
- Apply proper safety and sanitation standards in a bakery environment.
- Utilize bakery equipment and terminology to produce a variety of bakery products.

- Demonstrate knowledge and ability to create breads, pies, pastries, cookies and doughnuts in a production bakery.

## Program Requirements

### Quarter 1-4

- COL 101 - College Success *2 Credits*
- BAK 101 - Ovens I *3 Credits*
- BAK 102 - Ovens II *3 Credits*
- BAK 103 - Doughnuts *3 Credits*
- BAK 104 - Scaling *3 Credits*
- BAK 105 - Mixing I *3 Credits*
- BAK 106 - Mixing II *3 Credits*
- BAK 107 - Cookies *3 Credits*
- BAK 108 - Pies and Tarts *3 Credits*
- BAK 109 - Pastries *3 Credits*
- BAK 110 - Yeast Doughs I *3 Credits*
- BAK 111 - Yeast Doughs II *3 Credits*
- BAK 112 - Puff Pastries *3 Credits*
- BAK 113 - Cakes I *3 Credits*
- BAK 114 - Cakes II *3 Credits*
- BAK 115 - Artisan Bread I *3 Credits*
- BAK 116 - Artisan Bread II *3 Credits*
- BAK 117 - Bakery Operations I *3 Credits*
- BAK 118 - Bakery Operations II *3 Credits*
- BAK 119 - Cakes III *3 Credits*
- BAK 120 - French Pastries *3 Credits*
- CUL 105 - Foundations *3 Credits*
- CUL 180 - Industry Communications - Human Relations *3 Credits*
- AMATH 160R - Mathematics - Cost Control *3 Credits*

### Course Requirements for AAS Degree

- AMATH 175 - Financial Math *5 Credits*
- CMST& 101 - Introduction to Communication *5 Credits*
- COMP 100 - Applied Composition *5 Credits*
- *or* ENGL& 101 - English Composition I *5 Credits*
- PSYC& 100 - General Psychology *5 Credits*

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Health & Human Services

The Health & Human Services programs prepare students for rewarding careers in the field of healthcare and Renton Technical College

assistance. They combine technical and medical knowledge with critical thinking and interpersonal skills. Our programs offer students the options of certificates, associate degrees, and associate transfer degrees, in fields as diverse as nursing, massage therapy, and early childhood education. All courses are taught by experienced faculty members who are leaders in their respective fields. The programs are challenging and place a high value on integrity.

## Anesthesia Technologist, AAS-T

**Associate of Applied Science - Transfer Degree: 101-106 credits**

### Enrollment Point: Winter Quarter

This program provides entry level training leading to an Associate of Applied Science-Transfer Degree (AAS-T). Curriculum is based on the American Society of Anesthesia Technologists and Technicians (ASATT) standards and guidelines. Course work includes the following: medical terminology, pharmacology, EKG analysis, anesthesia equipment principles and applications, and general medical knowledge. Included in the program are intensive clinical experiences in local area hospitals.

An Associate of Applied Science-Transfer Degree (AAS-T) is awarded upon successful completion of course requirements (two [2] attempts per course only).

### Program Learning Outcomes:

- Assume the role of a competent, caring Anesthesia Technologist in a variety of healthcare settings under the direct supervision of the licensed healthcare provider.
- Demonstrate the principles of basic and advanced airway management in all phases of the perioperative episode of care.
- Demonstrate critical thinking skills; prioritizing, analyzing, anticipating, resolving problems and acting instinctively and decisively in the anesthesia health care environment.
- Demonstrate accountability of practice with adherence to ethical and legal standards of the Anesthesia Technologist profession.
- Communicate effectively in the perioperative healthcare environment with all members of the healthcare team.
- Demonstrate rationale and competency with regard to anesthesia related equipment.

### Program Requirements

### Quarter 1

- COL 101 - College Success 2 Credits
- ANES 101 - Introduction to Anesthesia Technology 3 Credits
- AMATH 170T - Mathematics for the Health Sciences Technician 3 Credits
- BIOL 105 - Introduction to Anatomy and Physiology 5 Credits
- ENGL& 101 - English Composition I 5 Credits

### Quarter 2

- ANES 103 - Anesthesia Technology Lab I 4 Credits
- ANES 105 - Pharmacology I 3 Credits
- ANES 109 - Microbiology 3 Credits
- ANES 112 - Operating Room Environment 3 Credits
- MATH 092 - Descriptive Statistics with Algebra II 5 Credits \*

### Quarter 3

- ANES 104 - Anesthesia Technology Lab II 3 Credits
- ANES 108 - Medical Terminology 3 Credits
- ANES 110 - EKG Analysis 2 Credits
- ANES 118 - Phlebotomy 4 Credits
- MATH 136 - Inferential Statistics 5 Credits \*

### Quarter 4

- ANES 106 - Pharmacology II 3 Credits
- ANES 107 - Law and Ethics of Healthcare 3 Credits
- ANES 115 - Anesthesia Technology Lab III 3 Credits
- ANES 125 - Anesthesia Technology Lab IV 3 Credits
- CHEM& 121 - Introduction to Chemistry 5 Credits

### Quarter 5

- ANES 100 - Healthcare Provider First Aid/CPR, AED and Bloodborne Pathogens 2 Credits
- ANES 102 - Anesthesia Equipment: Principals and Applications 3 Credits
- ANES 130 - Advanced Cardiac Life Support and Pediatric Cardiac Life Support 3 Credits
- ANES 135 - Anesthesia Technology Lab V 3 Credits
- ANES 191 - Anesthesia Technology Clinical Practicum I 6 Credits

### Quarter 6

- ANES 192 - Anesthesia Technology Clinical Practicum II 6 Credits
- ANES 193 - Anesthesia Technology Clinical Practicum III 6 Credits

- ANES 194 - Certification Exam Prep 2 Credits
- PSYC& 100 - General Psychology 5 Credits

\*Students can replace MATH 092+MATH 136 with MATH& 146 (5 credits). Students who choose this option can complete the program with 101 total credits.

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- \*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.

## Central Service Technician Certificate

### Certificate of Completion: 30 credits

### Enrollment Point: Winter or Summer Quarter

This program is designed to provide the training and the clinical experience required to prepare you for the International Association of Healthcare Central Service Materiel Management (IAHCSCMM) Certified Registered Central Service Technician (CRCST). It can also be your first step toward a career in the healthcare field. Students gain knowledge of National and International standards for decontamination and sterilization. Students study the principles of microbiology with emphasis on decontamination, disinfection and sterilization, with an overview of medical terminology, fundamentals of human anatomy, proper care and handling of surgical instrumentation, basic surgical instrument identification, inventory control, distribution, purchasing, and healthcare trends. An internship at a local hospital is included in the program.

### Program Learning Outcomes:

- Maintain a safe and efficient work environment that complies with the current industry standards while utilizing knowledge in the role of Central Service Technician.
- Demonstrate the ability to abide by professional and ethical standards of the Central Service Department and assume responsibility for professional growth within the profession.
- Communicate effectively with external and internal customers of a diverse population on a professional level.
- Demonstrate critical thinking and reasoning skills to prioritize, anticipate and evaluate the needs of the department and customers of the Central Service Department.
- Perform the principles of infection control and personal protection in the decontamination,

prep/assembly and sterilizing of surgical instrumentation and equipment for patient care.

- Qualify to take the national certification test for Central Service Technicians given by the International Association of HealthCare Central Service Material Management (IAHCSMM).

## Program Requirements

### Quarter 1

- CST 100 - Central Service Technician Fundamentals *8 Credits*
- CST 102 - Healthcare Provider First Aid/CPR, AED and Bloodborne Pathogens *2 Credits*
- CST 104 - Central Service Basic Sciences *3 Credits*
- CST 105 - Central Service Technician Skills Laboratory *3 Credits*

### Quarter 2

- CST 191 - Central Service Clinical Practicum I *4 Credits*
- CST 192 - Central Service Clinical Practicum II *10 Credits*

## GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Dental Assistant Certificate

### Certificate of Completion: 80 credits

#### Enrollment Point: Summer or Fall Quarter

The Dental Assistant program is accredited by the Commission on Dental Accreditation, a division of the American Dental Association. Students prepare for employment as Certified Dental Assistants (CDA). CDA's will work in dental offices performing such tasks as four-handed dentistry, bookkeeping, x-rays, and expanded functions. The program includes lectures, demonstrations, small and large group discussions, and practicum.

Class typically meets Monday through Friday from 8:00 a.m. - 2:30 p.m. Specific course hours will be provided upon entry to program. On clinic days, class meets from 7:30 a.m. - 3:00 p.m. The hours during internship vary depending on the intern site.

A Certificate of Completion is awarded upon successful completion of all program course requirements (two [2] attempts per course only). To earn an Associate of

Applied Science (AAS) or Associate of Applied Science-Transfer (AAS-T) degree, students must complete the certificate program and meet the general education course requirements.

## Program Learning Outcomes:

- Engage students in the activities that support the knowledge and skills development necessary to perform assisting, laboratory, radiology and expanded functions skills as allowed by the Washington State Dental Practice Act.
- Apply knowledge, skills and training in human relations, communications, basic principles of ethics, jurisprudence, preventive dentistry, and nutritional counseling in a dental practice.
- Demonstrate skills and attitudes that contribute to safe working conditions in the dental office, including environmental issues and all aspects of infection control as they relate to dentistry.
- Prepare students to achieve certification by successfully completing the Dental Assistant National Board Exams.
- Apply critical thinking skills to problem solve in a team environment, to provide professional patient care.

## Program Requirements

Below is the course sequence for students who enter in Summer Quarter. The course sequence for other entry points may vary.

### Quarter 1

- COL 101 - College Success *2 Credits*
- DENT 100 - First Aid, CPR and Vital Signs *2 Credits*
- DENT 101 - Dental Profession *3 Credits*
- COMP 100 - Applied Composition *5 Credits*
- *or* ENGL& 101 - English Composition I *5 Credits* (required for AAS-T)

### Quarter 2

- DENT 102 - Pre-Clinical Assisting I *5 Credits*
- DENT 104 - Dental Materials I *2 Credits*
- DENT 133 - Infection Control & Microbiology *5 Credits*
- DENT 141 - Dental Sciences I *3 Credits*
- DENT 153 - Radiology I *3 Credits*
- DENT 171 - Interpersonal Communications *2 Credits*

### Quarter 3

- DENT 103 - Clinical Assisting I *4 Credits*

- DENT 112 - Pre-Clinical Assisting II 3 Credits
- DENT 114 - Dental Materials II 3 Credits
- DENT 134 - Specialties 3 Credits
- DENT 145 - Dental Sciences II 3 Credits
- DENT 151 - Preventive Dentistry & Nutrition 2 Credits
- DENT 154 - Radiology II 2 Credits

#### Quarter 4

- DENT 105 - Expanded Functions 2 Credits
- DENT 113 - Clinical Assisting II & Practicum 7 Credits
- DENT 138 - Business Administration 2 Credits
- DENT 155 - Radiology III 2 Credits
- DENT 191 - Job Seeking Skills 1 Credits
- DENT 192 - Internship I 2 Credits

#### Quarter 5

- AMATH 161G - Mathematics 3 Credits
- DENT 137 - Laboratory Procedures 2 Credits
- DENT 193 - Internship II 7 Credits

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.7**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Dental Assistant, AAS

### Associate of Applied Science Degree: 90 credits

#### Enrollment Point: Summer or Fall Quarter

The Dental Assistant program is accredited by the Commission on Dental Accreditation, a division of the American Dental Association. Students prepare for employment as Certified Dental Assistants (CDA). CDA's will work in dental offices performing such tasks as four-handed dentistry, bookkeeping, x-rays, and expanded functions. The program includes lectures, demonstrations, small and large group discussions, and practicum.

Class typically meets Monday through Friday from 8:00 a.m. - 2:30 p.m. Specific course hours will be provided upon entry to program. On clinic days, class meets from 7:30 a.m. - 3:00 p.m. The hours during internship vary depending on the intern site.

A Certificate of Completion is awarded upon successful completion of all program course requirements (two [2] attempts per course only). To earn an Associate of Applied Science (AAS) or Associate of Applied Science-

Transfer (AAS-T) degree, students must complete the certificate program and meet the general education course requirements.

#### Program Learning Outcomes:

- Engage students in the activities that support the knowledge and skills development necessary to perform assisting, laboratory, radiology and expanded functions skills as allowed by the Washington State Dental Practice Act.
- Apply knowledge, skills and training in human relations, communications, basic principles of ethics, jurisprudence, preventive dentistry, and nutritional counseling in a dental practice.
- Demonstrate skills and attitudes that contribute to safe working conditions in the dental office, including environmental issues and all aspects of infection control as they relate to dentistry.
- Prepare students to achieve certification by successfully completing the Dental Assistant National Board Exams.
- Apply critical thinking skills to problem solve in a team environment, to provide professional patient care.

#### Program Requirements

Below is the course sequence for students who enter in Summer Quarter. The course sequence for other entry points may vary.

#### Quarter 1

- COL 101 - College Success 2 Credits
- DENT 100 - First Aid, CPR and Vital Signs 2 Credits
- DENT 101 - Dental Profession 3 Credits
- COMP 100 - Applied Composition 5 Credits
- *or* ENGL& 101 - English Composition I 5 Credits (required for AAS-T)

#### Quarter 2

- DENT 102 - Pre-Clinical Assisting I 5 Credits
- DENT 104 - Dental Materials I 2 Credits
- DENT 133 - Infection Control & Microbiology 5 Credits
- DENT 141 - Dental Sciences I 3 Credits
- DENT 153 - Radiology I 3 Credits
- DENT 171 - Interpersonal Communications 2 Credits

#### Quarter 3

- DENT 103 - Clinical Assisting I 4 Credits
- DENT 112 - Pre-Clinical Assisting II 3 Credits



- DENT 114 - Dental Materials II 3 Credits
- DENT 134 - Specialties 3 Credits
- DENT 145 - Dental Sciences II 3 Credits
- DENT 151 - Preventive Dentistry & Nutrition 2 Credits
- DENT 154 - Radiology II 2 Credits

#### Quarter 4

- DENT 105 - Expanded Functions 2 Credits
- DENT 113 - Clinical Assisting II & Practicum 7 Credits
- DENT 138 - Business Administration 2 Credits
- DENT 155 - Radiology III 2 Credits
- DENT 191 - Job Seeking Skills 1 Credits
- DENT 192 - Internship I 2 Credits

#### Quarter 5

- AMATH 161G - Mathematics 3 Credits
- DENT 137 - Laboratory Procedures 2 Credits
- DENT 193 - Internship II 7 Credits

#### Course Requirements for AAS Degree

Students choose two 5 credit courses which can be taken during the final quarter.

- AMATH 175 - Financial Math 5 Credits
- or BIOL& 160 - General Biology 5 Credits
- or BIOL& 241 - Human Anatomy & Physiology I 5 Credits
- or NUTR& 101 - Human Nutrition 5 Credits
- PSYC& 100 - General Psychology 5 Credits

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each Certificate of Completion course: **2.7**
- Minimum grade for all other courses: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

### Dental Assistant, AAS-T

#### Associate of Applied Science - Transfer Degree: 95 credits

#### Enrollment Point: Summer or Fall Quarter

The Dental Assistant program is accredited by the Commission on Dental Accreditation, a division of the American Dental Association. Students prepare for employment as Certified Dental Assistants (CDA). CDA's will work in dental offices performing such tasks as four-handed dentistry, bookkeeping, x-rays, Renton Technical College

and expanded functions. The program includes lectures, demonstrations, small and large group discussions, and practicum.

Class typically meets Monday through Friday from 8:00 a.m. - 2:30 p.m. Specific course hours will be provided upon entry to program. On clinic days, class meets from 7:30 a.m. - 3:00 p.m. The hours during internship vary depending on the intern site.

A Certificate of Completion is awarded upon successful completion of all program course requirements (two [2] attempts per course only). To earn an Associate of Applied Science (AAS) or Associate of Applied Science-Transfer (AAS-T) degree, students must complete the certificate program and meet the general education course requirements.

#### Program Learning Outcomes:

- Engage students in the activities that support the knowledge and skills development necessary to perform assisting, laboratory, radiology and expanded functions skills as allowed by the Washington State Dental Practice Act.
- Apply knowledge, skills and training in human relations, communications, basic principles of ethics, jurisprudence, preventive dentistry, and nutritional counseling in a dental practice.
- Demonstrate skills and attitudes that contribute to safe working conditions in the dental office, including environmental issues and all aspects of infection control as they relate to dentistry.
- Prepare students to achieve certification by successfully completing the Dental Assistant National Board Exams.
- Apply critical thinking skills to problem solve in a team environment, to provide professional patient care.

#### Program Requirements

Below is the course sequence for students who enter in Summer Quarter. The course sequence for other entry points may vary.

#### Quarter 1



- COL 101 - College Success 2 *Credits*
- DENT 100 - First Aid, CPR and Vital Signs 2 *Credits*
- DENT 101 - Dental Profession 3 *Credits*
- COMP 100 - Applied Composition 5 *Credits*
- or ENGL& 101 - English Composition I 5 *Credits* (required for AAS-T)

#### Quarter 2

- DENT 102 - Pre-Clinical Assisting I 5 *Credits*
- DENT 104 - Dental Materials I 2 *Credits*
- DENT 133 - Infection Control & Microbiology 5 *Credits*
- DENT 141 - Dental Sciences I 3 *Credits*
- DENT 153 - Radiology I 3 *Credits*
- DENT 171 - Interpersonal Communications 2 *Credits*

#### Quarter 3

- DENT 103 - Clinical Assisting I 4 *Credits*
- DENT 112 - Pre-Clinical Assisting II 3 *Credits*
- DENT 114 - Dental Materials II 3 *Credits*
- DENT 134 - Specialties 3 *Credits*
- DENT 145 - Dental Sciences II 3 *Credits*
- DENT 151 - Preventive Dentistry & Nutrition 2 *Credits*
- DENT 154 - Radiology II 2 *Credits*

#### Quarter 4

- DENT 105 - Expanded Functions 2 *Credits*
- DENT 113 - Clinical Assisting II & Practicum 7 *Credits*
- DENT 138 - Business Administration 2 *Credits*
- DENT 155 - Radiology III 2 *Credits*
- DENT 191 - Job Seeking Skills 1 *Credits*
- DENT 192 - Internship I 2 *Credits*

#### Quarter 5

- AMATH 161G - Mathematics 3 *Credits*
- DENT 137 - Laboratory Procedures 2 *Credits*
- DENT 193 - Internship II 7 *Credits*

#### Course Requirements for AAS-T Degree

Students need an additional 15 credits.

*Two of the following:*

- BIOL& 160 - General Biology 5 *Credits*

- BIOL& 241 - Human Anatomy & Physiology I 5 *Credits*
- NUTR& 101 - Human Nutrition 5 *Credits*
- SOC& 101 - Introduction to Sociology 5 *Credits*

*One of the following:*

- MATH& 107 - Math in Society 5 *Credits*
- MATH& 146 - Introduction to Statistics 5 *Credits*

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each Certificate of Completion course: **2.7**
- Minimum grade for all other courses: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

### Early Childhood Education (ECE) Initial Certificate

**Certificate of Completion: 12 credits**

**Enrollment Point: Fall, Winter, or Spring Quarter**

The Early Childhood Education (ECE) program prepares students with the knowledge and skills required to become a successful and professional early childhood educator working with children from birth to age 8. The ECE program at RTC provides students with the state required certificates to work as assistant teachers, lead teachers, center directors, family home operators and more. The ability to pass a background check is required.

Students will learn how to create developmentally appropriate, nurturing, challenging, engaging, culturally responsive, and safe learning environments for young children and develop skills for building professional and positive relationships with all families. Through Hybrid and Online instruction this program builds the foundation for teaching and working effectively with children. Meaningful, interactive practice oriented learning during practicum field experience will help students apply their acquired skills in a workplace environment. Student success is our priority and hybrid classes have the ability to offer students additional resources such as: Washington's Integrated Basic Education and Skills Training Program (I-BEST) which is a nationally recognized model that uses a team-teaching approach to quickly boost students' literacy while they learn job skills or academic subjects. Students in a hybrid course come to

campus at scheduled times and meet face-to-face with instructors and fellow students. Many class activities are conducted online, including course work assignments, discussions and group projects. Online courses are completed fully online. Students can take an online course when and where they choose. Instructors give assignments and due dates throughout the quarter to keep students on track. In some cases, students are required to interact with each other and the teacher online for a certain number of times during the week or quarter. Some online courses are entirely self-paced.

RTC offers stackable certificates to meet the WA State Dept. of Children, Youth and Families requirements for all roles in early learning professionals working in Family Home Early Learning Locations and Early Learning Centers. These stackable certificates, offer state-approved training that meet the staff qualifications and provide opportunities for educational and industry advancement to move upward in your career.

Students who successfully pass all competencies are awarded a Certificate of Completion (*65 credits*). Advanced standing is possible for Tech Prep students or for those able to present transcript evidence of prior training.

To earn an Associate of Applied Science degree, the student must complete all requirements for the Early Childhood Education certificate program (*65 credits*) plus 25 additional credits.

To earn an Associate of Applied Science-Transfer Degree, the student must complete all the requirements for the Early Childhood Education certificate program (*65 credits*) and 30-45 additional credits, with specific requirements in mathematics.

#### **Program Learning Outcomes:**

- Create a nurturing, caring and culturally responsive learning environment for all children.
- Develop and implement age appropriate programs that meet individual and group needs.
- Promote positive relationships with children and families valuing diversity.
- Apply health and safety standards.
- Demonstrate positive work ethic and professionalism.
- Demonstrate knowledge and skills relevant for professionals in early childhood education.

#### **Program Requirements**

##### **Quarter 1**

- ECED& 105 - Introduction to Early Childhood Education *5 Credits*
- ECED& 107 - Health, Safety and Nutrition *5 Credits*
- ECED& 120 - Practicum - Nurturing Relationships *2 Credits*

#### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**

### **Early Childhood Education (ECE) Short Certificate of Specialization-General**

#### **Certificate of Completion: 20 credits**

#### **Enrollment Point: Fall, Winter, or Spring Quarter**

The Early Childhood Education (ECE) program prepares students with the knowledge and skills required to become a successful and professional early childhood educator working with children from birth to age 8. The ECE program at RTC provides students with the state required certificates to work as assistant teachers, lead teachers, center directors, family home operators and more. The ability to pass a background check is required.

Students will learn how to create developmentally appropriate, nurturing, challenging, engaging, culturally responsive, and safe learning environments for young children and develop skills for building professional and positive relationships with all families. Through Hybrid and Online instruction this program builds the foundation for teaching and working effectively with children. Meaningful, interactive practice oriented learning during practicum field experience will help students apply their acquired skills in a workplace environment. Student success is our priority and hybrid classes have the ability to offer students additional resources such as: Washington's Integrated Basic Education and Skills Training Program (I-BEST) which is a nationally recognized model that uses a team-teaching approach to quickly boost students' literacy while they learn job skills or academic subjects. Students in a hybrid course come to campus at scheduled times and meet face-to-face with instructors and fellow students. Many class activities are conducted online, including course work assignments, discussions and group projects. Online courses are completed fully online. Students can take an online course when and where they choose. Instructors give assignments and due dates throughout the quarter to keep students on track. In some cases, students are required to interact with each other and the teacher

online for a certain number of times during the week or quarter. Some online courses are entirely self-paced.

RTC offers stackable certificates to meet the WA State Dept. of Children, Youth and Families requirements for all roles in early learning professionals working in Family Home Early Learning Locations and Early Learning Centers. These stackable certificates, offer state-approved training that meet the staff qualifications and provide opportunities for educational and industry advancement to move upward in your career.

Students who successfully pass all competencies are awarded a Certificate of Completion (*65 credits*). Advanced standing is possible for Tech Prep students or for those able to present transcript evidence of prior training.

To earn an Associate of Applied Science degree, the student must complete all requirements for the Early Childhood Education certificate program (*65 credits*) plus 25 additional credits.

To earn an Associate of Applied Science-Transfer Degree, the student must complete all the requirements for the Early Childhood Education certificate program (*65 credits*) and 30-45 additional credits, with specific requirements in mathematics.

#### **Program Learning Outcomes:**

- Create a nurturing, caring and culturally responsive learning environment for all children.
- Develop and implement age appropriate programs that meet individual and group needs.
- Promote positive relationships with children and families valuing diversity.
- Apply health and safety standards.
- Demonstrate positive work ethic and professionalism.
- Demonstrate knowledge and skills relevant for professionals in early childhood education.

#### **Program Requirements**

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

##### **Quarter 1**

- ECED& 105 - Introduction to Early Childhood Education *5 Credits*
- ECED& 107 - Health, Safety and Nutrition *5 Credits*
- ECED& 120 - Practicum - Nurturing Relationships *2 Credits*

- EDUC& 115 - Child Development *5 Credits*

##### **Quarter 3**

- ECED& 132 - Infant Toddler Care *3 Credits*
- or EDUC& 130 - Guiding Behavior *3 Credits*

#### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**

## **Early Childhood Education (ECE) State Certificate**

### **Certificate of Completion: 47 credits**

#### **Enrollment Point: Fall, Winter, or Spring Quarter**

The Early Childhood Education (ECE) program prepares students with the knowledge and skills required to become a successful and professional early childhood educator working with children from birth to age 8. The ECE program at RTC provides students with the state required certificates to work as assistant teachers, lead teachers, center directors, family home operators and more. The ability to pass a background check is required.

Students will learn how to create developmentally appropriate, nurturing, challenging, engaging, culturally responsive, and safe learning environments for young children and develop skills for building professional and positive relationships with all families. Through Hybrid and Online instruction this program builds the foundation for teaching and working effectively with children. Meaningful, interactive practice oriented learning during practicum field experience will help students apply their acquired skills in a workplace environment. Student success is our priority and hybrid classes have the ability to offer students additional resources such as: Washington's Integrated Basic Education and Skills Training Program (I-BEST) which is a nationally recognized model that uses a team-teaching approach to quickly boost students' literacy while they learn job skills or academic subjects. Students in a hybrid course come to campus at scheduled times and meet face-to-face with instructors and fellow students. Many class activities are conducted online, including course work assignments, discussions and group projects. Online courses are completed fully online. Students can take an online course when and where they choose. Instructors give assignments and due dates throughout the quarter to keep students on track. In some cases, students are required to interact with each other and the teacher online for a certain number of times during the week or quarter. Some online courses are entirely self-paced.

RTC offers stackable certificates to meet the WA State Dept. of Children, Youth and Families requirements for all roles in early learning professionals working in Family Home Early Learning Locations and Early Learning Centers. These stackable certificates, offer state-approved training that meet the staff qualifications and provide opportunities for educational and industry advancement to move upward in your career.

Students who successfully pass all competencies are awarded a Certificate of Completion (*65 credits*). Advanced standing is possible for Tech Prep students or for those able to present transcript evidence of prior training.

To earn an Associate of Applied Science degree, the student must complete all requirements for the Early Childhood Education certificate program (*65 credits*) plus 25 additional credits.

To earn an Associate of Applied Science-Transfer Degree, the student must complete all the requirements for the Early Childhood Education certificate program (*65 credits*) and 30-45 additional credits, with specific requirements in mathematics.

#### **Program Learning Outcomes:**

- Create a nurturing, caring and culturally responsive learning environment for all children.
- Develop and implement age appropriate programs that meet individual and group needs.
- Promote positive relationships with children and families valuing diversity.
- Apply health and safety standards.
- Demonstrate positive work ethic and professionalism.
- Demonstrate knowledge and skills relevant for professionals in early childhood education.

#### **Program Requirements**

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

##### **Quarter 1**

- ECED& 105 - Introduction to Early Childhood Education *5 Credits*
- ECED& 107 - Health, Safety and Nutrition *5 Credits*
- ECED& 120 - Practicum - Nurturing Relationships *2 Credits*
- EDUC& 115 - Child Development *5 Credits*

##### **Quarter 2**

Renton Technical College

- ECED& 160 - Curriculum Development I *5 Credits*
- ECED& 170 - Learning Environments *3 Credits*
- ECED& 180 - Language and Literacy Development *3 Credits*
- ECED& 190 - Observation and Assessment *3 Credits*
- EDUC& 150 - Child, Family and Community *3 Credits*

##### **Quarter 3**

- ECED& 132 - Infant Toddler Care *3 Credits*
- or EDUC& 130 - Guiding Behavior *3 Credits*

##### **Quarter 4**

- AMATH 175 - Financial Math *5 Credits*
- or AMATH 190 - Financial Algebra *5 Credits*
- ENGL& 101 - English Composition I *5 Credits*

#### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**

## **Early Childhood Education Certificate**

#### **Certificate of Completion: 65 credits**

#### **Enrollment Point: Fall, Winter, or Spring Quarter**

The Early Childhood Education (ECE) program prepares students with the knowledge and skills required to become a successful and professional early childhood educator working with children from birth to age 8. The ECE program at RTC provides students with the state required certificates to work as assistant teachers, lead teachers, center directors, family home operators and more. The ability to pass a background check is required.

Students will learn how to create developmentally appropriate, nurturing, challenging, engaging, culturally responsive, and safe learning environments for young children and develop skills for building professional and positive relationships with all families. Through Hybrid and Online instruction this program builds the foundation for teaching and working effectively with children. Meaningful, interactive practice oriented learning during practicum field experience will help students apply their acquired skills in a workplace environment. Student success is our priority and hybrid classes have the ability to offer students additional resources such as: Washington's Integrated Basic Education and Skills Training Program (I-BEST) which is a nationally recognized model that uses a team-teaching approach to quickly boost students' literacy while they learn job skills or academic subjects. Students in a hybrid course come to



campus at scheduled times and meet face-to-face with instructors and fellow students. Many class activities are conducted online, including course work assignments, discussions and group projects. Online courses are completed fully online. Students can take an online course when and where they choose. Instructors give assignments and due dates throughout the quarter to keep students on track. In some cases, students are required to interact with each other and the teacher online for a certain number of times during the week or quarter. Some online courses are entirely self-paced.

RTC offers stackable certificates to meet the WA State Dept. of Children, Youth and Families requirements for all roles in early learning professionals working in Family Home Early Learning Locations and Early Learning Centers. These stackable certificates, offer state-approved training that meet the staff qualifications and provide opportunities for educational and industry advancement to move upward in your career.

Students who successfully pass all competencies are awarded a Certificate of Completion (*65 credits*). Advanced standing is possible for Tech Prep students or for those able to present transcript evidence of prior training.

To earn an Associate of Applied Science degree, the student must complete all requirements for the Early Childhood Education certificate program (*65 credits*) plus 25 additional credits.

To earn an Associate of Applied Science-Transfer Degree, the student must complete all the requirements for the Early Childhood Education certificate program (*65 credits*) and 30-45 additional credits, with specific requirements in mathematics.

#### **Program Learning Outcomes:**

- Create a nurturing, caring and culturally responsive learning environment for all children.
- Develop and implement age appropriate programs that meet individual and group needs.
- Promote positive relationships with children and families valuing diversity.
- Apply health and safety standards.
- Demonstrate positive work ethic and professionalism.
- Demonstrate knowledge and skills relevant for professionals in early childhood education.

#### **Program Requirements**

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

#### **Quarter 1**

- COL 101 - College Success *2 Credits*
- ECED& 105 - Introduction to Early Childhood Education *5 Credits*
- ECED& 107 - Health, Safety and Nutrition *5 Credits*
- ECED& 120 - Practicum - Nurturing Relationships *2 Credits*
- EDUC& 115 - Child Development *5 Credits*

#### **Quarter 2**

- ECED& 160 - Curriculum Development I *5 Credits*
- ECED& 170 - Learning Environments *3 Credits*
- ECED& 180 - Language and Literacy Development *3 Credits*
- ECED& 190 - Observation and Assessment *3 Credits*
- EDUC& 150 - Child, Family and Community *3 Credits*

#### **Quarter 3**

- ECC 120 - Culture and Diversity *3 Credits*
- ECC 192 - Practicum II *4 Credits*
- ECC 202 - Technology for Teachers *2 Credits*
- ECED& 132 - Infant Toddler Care *3 Credits*
- or EDUC& 130 - Guiding Behavior *3 Credits*

#### **Quarter 4**

- ECC 193 - Practicum III *4 Credits*
- AMATH 175 - Financial Math *5 Credits*
- or AMATH 190 - Financial Algebra *5 Credits*
- ENGL& 101 - English Composition I *5 Credits*

#### **Quarter 5**

- EDUC& 203 - Exceptional Child *3 Credits*

#### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**

### **Early Childhood Education, AAS**

**Associate of Applied Science Degree: 90 credits**

**Enrollment Point: Fall, Winter, or Spring Quarter**

The Early Childhood Education (ECE) program prepares students with the knowledge and skills required to become a successful and professional early childhood

educator working with children from birth to age 8. The ECE program at RTC provides students with the state required certificates to work as assistant teachers, lead teachers, center directors, family home operators and more. The ability to pass a background check is required.

Students will learn how to create developmentally appropriate, nurturing, challenging, engaging, culturally responsive, and safe learning environments for young children and develop skills for building professional and positive relationships with all families. Through Hybrid and Online instruction this program builds the foundation for teaching and working effectively with children. Meaningful, interactive practice oriented learning during practicum field experience will help students apply their acquired skills in a workplace environment. Student success is our priority and hybrid classes have the ability to offer students additional resources such as: Washington's Integrated Basic Education and Skills Training Program (I-BEST) which is a nationally recognized model that uses a team-teaching approach to quickly boost students' literacy while they learn job skills or academic subjects. Students in a hybrid course come to campus at scheduled times and meet face-to-face with instructors and fellow students. Many class activities are conducted online, including course work assignments, discussions and group projects. Online courses are completed fully online. Students can take an online course when and where they choose. Instructors give assignments and due dates throughout the quarter to keep students on track. In some cases, students are required to interact with each other and the teacher online for a certain number of times during the week or quarter. Some online courses are entirely self-paced.

RTC offers stackable certificates to meet the WA State Dept. of Children, Youth and Families requirements for all roles in early learning professionals working in Family Home Early Learning Locations and Early Learning Centers. These stackable certificates, offer state-approved training that meet the staff qualifications and provide opportunities for educational and industry advancement to move upward in your career.

Students who successfully pass all competencies are awarded a Certificate of Completion (65 credits). Advanced standing is possible for Tech Prep students or for those able to present transcript evidence of prior training.

To earn an Associate of Applied Science degree, the student must complete all requirements for the Early Childhood Education certificate program (65 credits) plus 25 additional credits.

To earn an Associate of Applied Science-Transfer Degree, the student must complete all the requirements for the Early Childhood Education certificate program (65 credits) and 30-45 additional credits, with specific requirements in mathematics.

#### **Program Learning Outcomes:**

- Create a nurturing, caring and culturally responsive learning environment for all children.
- Develop and implement age appropriate programs that meet individual and group needs.
- Promote positive relationships with children and families valuing diversity.
- Apply health and safety standards.
- Demonstrate positive work ethic and professionalism.
- Demonstrate knowledge and skills relevant for professionals in early childhood education.

#### **Program Requirements**

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

##### **Quarter 1**

- COL 101 - College Success 2 Credits
- ECED& 105 - Introduction to Early Childhood Education 5 Credits
- ECED& 107 - Health, Safety and Nutrition 5 Credits
- ECED& 120 - Practicum - Nurturing Relationships 2 Credits
- EDUC& 115 - Child Development 5 Credits

##### **Quarter 2**

- ECED& 160 - Curriculum Development I 5 Credits
- ECED& 170 - Learning Environments 3 Credits
- ECED& 180 - Language and Literacy Development 3 Credits
- ECED& 190 - Observation and Assessment 3 Credits
- EDUC& 150 - Child, Family and Community 3 Credits

##### **Quarter 3**

- ECC 120 - Culture and Diversity 3 Credits
- ECC 192 - Practicum II 4 Credits
- ECC 202 - Technology for Teachers 2 Credits
- ECED& 132 - Infant Toddler Care 3 Credits
- or EDUC& 130 - Guiding Behavior 3 Credits

##### **Quarter 4**



- ECC 193 - Practicum III 4 *Credits*
- AMATH 175 - Financial Math 5 *Credits*
- or AMATH 190 - Financial Algebra 5 *Credits*
- ENGL& 101 - English Composition I 5 *Credits*

#### Quarter 5

- ECC 290 - Practicum IV - Implementing DAP (Developmentally Appropriate Practice) 5 *Credits*
- EDUC& 203 - Exceptional Child 3 *Credits*
- CMST& 220 - Public Speaking 5 *Credits*
- or PSYC& 200 - Lifespan Psychology 5 *Credits*

#### Quarter 6

- ECC 185 - Curriculum Development II 5 *Credits*
- ECC 250 - Early Childhood Capstone 5 *Credits*
- CMST& 220 - Public Speaking 5 *Credits*
- or PSYC& 200 - Lifespan Psychology 5 *Credits*

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**

### Early Childhood Education, AAS-T

**Associate of Applied Science - Transfer Degree: 95-110 credits**

#### Enrollment Point: Fall, Winter, or Spring Quarter

The Early Childhood Education (ECE) program prepares students with the knowledge and skills required to become a successful and professional early childhood educator working with children from birth to age 8. The ECE program at RTC provides students with the state required certificates to work as assistant teachers, lead teachers, center directors, family home operators and more. The ability to pass a background check is required.

Students will learn how to create developmentally appropriate, nurturing, challenging, engaging, culturally responsive, and safe learning environments for young children and develop skills for building professional and positive relationships with all families. Through Hybrid and Online instruction this program builds the foundation for teaching and working effectively with children. Meaningful, interactive practice oriented learning during practicum field experience will help students apply their acquired skills in a workplace environment. Student success is our priority and hybrid classes have the ability to offer students additional resources such as: Washington's Integrated Basic Education and Skills Training Program (I-BEST) which is a nationally recognized model that uses a team-teaching approach to quickly boost students' literacy while they learn job skills or

academic subjects. Students in a hybrid course come to campus at scheduled times and meet face-to-face with instructors and fellow students. Many class activities are conducted online, including course work assignments, discussions and group projects. Online courses are completed fully online. Students can take an online course when and where they choose. Instructors give assignments and due dates throughout the quarter to keep students on track. In some cases, students are required to interact with each other and the teacher online for a certain number of times during the week or quarter. Some online courses are entirely self-paced.

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Students who successfully pass all competencies are awarded a Certificate of Completion (65 *credits*). Advanced standing is possible for Tech Prep students or for those able to present transcript evidence of prior training.

To earn an Associate of Applied Science degree, the student must complete all requirements for the Early Childhood Education certificate program (65 *credits*) plus 25 additional credits.

To earn an Associate of Applied Science-Transfer Degree, the student must complete all the requirements for the Early Childhood Education certificate program (65 *credits*) and 30-45 additional credits, with specific requirements in mathematics.

#### Program Learning Outcomes:

- Create a nurturing, caring and culturally responsive learning environment for all children.
- Develop and implement age appropriate programs that meet individual and group needs.
- Promote positive relationships with children and families valuing diversity.
- Apply health and safety standards.
- Demonstrate positive work ethic and professionalism.
- Demonstrate knowledge and skills relevant for professionals in early childhood education.

#### Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

### Quarter 1

- COL 101 - College Success *2 Credits*
- ECED& 105 - Introduction to Early Childhood Education *5 Credits*
- ECED& 107 - Health, Safety and Nutrition *5 Credits*
- ECED& 120 - Practicum - Nurturing Relationships *2 Credits*
- EDUC& 115 - Child Development *5 Credits*

### Quarter 2

- ECED& 160 - Curriculum Development I *5 Credits*
- ECED& 170 - Learning Environments *3 Credits*
- ECED& 180 - Language and Literacy Development *3 Credits*
- ECED& 190 - Observation and Assessment *3 Credits*
- EDUC& 150 - Child, Family and Community *3 Credits*

### Quarter 3

- ECC 120 - Culture and Diversity *3 Credits*
- ECC 192 - Practicum II *4 Credits*
- ECC 202 - Technology for Teachers *2 Credits*
- ECED& 132 - Infant Toddler Care *3 Credits*
- *or* EDUC& 130 - Guiding Behavior *3 Credits*

### Quarter 4

- ECC 193 - Practicum III *4 Credits*
- AMATH 175 - Financial Math *5 Credits*
- *or* AMATH 190 - Financial Algebra *5 Credits*
- ENGL& 101 - English Composition I *5 Credits*

### Quarter 5

- ECC 290 - Practicum IV - Implementing DAP (Developmentally Appropriate Practice) *5 Credits*
- EDUC& 203 - Exceptional Child *3 Credits*
- CMST& 220 - Public Speaking *5 Credits*
- *or* PSYC& 200 - Lifespan Psychology *5 Credits*

### Quarter 6

- ECC 185 - Curriculum Development II *5 Credits*
- ECC 250 - Early Childhood Capstone *5 Credits*
- CMST& 220 - Public Speaking *5 Credits*
- *or* PSYC& 200 - Lifespan Psychology *5 Credits*
- MATH& 107 - Math in Society *5 Credits*

### Optional Courses

- MUSC& 105 - Music Appreciation *5 Credits*
- NUTR& 101 - Human Nutrition *5 Credits*
- SOC& 101 - Introduction to Sociology *5 Credits*

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**

## Health Care Navigator Certificate

### Certificate of Completion: 32 credits

### Enrollment Point: Fall or Winter Quarter

This certificate covers navigating and coordinating care in health and human services systems. Incorporated in the certificate are factors affecting patients such as chronic disease, behavioral health, wellness and patient activation and engagement. Communication strategies such as patient/client coaching, motivational interviewing, and health literacy are covered. Diverse patient experience, decision support, and advocacy will be explored. Relevant case studies and applied learning strategies are used to build skills and knowledge.

A Certificate of Completion is awarded upon successful completion of core course requirements.

Transfer credit from other institutions is considered upon validation of transcript and course work.

### Program Learning Outcomes:

- Locate and evaluate patient resources.
- Learn strategies for working with the healthcare team.
- Learn communication strategies for building effective client relationships.
- Model ethical behavior.
- Assess client readiness to make health decisions.
- Learn basic concepts of motivational interviewing.
- Maintain patient confidentiality under HIPAA regulations.

### Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

### Quarter 1

- COL 101 - College Success *2 Credits*
- MAP 101 - Introduction to Medical Terminology *5 Credits*

- MAP 114 - Computer Fundamentals (Office 365) 5 Credits
- MAP 120 - Human Relations 2 Credits
- MAP 208 - Patient Navigation and the Healthcare System 3 Credits

## Quarter 2

- MAP 115 - Advanced MS Office and Keyboarding (MOS) 5 Credits
- MAP 123 - Patient Navigation and Chronic Illness 3 Credits
- MAP 190 - Career Opportunities and Employment Expectations 2 Credits
- MAP 211 - Navigating EHRs in Healthcare 3 Credits
- AMATH 164V - Introduction to Mathematical Operations 2 Credits

## GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Massage Therapy Practitioner Certificate

**Certificate of Completion: 50 credits**

**Enrollment Point: Fall Quarter**

This program, approved by the Washington State Board of Massage, prepares students to become professionally licensed to practice therapeutic massage for health maintenance, assessment, and rehabilitation of body tissues and systems. Therapeutic massage is an integral part of sports medicine, injury recovery, physical, mental, and emotional well-being.

The program offers training in diverse modalities including Swedish massage, deep tissue massage, myofascial release, hydrotherapy and hot stone massage. Student clinic and internship experience are required. Successful completion of this program prepares the students to take the MBLEX licensing exam and to meet the licensing requirements for Washington state.

A Certificate of Completion is awarded upon successful completion of core course requirements (two [2] attempts per course only). To earn an Associate of Applied Science (AAS) or Associate of Applied Science-Transfer (AAS-T) degree, students must complete all requirements of the certificate program plus 25 credits of General Education and 16 credits of Massage Electives. Students are required to join the American Massage Therapy Association and the Washington State Chapter. Renton Technical College

The cost is in addition to tuition. The cost includes AMTA membership, Washington Chapter membership, and liability insurance. Copy of proof of membership will be required at time of registration.

## Program Learning Outcomes:

- Demonstrate competence as a massage practitioner providing services in healthcare clinics, spas, and small business settings.
- Communicate effectively with all members of a healthcare team.
- Demonstrate accountability of practice with adherence to ethical and legal standards of the massage profession.
- Collaborate with patients and healthcare team to deliver client oriented treatment.
- Demonstrate critical thinking in assessment and treatment planning.

## Program Requirements

### Quarter 1

- MAST 101 - Massage Techniques I 5 Credits
- MAST 102 - Anatomy & Physiology I 3 Credits
- MAST 103 - Kinesiology I 2 Credits
- MAST 104 - Pathology I 2 Credits
- MAST 171 - Communication 2 Credits
- MAST 181 - Human Relations and Professionalism I 2 Credits

### Quarter 2

- MAST 111 - Massage Techniques II 3 Credits
- MAST 112 - Anatomy and Physiology II 3 Credits
- MAST 113 - Kinesiology II 2 Credits
- MAST 114 - Pathology II 3 Credits
- MAST 116 - Injury Evaluation and Treatment I 2 Credits
- MAST 173 - Massage Employment I 2 Credits
- MAST 182 - Human Relations & Professionalism II 1 Credits

### Quarter 3

- MAST 124 - Pathology III 3 Credits
- MAST 126 - Injury Evaluation and Treatment II 3 Credits
- MAST 127 - First Aid/CPR and Safety 2 Credits
- MAST 151 - Massage Licensing Preparation 4 Credits
- MAST 174 - Massage Employment II 2 Credits
- MAST 191 - Clinic 2 Credits
- MAST 192 - Internship 1 Credits
- AMATH 162G - Mathematics 1 Credits

## GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Massage Therapy Practitioner, AAS

**Associate of Applied Science Degree: 90 credits**

**Enrollment Point: Fall Quarter**

This program, approved by the Washington State Board of Massage, prepares students to become professionally licensed to practice therapeutic massage for health maintenance, assessment, and rehabilitation of body tissues and systems. Therapeutic massage is an integral part of sports medicine, injury recovery, physical, mental, and emotional well-being.

The program offers training in diverse modalities including Swedish massage, deep tissue massage, myofascial release, hydrotherapy and hot stone massage. Student clinic and internship experience are required. Successful completion of this program prepares the students to take the MBLEX licensing exam and to meet the licensing requirements for Washington state.

A Certificate of Completion is awarded upon successful completion of core course requirements (two [2] attempts per course only). To earn an Associate of Applied Science (AAS) or Associate of Applied Science-Transfer (AAS-T) degree, students must complete all requirements of the certificate program plus 25 credits of General Education and 16 credits of Massage Electives. Students are required to join the American Massage Therapy Association and the Washington State Chapter. The cost is in addition to tuition. The cost includes AMTA membership, Washington Chapter membership, and liability insurance. Copy of proof of membership will be required at time of registration.

### Program Learning Outcomes:

- Demonstrate competence as a massage practitioner providing services in healthcare clinics, spas, and small business settings.
- Communicate effectively with all members of a healthcare team.
- Demonstrate accountability of practice with adherence to ethical and legal standards of the massage profession.
- Collaborate with patients and healthcare team to deliver client oriented treatment.

- Demonstrate critical thinking in assessment and treatment planning.

## Program Requirements

### Quarter 1

- MAST 101 - Massage Techniques I *5 Credits*
- MAST 102 - Anatomy & Physiology I *3 Credits*
- MAST 103 - Kinesiology I *2 Credits*
- MAST 104 - Pathology I *2 Credits*
- MAST 171 - Communication *2 Credits*
- MAST 181 - Human Relations and Professionalism I *2 Credits*
- MAST 201 - Holistic Self-Care for Massage Practitioners *3 Credits*

### Quarter 2

- MAST 111 - Massage Techniques II *3 Credits*
- MAST 112 - Anatomy and Physiology II *3 Credits*
- MAST 113 - Kinesiology II *2 Credits*
- MAST 114 - Pathology II *3 Credits*
- MAST 116 - Injury Evaluation and Treatment I *2 Credits*
- MAST 173 - Massage Employment I *2 Credits*
- MAST 182 - Human Relations & Professionalism II *1 Credits*
- MAST 203 - Massage Business Start-Up I *3 Credits*
- MAST 205 - Asian Bodywork Modalities *3 Credits*

### Quarter 3

- MAST 124 - Pathology III *3 Credits*
- MAST 126 - Injury Evaluation and Treatment II *3 Credits*
- MAST 127 - First Aid/CPR and Safety *2 Credits*
- MAST 151 - Massage Licensing Preparation *4 Credits*
- MAST 174 - Massage Employment II *2 Credits*
- MAST 191 - Clinic *2 Credits*
- MAST 192 - Internship *1 Credits*
- MAST 207 - Massage Business Start-Up II *3 Credits*
- MAST 209 - Integrative Massage *3 Credits*
- AMATH 162G - Mathematics *1 Credits*

### General Education Course Requirements

- AMATH 175 - Financial Math *5 Credits*
- CMST& 101 - Introduction to Communication *5 Credits*
- COMP 100 - Applied Composition *5 Credits*
- or ENGL& 101 - English Composition I *5 Credits*
- NUTR& 101 - Human Nutrition *5 Credits*



- PSYC& 100 - General Psychology 5 Credits

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Massage Therapy Practitioner, AAS-T

**Associate of Applied Science - Transfer Degree: 90 credits**

### Enrollment Point: Fall Quarter

This program, approved by the Washington State Board of Massage, prepares students to become professionally licensed to practice therapeutic massage for health maintenance, assessment, and rehabilitation of body tissues and systems. Therapeutic massage is an integral part of sports medicine, injury recovery, physical, mental, and emotional well-being.

The program offers training in diverse modalities including Swedish massage, deep tissue massage, myofascial release, hydrotherapy and hot stone massage. Student clinic and internship experience are required. Successful completion of this program prepares the students to take the MBLEX licensing exam and to meet the licensing requirements for Washington state.

A Certificate of Completion is awarded upon successful completion of core course requirements (two [2] attempts per course only). To earn an Associate of Applied Science (AAS) or Associate of Applied Science-Transfer (AAS-T) degree, students must complete all requirements of the certificate program plus 25 credits of General Education and 16 credits of Massage Electives. Students are required to join the American Massage Therapy Association and the Washington State Chapter. The cost is in addition to tuition. The cost includes AMTA membership, Washington Chapter membership, and liability insurance. Copy of proof of membership will be required at time of registration.

### Program Learning Outcomes:

- Demonstrate competence as a massage practitioner providing services in healthcare clinics, spas, and small business settings.
- Communicate effectively with all members of a healthcare team.
- Demonstrate accountability of practice with adherence to ethical and legal standards of the massage profession.

- Collaborate with patients and healthcare team to deliver client oriented treatment.
- Demonstrate critical thinking in assessment and treatment planning.

### Program Requirements

#### Quarter 1

- MAST 101 - Massage Techniques I 5 Credits
- MAST 102 - Anatomy & Physiology I 3 Credits
- MAST 103 - Kinesiology I 2 Credits
- MAST 104 - Pathology I 2 Credits
- MAST 171 - Communication 2 Credits
- MAST 181 - Human Relations and Professionalism I 2 Credits
- MAST 201 - Holistic Self-Care for Massage Practitioners 3 Credits

#### Quarter 2

- MAST 111 - Massage Techniques II 3 Credits
- MAST 112 - Anatomy and Physiology II 3 Credits
- MAST 113 - Kinesiology II 2 Credits
- MAST 114 - Pathology II 3 Credits
- MAST 116 - Injury Evaluation and Treatment I 2 Credits
- MAST 173 - Massage Employment I 2 Credits
- MAST 182 - Human Relations & Professionalism II 1 Credits
- MAST 203 - Massage Business Start-Up I 3 Credits
- MAST 205 - Asian Bodywork Modalities 3 Credits

#### Quarter 3

- MAST 124 - Pathology III 3 Credits
- MAST 126 - Injury Evaluation and Treatment II 3 Credits
- MAST 127 - First Aid/CPR and Safety 2 Credits
- MAST 151 - Massage Licensing Preparation 4 Credits
- MAST 174 - Massage Employment II 2 Credits
- MAST 191 - Clinic 2 Credits
- MAST 192 - Internship 1 Credits
- MAST 207 - Massage Business Start-Up II 3 Credits
- MAST 209 - Integrative Massage 3 Credits
- AMATH 162G - Mathematics 1 Credits

### General Education Course Requirements

- CMST& 101 - Introduction to Communication 5 Credits
- ENGL& 101 - English Composition I 5 Credits
- MATH& 146 - Introduction to Statistics 5 Credits



- NUTR& 101 - Human Nutrition *5 Credits*
- PSYC& 100 - General Psychology *5 Credits*

### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## **Medical Assistant Certificate**

**Certificate of Completion: 71 credits**

**Enrollment Point: Fall or Winter Quarter**

The Medical Assistant Program is accredited by the Commission on Accreditation of Allied Health Education Programs ([www.caahep.org](http://www.caahep.org)) upon the recommendation of Medical Assistant Education Review Board (MAERB). Commission on Accreditation of Allied Health Education Programs, 25400 US Highway 19 N., Suite 158 Clearwater, FL 33763, (727) 210-2350.

The program prepares students to become multi-skilled professionals who perform a variety of patient-related tasks in physician offices and other health care settings. The design of the curriculum meets the credentialing requirements for Medical Assistant-Certified as described in RCW 18.360. Students learn to set up clients for examination, draw blood for basic lab studies, administer certain medications, perform EKG's, assist with minor surgical procedures and master front office skills related to medical records and billing. A practicum experience is included.

A state certification is required of all those who work in this field and is obtained after passing a required credentialing exam. The Registered Medical Assistant Exam from the American Medical Technologists is given to all students during the last quarter of the program.

Students who successfully complete all the requirements of their core course will receive a Certificate of Completion. To earn an Associate of Applied Science (AAS) or Associate of Applied Science-Transfer (AAS-T) degree, students must complete the certificate program and meet the general education course requirements.

### **Program Learning Outcomes:**

- Enter the allied health workforce as a competent entry-level medical assistant in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains.
- Display professionalism in appearance and job performance.

- Demonstrate ability to work as a team member.
- Successfully pass a nationally recognized medical assistant credentialing examination upon graduation.
- Communicate effectively with a wide variety of patients from different age groups and cultures.
- Perform administrative duties related to scheduling, billing, finances and coding.
- Practice health information management and utilize Electronic Health Record systems.
- Recognize the processes and perform the duties of clinical support.
- Apply legal concepts within the scope of practice for medical assisting and the healthcare field.
- Develop life-long learning skills and the initiative to critically evaluate information and apply it to their personal and professional lives.

### **Program Requirements**

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

#### **Quarter 1**

- AMATH 168G - Healthcare Mathematics *4 Credits*
- COL 101 - College Success *2 Credits*
- MEDA 117 - Medical Terminology and the Human Body *4 Credits*
- MEDA 125 - Introduction to Clinical Procedures *6 Credits*
- MEDA 171 - Communications and Human Relations in Healthcare *4 Credits*

#### **Quarter 2**

- MEDA 102 - BLS Provider CPR/AED *2 Credits*
- MEDA 108 - Anatomy and Physiology I *4 Credits*
- MEDA 121 - Administrative Medical Procedures *4 Credits*
- MEDA 126 - Clinical Procedures I *6 Credits*
- MEDA 132 - Introduction to Disease Prevention and Health Promotion *3 Credits*
- MEDA 150 - Medical Law and Ethics *2 Credits*

#### **Quarter 3**

- MEDA 109 - Anatomy and Physiology II *4 Credits*
- MEDA 122 - Introduction to Medical Insurance and Coding *5 Credits*
- MEDA 127 - Clinical Procedures II *6 Credits*
- MEDA 133 - Human Health, Disease and Treatment *3 Credits*

## Quarter 4

- MEDA 130 - Career and National Exam Preparation 2 *Credits*
- MEDA 192 - Practicum 7 *Credits*
- MEDA 193 - Practicum Seminar 3 *Credits*

## GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.7**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Medical Assistant, AAS

**Associate of Applied Science Degree: 91 credits**

**Enrollment Point: Fall or Winter Quarter**

The Medical Assistant Program is accredited by the Commission on Accreditation of Allied Health Education Programs ([www.caahep.org](http://www.caahep.org)) upon the recommendation of Medical Assistant Education Review Board (MAERB). Commission on Accreditation of Allied Health Education Programs, 25400 US Highway 19 N., Suite 158 Clearwater, FL 33763, (727) 210-2350.

The program prepares students to become multi-skilled professionals who perform a variety of patient-related tasks in physician offices and other health care settings. The design of the curriculum meets the credentialing requirements for Medical Assistant-Certified as described in RCW 18.360. Students learn to set up clients for examination, draw blood for basic lab studies, administer certain medications, perform EKG's, assist with minor surgical procedures and master front office skills related to medical records and billing. A practicum experience is included.

A state certification is required of all those who work in this field and is obtained after passing a required credentialing exam. The Registered Medical Assistant Exam from the American Medical Technologists is given to all students during the last quarter of the program.

Students who successfully complete all the requirements of their core course will receive a Certificate of Completion. To earn an Associate of Applied Science (AAS) or Associate of Applied Science-Transfer (AAS-T) degree, students must complete the certificate program and meet the general education course requirements.

## Program Learning Outcomes:

- Enter the allied health workforce as a competent entry-level medical assistant in the cognitive

(knowledge), psychomotor (skills), and affective (behavior) learning domains.

- Display professionalism in appearance and job performance.
- Demonstrate ability to work as a team member.
- Successfully pass a nationally recognized medical assistant credentialing examination upon graduation.
- Communicate effectively with a wide variety of patients from different age groups and cultures.
- Perform administrative duties related to scheduling, billing, finances and coding.
- Practice health information management and utilize Electronic Health Record systems.
- Recognize the processes and perform the duties of clinical support.
- Apply legal concepts within the scope of practice for medical assisting and the healthcare field.
- Develop life-long learning skills and the initiative to critically evaluate information and apply it to their personal and professional lives.

## Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

### Quarter 1

- AMATH 168G - Healthcare Mathematics 4 *Credits*
- COL 101 - College Success 2 *Credits*
- MEDA 117 - Medical Terminology and the Human Body 4 *Credits*
- MEDA 125 - Introduction to Clinical Procedures 6 *Credits*
- MEDA 171 - Communications and Human Relations in Healthcare 4 *Credits*

### Quarter 2

- MEDA 102 - BLS Provider CPR/AED 2 *Credits*
- MEDA 108 - Anatomy and Physiology I 4 *Credits*
- MEDA 121 - Administrative Medical Procedures 4 *Credits*
- MEDA 126 - Clinical Procedures I 6 *Credits*
- MEDA 132 - Introduction to Disease Prevention and Health Promotion 3 *Credits*
- MEDA 150 - Medical Law and Ethics 2 *Credits*

### Quarter 3

- MEDA 109 - Anatomy and Physiology II 4 *Credits*
- MEDA 122 - Introduction to Medical Insurance and Coding 5 *Credits*

- MEDA 127 - Clinical Procedures II 6 Credits
- MEDA 133 - Human Health, Disease and Treatment 3 Credits

#### Quarter 4

- MEDA 130 - Career and National Exam Preparation 2 Credits
- MEDA 192 - Practicum 7 Credits
- MEDA 193 - Practicum Seminar 3 Credits

#### Course Requirements for AAS Degree

- AMATH 175 - Financial Math 5 Credits
- CMST& 101 - Introduction to Communication 5 Credits
- COMP 100 - Applied Composition 5 Credits
- or ENGL& 101 - English Composition I 5 Credits
- PSYC& 100 - General Psychology 5 Credits

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each Certificate of Completion course: **2.7**
- Minimum grade for all other courses: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

### Medical Assistant, AAS-T

**Associate of Applied Science - Transfer Degree:**  
**91 credits**

#### Enrollment Point: Fall or Winter Quarter

The Medical Assistant Program is accredited by the Commission on Accreditation of Allied Health Education Programs ([www.caahep.org](http://www.caahep.org)) upon the recommendation of Medical Assistant Education Review Board (MAERB). Commission on Accreditation of Allied Health Education Programs, 25400 US Highway 19 N., Suite 158 Clearwater, FL 33763, (727) 210-2350.

The program prepares students to become multi-skilled professionals who perform a variety of patient-related tasks in physician offices and other health care settings. The design of the curriculum meets the credentialing requirements for Medical Assistant-Certified as described in RCW 18.360. Students learn to set up clients for examination, draw blood for basic lab studies, administer certain medications, perform EKG's, assist with minor surgical procedures and master front office skills related to medical records and billing. A practicum experience is included.

A state certification is required of all those who work in this field and is obtained after passing a required credentialing exam. The Registered Medical Assistant Exam from the American Medical Technologists is given to all students during the last quarter of the program.

Students who successfully complete all the requirements of their core course will receive a Certificate of Completion. To earn an Associate of Applied Science (AAS) or Associate of Applied Science-Transfer (AAS-T) degree, students must complete the certificate program and meet the general education course requirements.

#### Program Learning Outcomes:

- Enter the allied health workforce as a competent entry-level medical assistant in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains.
- Display professionalism in appearance and job performance.
- Demonstrate ability to work as a team member.
- Successfully pass a nationally recognized medical assistant credentialing examination upon graduation.
- Communicate effectively with a wide variety of patients from different age groups and cultures.
- Perform administrative duties related to scheduling, billing, finances and coding.
- Practice health information management and utilize Electronic Health Record systems.
- Recognize the processes and perform the duties of clinical support.
- Apply legal concepts within the scope of practice for medical assisting and the healthcare field.
- Develop life-long learning skills and the initiative to critically evaluate information and apply it to their personal and professional lives.

#### Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

#### Quarter 1

- AMATH 168G - Healthcare Mathematics 4 Credits
- COL 101 - College Success 2 Credits
- MEDA 117 - Medical Terminology and the Human Body 4 Credits
- MEDA 125 - Introduction to Clinical Procedures 6 Credits
- MEDA 171 - Communications and Human Relations in Healthcare 4 Credits

## Quarter 2

- MEDA 102 - BLS Provider CPR/AED 2 *Credits*
- MEDA 108 - Anatomy and Physiology I 4 *Credits*
- MEDA 121 - Administrative Medical Procedures 4 *Credits*
- MEDA 126 - Clinical Procedures I 6 *Credits*
- MEDA 132 - Introduction to Disease Prevention and Health Promotion 3 *Credits*
- MEDA 150 - Medical Law and Ethics 2 *Credits*

## Quarter 3

- MEDA 109 - Anatomy and Physiology II 4 *Credits*
- MEDA 122 - Introduction to Medical Insurance and Coding 5 *Credits*
- MEDA 127 - Clinical Procedures II 6 *Credits*
- MEDA 133 - Human Health, Disease and Treatment 3 *Credits*

## Quarter 4

- MEDA 130 - Career and National Exam Preparation 2 *Credits*
- MEDA 192 - Practicum 7 *Credits*
- MEDA 193 - Practicum Seminar 3 *Credits*

## Course Requirements for AAS-T Degree

- CMST& 101 - Introduction to Communication 5 *Credits*
- ENGL& 101 - English Composition I 5 *Credits*
- MATH& 107 - Math in Society 5 *Credits*
- *or* MATH& 141 - Precalculus I 5 *Credits*
- *or* MATH& 146 - Introduction to Statistics 5 *Credits*
- PSYC& 100 - General Psychology 5 *Credits*

## GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each Certificate of Completion course: **2.7**
- Minimum grade for all other courses: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Medical Assistant-Phlebotomy Certificate

**Certificate of Completion: 16 credits**

**Enrollment Point: Fall, Winter, Spring or Summer Quarter**

This program prepares students for national certification as a Medical Assistant-Phlebotomist in the clinical and laboratory setting. Program content includes the history of phlebotomy, clinical laboratory setting, legal and

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ethical issues, infection control precaution and prevention, CPR/First Aid, anatomy and physiology, medical terminology, proper body mechanics, various blood draw techniques, safety aspects of phlebotomy, complications of phlebotomy, handling of non-blood specimens and OSHA safety standards. As part of this program the student will sit for their National Certification exam, and apply for registration as a Medical Assistant-Phlebotomist, which is required for employment in the state of Washington.

## Program Learning Outcomes:

- Practice within ethical and legal standards.
- Practice professional behaviors of collaboration, advocacy and documentation, plus evaluation of own practices.
- Apply critical thinking through all components of blood drawing.
- Provide care with compassion and empathy.
- Demonstrate the use of aseptic techniques when performing safe and accurate punctures.
- Demonstrate effective communication with a diverse population.

## Program Requirements

### Quarter 1

- PHLEB 101 - Fundamentals of Phlebotomy 6 *Credits*
- PHLEB 102 - Phlebotomy Laboratory Skills 4 *Credits*
- PHLEB 103 - Healthcare Provider First Aid/CPR, AED and Bloodborne Pathogens 2 *Credits*
- PHLEB 104 - National Exam Certification Prep 1 *Credits*
- PHLEB 191 - Phlebotomy Technician Practicum 3 *Credits*

## GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Medical Coding Specialist, AAS

**Associate of Applied Science Degree: 94 credits**

**Enrollment Point: Fall or Winter Quarter**

Develop skills and knowledge to transform descriptions of diseases, injuries, conditions, and procedures into numerical designations in clinics, insurance companies, and other medical settings. Work with doctors, managers,

and other healthcare professionals to translate written terminology or descriptions into a universal, common language. Learn medical terminology, word processing, spreadsheet applications, and computerized patient accounting while using ICD-10 CM/PCS, CPT and HCPCS level II guidelines to complete the CMS-1500 claim form using patient data abstracted from the encounter form and medical record. This high-demand occupation provides many opportunities for peoples who like attention to detail and take pride in their work.

An Associate of Applied Science degree is awarded upon successful completion of core course requirements.

Transfer credit from other institutions is considered upon validation of transcript and course work.

#### **Program Learning Outcomes:**

- Perform business functions in a medical office.
- Model ethical behavior.
- Communicate effectively with patients, co-workers and industry professionals.
- Promote a positive workplace environment.
- Evaluate medical documentation to identify and assign procedure and diagnostic codes.
- Analyze clinic coding performance by extracting or auditing revenue performance.
- Disseminate information on coding standards and requirements to optimize reimbursement.

#### **Program Requirements**

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

##### **Quarter 1**

- COL 101 - College Success *2 Credits*
- MAP 101 - Introduction to Medical Terminology *5 Credits*
- MAP 114 - Computer Fundamentals (Office 365) *5 Credits*
- MAP 120 - Human Relations *2 Credits*
- MAP 208 - Patient Navigation and the Healthcare System *3 Credits*

##### **Quarter 2**

- MAP 115 - Advanced MS Office and Keyboarding (MOS) *5 Credits*
- MAP 123 - Patient Navigation and Chronic Illness *3 Credits*
- MAP 190 - Career Opportunities and Employment Expectations *2 Credits*

- MAP 211 - Navigating EHRs in Healthcare *3 Credits*
- AMATH 164V - Introduction to Mathematical Operations *2 Credits*

##### **Quarter 3**

- MAP 147 - Insurance Claims, Processing, and Adjudication *2 Credits*
- MAP 201 - Diagnostic and Procedural Coding *5 Credits*
- MAP 285 - The Revenue Cycle *5 Credits*
- COMP 100 - Applied Composition *5 Credits*

##### **Quarter 4**

- MAP 155 - Introduction to Excel *5 Credits*
- MAP 247 - Introduction to Medical Databases *2 Credits*
- MAP 280 - Current Legal Aspects of Healthcare *5 Credits*

##### **Quarter 5**

- MAP 278 - Databases and Statistical Terms *5 Credits*
- MAP 295 - Coding Simulation *5 Credits*
- BIOL 105 - Introduction to Anatomy and Physiology *5 Credits*

##### **Quarter 6**

- MAP 289 - Certification Exam Preparation *5 Credits*
- MAP 291 - Professional Practice Experience *4 Credits*
- MAP 293 - Billing Physician-Related Services *4 Credits*
- Five (5) Approved General Education Credits (Social Science or Math Option)\*

#### **Approved General Education Courses**

- AMATH 175 - Financial Math *5 Credits*
- AMATH 190 - Financial Algebra *5 Credits*
- ANTH& 106 - American Mosaic *5 Credits*
- ANTH& 234 - Religion and Culture *5 Credits*
- PSYC& 100 - General Psychology *5 Credits*
- SOC& 101 - Introduction to Sociology *5 Credits*

#### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- \*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.

## **Nursing Assistant Certificate**



## **Certificate of Completion: 10 credits**

### **Enrollment Point: Fall, Winter, Spring or Summer Quarter**

This program meets both Washington state and federal curriculum requirements for Nursing Assistant Certification. Once certified, graduates are eligible for employment in hospitals, clinics, long-term care facilities, retirement/assisted living facilities, adult family homes, and in-home health care.

Students gain knowledge and learn skills caring for patients of various age groups during acute and chronic stages of disease, surgery, and rehabilitation, as well as how to maintain health during the normal aging process. Included in the curriculum are patients' rights, basic bedside nursing skills, patient/personal safety, HIPAA, and HIV/AIDS education. Skills are practiced in the program laboratory. Clinical experience occurs in acute hospitals and/or skilled nursing facilities. Students must pass all coursework with a 2.0 average or better and a satisfactory completion of clinical and lab for their certificate. This program is the first phase of the career ladder option for students to become Licensed Practical or Registered Nurses.

### **Program Learning Outcomes:**

- Provide safe and competent care to patients/clients/residents and families utilizing current standards of practice in client/patient care.
- Provide competent nursing assistant care within the legal and ethical standards of practice.
- Employ culturally sensitive and therapeutic communication skills with patients/clients/residents and families.
- Practice professional behaviors of collaboration, advocacy, maintaining of on-going knowledge base, and evaluation of own practice.
- Demonstrate critical thinking throughout the client care processes.

### **Program Requirements**

#### **Quarter 1**

- HLTH 100 - Tools for Success *2 Credits*
- NA 101 - Fundamentals of Nursing Assistant *2 Credits*
- NA 103 - Basic Technical Skills *2 Credits*
- NA 105 - Principles of A&P, Restorative Care, and Related Procedures *2 Credits*
- NA 131 - Nursing Assistant Practicum *2 Credits*

## **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## **Pharmacy Technician Certificate**

### **Certificate of Completion: 80 credits**

#### **Enrollment Point: Fall Quarter**

This ASHP (American Society of Health-System Pharmacists) accredited program prepares students for practice as Pharmacy Technicians performing a wide variety of tasks in both retail and hospital pharmacies under the supervision of a pharmacist.

Students develop skills in all areas of pharmacy practice such as computer order entry, pharmaceutical calculations, record keeping, mixing intravenous solutions, and compounding of products to be dispensed. Special emphasis is on product knowledge and learning detailed information regarding drugs. Externship experience in retail and hospital pharmacies is included.

A state license is required of all those who work in this field and is obtained after passing the required National Certification exam and applying to the Washington State Board of Pharmacy.

A Certificate of Completion is awarded upon successful completion of core course requirements (two [2] attempts per course only). To earn an Associate of Applied Science (AAS) or Associate of Applied Science-Transfer (AAS-T) degree, students must complete all requirements for the certificate program plus 20 credits of General Education.

### **Program Learning Outcomes:**

- Work under the supervision of a Pharmacist in the pharmacy day-to-day operations, using interpersonal skills, critical thinking, negotiation, conflict resolution, teamwork, creativity, innovation, and customer service skills to problem solve with diverse populations.
- Demonstrate ethical conduct, active and engaged listening skills.
- Communicate clearly and effectively, both verbally and in writing.
- Demonstrate a respectful and professional attitude when interacting with diverse patient populations, colleagues, and professionals.
- Apply self-management skills, including time, stress, and change management.

- Compound products, mix intravenous solutions, apply math for pharmaceutical calculations and use computers to process prescriptions, medication orders, quality assurance and inventory management.
- Exhibit detailed knowledge of pharmacy products and the Top 200 drugs.
- Earn a Washington State Board of Pharmacy license by passing the PTCB national certification exam.

## Program Requirements

### Quarter 1

- COL 101 - College Success *2 Credits*
- PHAR 101 - Pharmacy Technician Fundamentals and Ethics *4 Credits*
- PHAR 103 - Top 200 Drugs I *3 Credits*
- PHAR 105 - Outpatient Pharmacy Preparations & Record Keeping I *5 Credits*
- PHAR 130 - Medical Terminology/Anatomy and Physiology for Pharmacy Technicians I *3 Credits*
- PHAR 189 - Pharmacy Pre-Externship *1 Credits*

### Quarter 2

- PHAR 106 - Outpatient Pharmacy Preparations & Record Keeping II *4 Credits*
- PHAR 108 - Inpatient & Home Healthcare Pharmacy Preparation and Record Keeping *8 Credits*
- PHAR 110 - Pharmacology I *5 Credits*
- PHAR 131 - Pharmacy Law and References I *1 Credits*

### Quarter 3

- PHAR 104 - Pharmacology II *5 Credits*
- PHAR 136 - Medical Terminology/Anatomy and Physiology for Pharmacy Technicians II *3 Credits*
- PHAR 137 - Pharmacy Law and References II *2 Credits*
- PHAR 180 - Leadership, Human Relations and Customer Service *5 Credits*

### Quarter 4

- PHAR 107 - IV Admixture Advanced Techniques *3 Credits*
- PHAR 109 - Top 200 Drugs II *3 Credits*
- PHAR 134 - Business Office Machines *6 Credits*

### Quarter 5

- PHAR 190 - Pharmacy Practice-Internship I *8 Credits*

- PHAR 191 - Pharmacy Practice-Internship II *9 Credits*

## GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Pharmacy Technician, AAS

### Associate of Applied Science Degree: 95 credits

#### Enrollment Point: Fall Quarter

This ASHP (American Society of Health-System Pharmacists) accredited program prepares students for practice as Pharmacy Technicians performing a wide variety of tasks in both retail and hospital pharmacies under the supervision of a pharmacist.

Students develop skills in all areas of pharmacy practice such as computer order entry, pharmaceutical calculations, record keeping, mixing intravenous solutions, and compounding of products to be dispensed. Special emphasis is on product knowledge and learning detailed information regarding drugs. Externship experience in retail and hospital pharmacies is included.

A state license is required of all those who work in this field and is obtained after passing the required National Certification exam and applying to the Washington State Board of Pharmacy.

A Certificate of Completion is awarded upon successful completion of core course requirements (two [2] attempts per course only). To earn an Associate of Applied Science (AAS) or Associate of Applied Science-Transfer (AAS-T) degree, students must complete all requirements for the certificate program plus 20 credits of General Education.

#### Program Learning Outcomes:

- Work under the supervision of a Pharmacist in the pharmacy day-to-day operations, using interpersonal skills, critical thinking, negotiation, conflict resolution, teamwork, creativity, innovation, and customer service skills to problem solve with diverse populations.
- Demonstrate ethical conduct, active and engaged listening skills.
- Communicate clearly and effectively, both verbally and in writing.

- Demonstrate a respectful and professional attitude when interacting with diverse patient populations, colleagues, and professionals.
- Apply self-management skills, including time, stress, and change management.
- Compound products, mix intravenous solutions, apply math for pharmaceutical calculations and use computers to process prescriptions, medication orders, quality assurance and inventory management.
- Exhibit detailed knowledge of pharmacy products and the Top 200 drugs.
- Earn a Washington State Board of Pharmacy license by passing the PTCB national certification exam.

## Program Requirements

### Quarter 1

- COL 101 - College Success 2 *Credits*
- PHAR 101 - Pharmacy Technician Fundamentals and Ethics 4 *Credits*
- PHAR 103 - Top 200 Drugs I 3 *Credits*
- PHAR 105 - Outpatient Pharmacy Preparations & Record Keeping I 5 *Credits*
- PHAR 130 - Medical Terminology/Anatomy and Physiology for Pharmacy Technicians I 3 *Credits*
- PHAR 189 - Pharmacy Pre-Externship 1 *Credits*

### Quarter 2

- PHAR 106 - Outpatient Pharmacy Preparations & Record Keeping II 4 *Credits*
- PHAR 108 - Inpatient & Home Healthcare Pharmacy Preparation and Record Keeping 8 *Credits*
- PHAR 110 - Pharmacology I 5 *Credits*
- PHAR 131 - Pharmacy Law and References I 1 *Credits*

### Quarter 3

- PHAR 104 - Pharmacology II 5 *Credits*
- PHAR 136 - Medical Terminology/Anatomy and Physiology for Pharmacy Technicians II 3 *Credits*
- PHAR 137 - Pharmacy Law and References II 2 *Credits*
- PHAR 180 - Leadership, Human Relations and Customer Service 5 *Credits*

### Quarter 4

- PHAR 107 - IV Admixture Advanced Techniques 3 *Credits*
- PHAR 109 - Top 200 Drugs II 3 *Credits*

- PHAR 134 - Business Office Machines 6 *Credits*

### Quarter 5

- PHAR 190 - Pharmacy Practice-Internship I 8 *Credits*
- PHAR 191 - Pharmacy Practice-Internship II 9 *Credits*

### Course Requirements for AAS Degree

- CMST& 101 - Introduction to Communication 5 *Credits*
- COMP 100 - Applied Composition 5 *Credits*
- *or* ENGL& 101 - English Composition I 5 *Credits*
- PSYC& 100 - General Psychology 5 *Credits*

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Pharmacy Technician, AAS-T

**Associate of Applied Science - Transfer Degree: 100 credits**

### Enrollment Point: Fall Quarter

This ASHP (American Society of Health-System Pharmacists) accredited program prepares students for practice as Pharmacy Technicians performing a wide variety of tasks in both retail and hospital pharmacies under the supervision of a pharmacist.

Students develop skills in all areas of pharmacy practice such as computer order entry, pharmaceutical calculations, record keeping, mixing intravenous solutions, and compounding of products to be dispensed. Special emphasis is on product knowledge and learning detailed information regarding drugs. Externship experience in retail and hospital pharmacies is included.

A state license is required of all those who work in this field and is obtained after passing the required National Certification exam and applying to the Washington State Board of Pharmacy.

A Certificate of Completion is awarded upon successful completion of core course requirements (two [2] attempts per course only). To earn an Associate of Applied Science (AAS) or Associate of Applied Science-Transfer (AAS-T) degree, students must complete all requirements for the certificate program plus 20 credits of General Education.

### Program Learning Outcomes:

- Work under the supervision of a Pharmacist in the pharmacy day-to-day operations, using interpersonal skills, critical thinking, negotiation, conflict resolution, teamwork, creativity, innovation, and customer service skills to problem solve with diverse populations.
- Demonstrate ethical conduct, active and engaged listening skills.
- Communicate clearly and effectively, both verbally and in writing.
- Demonstrate a respectful and professional attitude when interacting with diverse patient populations, colleagues, and professionals.
- Apply self-management skills, including time, stress, and change management.
- Compound products, mix intravenous solutions, apply math for pharmaceutical calculations and use computers to process prescriptions, medication orders, quality assurance and inventory management.
- Exhibit detailed knowledge of pharmacy products and the Top 200 drugs.
- Earn a Washington State Board of Pharmacy license by passing the PTCB national certification exam.

## Program Requirements

### Quarter 1

- COL 101 - College Success *2 Credits*
- PHAR 101 - Pharmacy Technician Fundamentals and Ethics *4 Credits*
- PHAR 103 - Top 200 Drugs I *3 Credits*
- PHAR 105 - Outpatient Pharmacy Preparations & Record Keeping I *5 Credits*
- PHAR 130 - Medical Terminology/Anatomy and Physiology for Pharmacy Technicians I *3 Credits*
- PHAR 189 - Pharmacy Pre-Externship *1 Credits*

### Quarter 2

- PHAR 106 - Outpatient Pharmacy Preparations & Record Keeping II *4 Credits*
- PHAR 108 - Inpatient & Home Healthcare Pharmacy Preparation and Record Keeping *8 Credits*
- PHAR 110 - Pharmacology I *5 Credits*
- PHAR 131 - Pharmacy Law and References I *1 Credits*

### Quarter 3

- PHAR 104 - Pharmacology II *5 Credits*

- PHAR 136 - Medical Terminology/Anatomy and Physiology for Pharmacy Technicians II *3 Credits*
- PHAR 137 - Pharmacy Law and References II *2 Credits*
- PHAR 180 - Leadership, Human Relations and Customer Service *5 Credits*

### Quarter 4

- PHAR 107 - IV Admixture Advanced Techniques *3 Credits*
- PHAR 109 - Top 200 Drugs II *3 Credits*
- PHAR 134 - Business Office Machines *6 Credits*

### Quarter 5

- PHAR 190 - Pharmacy Practice-Internship I *8 Credits*
- PHAR 191 - Pharmacy Practice-Internship II *9 Credits*

### Course Requirements for AAS-T Degree

- CMST& 101 - Introduction to Communication *5 Credits*
- ENGL& 101 - English Composition I *5 Credits*
- MATH& 146 - Introduction to Statistics *5 Credits*
- PSYC& 100 - General Psychology *5 Credits*

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Registered Nurse, AAS-T

**Associate of Applied Science - Transfer Degree: 116 credits**

**Enrollment Point: TBD**

The Nursing Program at Renton Technical College prepares students for employment as registered nurses in a variety of health care environments in the surrounding community. Students who successfully complete the program will receive an Associate in Applied Sciences-Transfer (AAS-T) degree and be eligible to take the National Council Licensure Examination for Registered Nurses (NCLEX-RN) exam. The program also prepares students to transfer to an RN-BSN program after obtaining the RN license.

A concept based curriculum supports students from varied backgrounds by relating new ideas to previously acquired knowledge in an engaging and supportive environment. Students are provided with many

opportunities to acquire the necessary critical thinking skills for practice as Registered Nurses in the dynamic healthcare environment. Nursing students will be equipped to provide safe, comfort-oriented, culturally-sensitive nursing care that meets the highest professional standards and serves a diverse population. This includes the utilization of nursing informatics and information technology to provide optimal, evidence-based nursing care now and throughout their career.

#### **Program Learning Outcomes:**

- Provide safe and competent care to clients, families, and groups utilizing current best practices in client care.
- Apply critical thinking and clinical reasoning through the nursing process in client care.
- Provide comfort-oriented and evidence-based nursing care within the legal and ethical standards of practice.
- Employ culturally sensitive and therapeutic communication skills with clients and families.
- Practice professional behaviors of collaboration, advocacy, maintaining of on-going knowledge base, and evaluation of own practice.
- Utilize nursing informatics and information technology to support and communicate the planning, provision, collaboration, and management of client care.

#### **Program Requirements**

##### **Prerequisites**

- BIOL& 160 - General Biology 5 *Credits*
- BIOL& 241 - Human Anatomy & Physiology I 5 *Credits*
- BIOL& 242 - Human Anatomy & Physiology II 5 *Credits*
- BIOL& 260 - Microbiology 5 *Credits*
- CHEM& 121 - Introduction to Chemistry 5 *Credits*
- ENGL& 101 - English Composition I 5 *Credits*
- MATH& 146 - Introduction to Statistics 5 *Credits*
- PSYC& 200 - Lifespan Psychology 5 *Credits*

##### **Quarter 1**

- NURS 103 - Bridge to Nursing 3 *Credits*
- NURS 108 - Foundations of Nursing Practice 4 *Credits*
- NURS 109 - Foundations of Nursing Practice Laboratory 3 *Credits*
- NURS 195 - Foundations of Nursing Practice Clinical Practicum 4 *Credits*
- NURS 114 - Health and Wellness 2 *Credits*

##### **Quarter 2**

- NURS 117 - Alterations in Health Care Needs 5 *Credits*
- NURS 118 - Alterations in Health Care Needs Laboratory 3 *Credits*
- NURS 198 - Alterations in Health Care Needs Clinical Practicum 4 *Credits*

##### **Quarter 3**

- NURS 105 - Reproductive Health 4 *Credits*
- NURS 107 - Mental Health/Reproductive Health Clinical 3 *Credits*
- NURS 112 - Mental Health in the Multicultural Community 4 *Credits*
- NURS 119 - Reproductive Health Laboratory 1 *Credits*

##### **Quarter 4**

- NURS 208 - Major Acute Alterations in Health Care Needs 5 *Credits*
- NURS 209 - Major Chronic Alterations in Health Care Needs Laboratory 3 *Credits*
- NURS 295 - Major Acute Alterations Clinical 5 *Credits*

##### **Quarter 5**

- NURS 203 - Major Chronic Alterations in Health Care Needs 5 *Credits*
- NURS 207 - Major Chronic Alterations in Health Care Needs Laboratory 2 *Credits*
- NURS 294 - Major Chronic Alterations Clinical 5 *Credits*

##### **Quarter 6**

- NURS 210 - Complex Multi-Systems Acute Alterations in Health Care Needs 5 *Credits*
- NURS 281 - Leadership and Management 2 *Credits*
- NURS 296 - Complex Multi-Systems Alterations Preceptorship 4 *Credits*

##### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

#### **Revenue Management Specialist Certificate**

**Certificate of Completion: 61 credits**

**Enrollment Point: Fall or Winter Quarter**



This program explores the payment systems and the types of reimbursement methodologies used by the U.S. government and other key healthcare organizations. Develop skills and knowledge to transform descriptions of diseases, injuries, conditions, and procedures into numerical designations in clinics, insurance companies, and other medical settings. Apply coding guidelines for CPT®, ICD-9-CM, and HCPCS Level II. Develop an understand of the various types of insurance plans and the application of payer policy, Local Coverage Determinations (LCD), and National Coverage Determinations (NCD) for successful claim submissions. Successful navigation of the varying rules and regulations applying to the healthcare industry, including HIPAA, False Claims Act, Fair Debt Collections Act, and Stark. Graduates will understand of the life cycle of a medical billing claim and how to improve the revenue cycle and proficient in effective claim follow-up, patient follow-up, and denial resolution.

A Certificate of Completion is awarded upon successful completion of core course requirements.

Transfer credit from other institutions is considered upon validation of transcript and course work.

#### **Program Learning Outcomes:**

- Perform business functions in a medical office.
- Model ethical behavior.
- Communicate effectively with patients, co-workers and industry professionals.
- Promote a positive workplace environment.
- Evaluate medical documentation to identify and assign procedure and diagnostic codes.
- Analyze clinic coding performance by extracting or auditing revenue performance.
- Disseminate information on coding standards and requirements to optimize reimbursement.

#### **Program Requirements**

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

#### **Quarter 1**

- COL 101 - College Success *2 Credits*
- MAP 101 - Introduction to Medical Terminology *5 Credits*
- MAP 114 - Computer Fundamentals (Office 365) *5 Credits*
- MAP 120 - Human Relations *2 Credits*

- MAP 208 - Patient Navigation and the Healthcare System *3 Credits*

#### **Quarter 2**

- MAP 115 - Advanced MS Office and Keyboarding (MOS) *5 Credits*
- MAP 123 - Patient Navigation and Chronic Illness *3 Credits*
- MAP 190 - Career Opportunities and Employment Expectations *2 Credits*
- MAP 211 - Navigating EHRs in Healthcare *3 Credits*
- AMATH 164V - Introduction to Mathematical Operations *2 Credits*

#### **Quarter 3**

- MAP 147 - Insurance Claims, Processing, and Adjudication *2 Credits*
- MAP 201 - Diagnostic and Procedural Coding *5 Credits*
- MAP 285 - The Revenue Cycle *5 Credits*
- COMP 100 - Applied Composition *5 Credits*

#### **Quarter 4**

- MAP 155 - Introduction to Excel *5 Credits*
- MAP 247 - Introduction to Medical Databases *2 Credits*
- MAP 280 - Current Legal Aspects of Healthcare *5 Credits*

#### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## **Surgical Technologist, AAS-T**

**Associate of Applied Science - Transfer Degree:**  
**108 credits**

#### **Enrollment Point: Fall or Spring Quarter**

The Surgical Technologist program is accredited nationally by the Commission on Accreditation of Allied Health Education Programs in collaboration with the Association of Surgical Technologists and the American College of Surgeons.

In this program, the student is trained to become an integral part of the team of medical practitioners providing surgical care to patients. Students will be taught to facilitate safe and effective conduct of invasive surgical procedures, ensuring that the operating room

environment is safe, that equipment functions properly, and that the operative procedure is conducted under conditions that maximize patient safety. The student will be trained to possess expertise in the theory and application of sterile and aseptic technique and combine the knowledge of human anatomy, surgical procedures, and implementation tools and technologies to facilitate a physician's performance of invasive therapeutic and diagnostic procedures. A major portion of the course training occurs in a variety of regional healthcare facilities.

#### **Program Learning Outcomes:**

- Assume the role of a competent, caring Surgical Technologist in a variety of healthcare settings, under the direct supervision of the licensed healthcare provider.
- Demonstrate the principles of aseptic technique and apply safe practices in the healthcare environment.
- Demonstrate critical thinking skills; prioritizing, analyzing, anticipating, resolving problems and acting instinctively and decisively in the healthcare environment.
- Demonstrate accountability of practice with adherence to ethical and legal standards of the Surgical Technologist profession.
- Communicate effectively in the perioperative healthcare environment with all members of the healthcare team.

#### **Program Requirements**

##### **Prerequisites**

- AMATH 190 - Financial Algebra *5 Credits*
- BIOL& 160 - General Biology *5 Credits*
- BIOL& 241 - Human Anatomy & Physiology I *5 Credits*
- BIOL& 242 - Human Anatomy & Physiology II *5 Credits*
- ENGL& 101 - English Composition I *5 Credits*

##### **Quarter 1**

- COL 101 - College Success *2 Credits*
- SURG 102 - Healthcare Provider First Aid/CPR, AED and Bloodborne Pathogens *2 Credits*
- SURG 130 - Medical Terminology *3 Credits*
- Approved Transfer Math Option

##### **Quarter 2**

- SURG 103 - Operating Room Environment *3 Credits*

- SURG 131 - Microbiology *3 Credits*
- Approved Social Science Option

##### **Quarter 3**

- SURG 101 - Surgical Techniques *5 Credits*
- SURG 106 - Surgical Procedures I *3 Credits*
- SURG 109 - Skills Laboratory I *6 Credits*
- SURG 132 - Pharmacology *3 Credits*

##### **Quarter 4**

- SURG 107 - Surgical Procedures II *13 Credits*
- SURG 115 - Skills Laboratory II *5 Credits*

##### **Quarter 5**

- SURG 112 - Professional Preparation I *1 Credits*
- SURG 180 - Human Relations *3 Credits*
- SURG 194 - Operating Room Clinical Practicum I *11 Credits*

##### **Quarter 6**

- SURG 113 - Professional Preparation II *1 Credits*
- SURG 170 - Communications *4 Credits*
- SURG 195 - Operating Room Clinical Practicum II *5 Credits*

#### **Approved Transfer Math Options**

- MATH& 107 - Math in Society *5 Credits*
- MATH& 146 - Introduction to Statistics *5 Credits*

#### **Approved Social Science Options**

- ANTH& 235 - Cross-Cultural Medicine *5 Credits*
- PSYC& 100 - General Psychology *5 Credits*
- PSYC& 200 - Lifespan Psychology *5 Credits*
- SOC& 101 - Introduction to Sociology *5 Credits*

#### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each SURG course: **2.7**
- Minimum grade for all other courses: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

### **Veterinary Assistant Certificate**

#### **Certificate of Completion: 29 credits**

#### **Enrollment Point: Fall Quarter**

The Veterinary Assistant program is accredited nationally by the National Association of Veterinary Technicians of America (NAVTA). This program prepares students to assist the veterinarian in all aspects of animal care. Veterinary Assistants provide surgical and nursing

care to animals in clinics, as well as field settings. They also provide basic care, perform laboratory procedures, and assist in the veterinary clinic with other functions. Veterinary Assistants work in a variety of settings including animal hospitals and clinics, animal shelters, laboratories, zoos, and animal parks.

The program includes classroom theory, laboratory, and internship experience in local veterinary clinics. Students receive hands-on experience with animals. Program content requires the application of basic math, technical reading, and communications skills.

#### **Program Learning Outcomes:**

- Demonstrate critical thinking skills to be able to function within the scope of practice of a Veterinary Assistant.
- Maintain safety when working with humans and animals.
- Perform as an integral member of an effective veterinary health care team while adhering to professional and ethical standards.
- Show proficiency in the Essential Skills dictated by the National Association of Veterinary Technicians in America.
- Effectively communicate with veterinary healthcare team members and clients.

#### **Program Requirements**

##### **Quarter 1**

- COL 101 - College Success 2 Credits
- VET 100 - Veterinary Assisting I 6 Credits
- VET 193 - Veterinary Assisting Practicum 1 Credits

##### **Quarter 2**

- VET 104 - Veterinary Assisting II 5 Credits
- VET 106 - Veterinary Pharmacology and Medical Dosage 3 Credits

##### **Quarter 3**

- VET 105 - Veterinary Assisting III 5 Credits
- VET 181 - Human Relations/Workplace Skills 3 Credits

##### **Quarter 4**

- VET 197 - Veterinary Assisting Internship 4 Credits

#### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## **Information Technology**

The Information Technology programs give students a convenient and supportive way to enter the fields of computer science and networking, with associate degree and certificate options that match your needs. The economy of Puget Sound - and the world - runs on information and the electronic technologies that manage it.

### **Application Development, BAS**

**Bachelor of Applied Science Degree: 90 credits** (plus additional 90 credits from associate degree for a total of 180 credits)

**Prerequisite - Associate of Applied Science: 90 credits**

**Enrollment Point: Fall Quarter**

The BAS in Application Development degree will prepare graduates for employment in the field of information technology. Application Development is a high demand occupation that encompasses various aspects of data analysis, application and software development, programming, and project management. Students with technical associate degrees in information technology, database management, programming, and related areas will be good candidates for our BAS in Application Development program. Graduates of this program can expect to find work as software developers (applications and systems software), computer systems analysts, web developers and programmers, and database administrators to name a few. In some instances, students may work as IT project managers. In addition to a strong technical foundation, graduates will have received instruction in general education topics in science, communications, and quantitative reasoning; and have gained extensive experience working in teams, creating and conducting presentations, and authoring documentation for software development. The skills obtained by graduates of this degree program are transferrable to numerous information technology and computer systems positions across multiple industries, including corporations, nonprofit organizations, IT companies, and medical and research institutions.

The BAS in Application Development is an evening hybrid program. Classes meet one evening each week, and students will have additional online assignments, including group projects, to complete.

**Program Learning Outcomes:**

- Use databases and database management systems to organize, store and retrieve data securely.
- Apply data structures and algorithms to software development problems.
- Communicate an end to end project-level vision (SDLC) in application development, server and client scripting, and security.
- Develop and deploy applications in a variety of platforms, including distributed computing and mobile applications.
- Work effectively on diverse teams.
- Communicate technical information to both technical and non-technical audiences in written and oral form.
- Document project and application development work with clear and appropriate language in an information technology context.

## Program Requirements

### Quarter 1

- CSI 330 - Software Engineering *5 Credits*
- CSI 335 - Discrete Math *5 Credits*
- General Education course from list below

### Quarter 2

- CSI 340 - Software Application Development I *5 Credits*
- CSI 345 - Advanced Data Structures and Algorithms *5 Credits*
- General Education course from list below

### Quarter 3

- CSI 350 - Software Application Development II *5 Credits*
- CSI 360 - Mobile Application Development I *5 Credits*
- General Education course from list below

### Quarter 4

- CSI 460 - Mobile Application Development II *5 Credits*
- CSI 470 - Data Mining *5 Credits*
- General Education course from list below

### Quarter 5

- CSI 475 - Advanced Database Intelligence *5 Credits*
- CSI 483 - IT Project Management *5 Credits*
- General Education course from list below

### Quarter 6

- CSI 492 - Senior Capstone Project *5 Credits*
- CSI 499 - Emerging Technologies *5 Credits*
- PHIL 481 - Ethical Issues in Information Technology *5 Credits* or other General Education
- CSI 494 - Cooperative Education/Internship (Optional) *Up to 10 Credits \**

*\*CSI 494 Cooperative Education/Internship may be taken in lieu of CSI 475 Advanced Database Intelligence and/or CSI 492 Senior Capstone Project, up to 10 credits.*

## General Education Requirements

For a bachelor's degree in the state of Washington, a total of 60 general education credits are required across 5 distribution areas: 10 credits in communication, 5 credits in quantitative / symbolic reasoning, 10 credits in humanities, 10 credits in social sciences, and 10 credits in natural sciences. The remaining 15 general education credits can come from any distribution area. The courses that each student takes depends on the distribution area(s) of classes taken at the associate's level or transferred to RTC. For example, students who enter the BAS program with the minimum of 20 credits of college-level general education will need to take 40 more credits (8 classes).

### Communication

2 required (10 credits)

- ENGL& 101 - English Composition I *5 Credits*
- ENGL& 102 - Composition II *5 Credits*
- ENGL& 235 - Technical Writing *5 Credits*

### Quantitative / Symbolic Reasoning

1 required (5 credits)

- MATH& 107 - Math in Society *5 Credits*
- MATH& 141 - Precalculus I *5 Credits*
- MATH& 142 - Precalculus II *5 Credits*
- MATH& 146 - Introduction to Statistics *5 Credits*
- MATH& 151 - Calculus I *5 Credits*
- MATH& 152 - Calculus II *5 Credits*

### Humanities

2 required (10 credits)

- CMST& 101 - Introduction to Communication *5 Credits*
- CMST& 220 - Public Speaking *5 Credits*
- ENGL& 111 - Introduction to Literature *5 Credits*
- ENGL& 254 - World Literature *5 Credits*

- HIST 110 - Survey of American History *5 Credits*
- HIST& 126 - World Civilization I *5 Credits*
- HIST& 136 - U.S. History I *5 Credits*
- HIST& 137 - U.S. History II *5 Credits*
- HUM& 101 - Introduction to Humanities *5 Credits*
- MUSC& 105 - Music Appreciation *5 Credits*
- PHIL 481 - Ethical Issues in Information Technology *5 Credits*
- PHIL& 101 - Introduction to Philosophy *5 Credits*
- SPAN& 121 - Spanish I *5 Credits*

### Social Sciences

2 required (10 credits)

- ANTH& 234 - Religion and Culture *5 Credits*
- ANTH& 235 - Cross-Cultural Medicine *5 Credits*
- ECON& 201 - Microeconomics *5 Credits*
- ECON& 202 - Macroeconomics *5 Credits*
- POLS 150 - Contemporary World Issues *5 Credits*
- POLS& 202 - American Government *5 Credits*
- PSYC& 100 - General Psychology *5 Credits*
- PSYC& 200 - Lifespan Psychology *5 Credits*
- SOC& 101 - Introduction to Sociology *5 Credits*

### Natural Sciences

2 required (10 credits)

- BIOL& 100 - Survey of Biology *5 Credits*
- BIOL& 160 - General Biology *5 Credits*
- BIOL& 241 - Human Anatomy & Physiology I *5 Credits*
- BIOL& 242 - Human Anatomy & Physiology II *5 Credits*
- BIOL& 260 - Microbiology *5 Credits*
- CHEM& 121 - Introduction to Chemistry *5 Credits*
- CHEM& 131 - Introduction to Organic and Biological Chemistry *5 Credits*
- GEOL& 101 - Introduction to Physical Geology *5 Credits*
- NUTR& 101 - Human Nutrition *5 Credits*
- PHYS& 114 - General Physics I *5 Credits*

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each CSI course: **2.0**
- Minimum grade for all other courses: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Computer Network Architecture, BAS

**Bachelor of Applied Science Degree: 90 credits** (plus additional 90 credits from associate degree for a total of 180 credits)

**Prerequisite - Associate of Applied Science: 90 credits**

**Enrollment Point: Spring Quarter**

The BAS in Computer Network Architecture degree will prepare graduates for employment in the field of information technology. Computer Network Architecture is a high demand occupation that encompasses various aspects of computer hardware and software architecture and systems administration. Students with technical associate degrees in Network and System Administration, Computer Systems Networking and Telecommunications, Information Technology, Cyber Security and other related areas will be good candidates for our BAS in Computer Network Architecture program. Graduates will receive a deep technical foundation in designing and implementing computer and information networks; performing network modeling, analysis and planning; and implementing advanced cloud and virtualization technologies at the enterprise level. In addition to a strong technical foundation, graduates will receive instruction in general education topics in science, communications, and quantitative reasoning; and will gain extensive experience working in teams, making presentations, and participating in on-the-job training. The degree will prepare a graduate to work as computer network architects, engineers and network managers, in a wide range of organizations and industries including corporations, nonprofit organizations, IT companies, and medical and research institutions.

### Program Learning Outcomes:

- Utilize computer network engineering and architecting best practices, network testing principles, and quality assurance techniques.
- Monitor, log, troubleshoot, and correct network issues.
- Plan and implement end-to-end physical and virtual network infrastructures.
- Remotely administrate systems and network infrastructure.
- Use scripting and programming languages to automate configuration and management.
- Evaluate new networking technologies to support a business or organization.
- Work effectively on diverse teams.
- Manage a network infrastructure project including business requirements, technical specifications, resources, and documentation.



- Communicate technical information to both technical and non-technical audiences in written and oral form.
- Document network infrastructure project work with clear and appropriate language.

## Program Requirements

### Quarter 1

- CNA 336 - Network Programming in Python 5 Credits
- CNA 340 - IT Project Management 5 Credits
- General Education course from list below

### Quarter 2

- CNA 330 - Network Databases and Structured Query Language (SQL) 5 Credits
- CNA 337 - Network Programming in Python II 5 Credits
- General Education course from list below

### Quarter 3

- CNA 335 - Programming and Scripting for Network Management 5 Credits
- CNA 350 - Introduction to Virtualization 5 Credits
- General Education course from list below

### Quarter 4

- CNA 421 - Cloud Architecture 5 Credits
- CNA 440 - Network Infrastructure Planning and Deployment 5 Credits
- General Education course from list below

### Quarter 5

- CNA 450 - Advanced Virtualization 5 Credits
- CNA 480 - Virtual Infrastructure Security 5 Credits
- General Education course from list below

### Quarter 6

- CNA 481 - Troubleshooting Physical and Virtual Network Infrastructure 5 Credits
- CNA 492 - Network Architecture Capstone Project 5 Credits
- PHIL 481 - Ethical Issues in Information Technology 5 Credits or other General Education
- CNA 493 - Cooperative Education/Internship (Optional) 10 Credits \*

\*CNA 493 Cooperative Education/Internship may be taken in lieu of CNA 481 Troubleshooting Physical and Virtual Network Infrastructures and/or CNA 492 Network Architecture Capstone Project, up to 10 credits.

## General Education Requirements

For a bachelor's degree in the state of Washington, a total of 60 general education credits are required across 5 distribution areas: 10 credits in communication, 5 credits in quantitative / symbolic reasoning, 10 credits in humanities, 10 credits in social sciences, and 10 credits in natural sciences. The remaining 15 general education credits can come from any distribution area. The courses that each student takes depends on the distribution area(s) of classes taken at the associate's level or transferred to RTC. For example, students who enter the BAS program with the minimum of 20 credits of college-level general education will need to take 40 more credits (8 classes).

### Communication

2 required (10 credits)

- ENGL& 101 - English Composition I 5 Credits
- ENGL& 102 - Composition II 5 Credits
- ENGL& 235 - Technical Writing 5 Credits

### Quantitative / Symbolic Reasoning

1 required (5 credits)

- MATH& 107 - Math in Society 5 Credits
- MATH& 141 - Precalculus I 5 Credits
- MATH& 142 - Precalculus II 5 Credits
- MATH& 146 - Introduction to Statistics 5 Credits
- MATH& 151 - Calculus I 5 Credits
- MATH& 152 - Calculus II 5 Credits

### Humanities

2 required (10 credits)

- CMST& 101 - Introduction to Communication 5 Credits
- CMST& 220 - Public Speaking 5 Credits
- ENGL& 111 - Introduction to Literature 5 Credits
- ENGL& 254 - World Literature 5 Credits
- HIST 110 - Survey of American History 5 Credits
- HIST& 126 - World Civilization I 5 Credits
- HIST& 136 - U.S. History I 5 Credits
- HIST& 137 - U.S. History II 5 Credits
- HUM& 101 - Introduction to Humanities 5 Credits
- MUSC& 105 - Music Appreciation 5 Credits
- PHIL 481 - Ethical Issues in Information Technology 5 Credits
- PHIL& 101 - Introduction to Philosophy 5 Credits
- SPAN& 121 - Spanish I 5 Credits

### Social Sciences

2 required (10 credits)

- ANTH& 234 - Religion and Culture *5 Credits*
- ANTH& 235 - Cross-Cultural Medicine *5 Credits*
- ECON& 201 - Microeconomics *5 Credits*
- ECON& 202 - Macroeconomics *5 Credits*
- POLS 150 - Contemporary World Issues *5 Credits*
- POLS& 202 - American Government *5 Credits*
- PSYC& 100 - General Psychology *5 Credits*
- PSYC& 200 - Lifespan Psychology *5 Credits*
- SOC& 101 - Introduction to Sociology *5 Credits*

### Natural Sciences

2 required (10 credits)

- BIOL& 100 - Survey of Biology *5 Credits*
- BIOL& 160 - General Biology *5 Credits*
- BIOL& 241 - Human Anatomy & Physiology I *5 Credits*
- BIOL& 242 - Human Anatomy & Physiology II *5 Credits*
- BIOL& 260 - Microbiology *5 Credits*
- CHEM& 121 - Introduction to Chemistry *5 Credits*
- CHEM& 131 - Introduction to Organic and Biological Chemistry *5 Credits*
- GEOL& 101 - Introduction to Physical Geology *5 Credits*
- NUTR& 101 - Human Nutrition *5 Credits*
- PHYS& 114 - General Physics I *5 Credits*

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each CNA course: **2.0**
- Minimum grade for all other courses: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Computer Network Technology Certificate

**Certificate of Completion: 77 credits**

**Enrollment Point: Fall, Winter or Spring Quarter**

The Computer Network Technology program is designed for entry-level students to develop skills needed to gain employment as computer network installation, configuration, and support technicians. Students receive training in basic electronic theory and progress through classes in maintenance and repair of Microsoft Windows and Linux Operating system environments. Students are prepared for industry certifications, including CompTIA A+, Security+, Linux+, and Microsoft Certified Professional

(MCP). Both server and workstation configurations are taught in this 5-quarter program.

Students who successfully pass all competencies are awarded a Certificate of Completion (77 credits). Advanced standing is possible for Tech Prep students or for those able to present transcript evidence of prior training.

To earn an Associate of Applied Science degree, the student must complete all requirements for the certificate program (77 credits) plus 15 credits of General Education.

To earn an Associate of Applied Science-Transfer Degree, the student must complete all requirements for the Computer Network certificate program (77 credits) and 15 additional credits of General Education, with specific requirements in English and mathematics.

### Program Learning Outcomes:

- Obtain knowledge and experience in the computer networking field.
- Possess technical skills to successfully manage and troubleshoot system environments running on the Windows 10, Windows Server 2012 R2 and Linux operating systems.
- Develop knowledge and skills necessary to gain employment as computer network technicians or related roles.
- Be prepared to participate in computer networking industry certification processes, e.g., TestOut PCPro, TestOut ServerPro, TestOut LinuxPro, TestOut SecurityPro, CompTIA A+, CompTIA Network+, CompTIA Linux+, MCP and MCSA certifications.

### Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

#### Quarter 1

- COL 101 - College Success *2 Credits*
- CNT 156 - CompTIA A+ Core I *5 Credits*
- CSI 120 - Computer Programming I *5 Credits*
- COMP 100 - Applied Composition *5 Credits*
- *or* ENGL& 101 - English Composition I *5 Credits*

#### Quarter 2

- CNT 160 - CompTIA A+ Core II *5 Credits*
- CNT 240 - Routing and Switching I *5 Credits*
- CNT 254 - Network Infrastructure *5 Credits*

### Quarter 3

- CNT 250 - Routing and Switching II 5 Credits
- CNT 263 - CompTIA Linux+ 5 Credits
- AMATH 175 - Financial Math 5 Credits \*

\*Students may substitute a higher math class, such as AMATH 190, MATH 095, MATH& 107, MATH& 141, MATH& 142, MATH& 146, or MATH& 151.

### Quarter 4

- CNT 262 - Introduction to Databases with SQL 5 Credits
- CNT 264 - CompTIA Security+ 5 Credits
- ANTH& 106 - American Mosaic 5 Credits
- or ANTH& 234 - Religion and Culture 5 Credits
- or PSYC& 100 - General Psychology 5 Credits
- or SOC& 101 - Introduction to Sociology 5 Credits

### Quarter 5

- CNT 256 - AWS Cloud Foundations 5 Credits
- CNT 259 - Secure Enterprise Networks 5 Credits
- CNT 290 - Next Level Networking Topics 5 Credits
- CNT 294 - Internship/Cooperative Education 5 Credits (optional)

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- \*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.

## Computer Network Technology, AAS

**Associate of Applied Science Degree: 92 credits**

**Enrollment Point: Fall, Winter or Spring Quarter**

The Computer Network Technology program is designed for entry-level students to develop skills needed to gain employment as computer network installation, configuration, and support technicians. Students receive training in basic electronic theory and progress through classes in maintenance and repair of Microsoft Windows and Linux Operating system environments. Students are prepared for industry certifications, including CompTIA A+, Security+, Linux+, and Microsoft Certified Professional (MCP). Both server and workstation configurations are taught in this 5-quarter program.

Students who successfully pass all competencies are awarded a Certificate of Completion (77 credits). Advanced standing is possible for Tech Prep students or

for those able to present transcript evidence of prior training.

To earn an Associate of Applied Science degree, the student must complete all requirements for the certificate program (77 credits) plus 15 credits of General Education.

To earn an Associate of Applied Science-Transfer Degree, the student must complete all requirements for the Computer Network certificate program (77 credits) and 15 additional credits of General Education, with specific requirements in English and mathematics.

### Program Learning Outcomes:

- Obtain knowledge and experience in the computer networking field.
- Possess technical skills to successfully manage and troubleshoot system environments running on the Windows 10, Windows Server 2012 R2 and Linux operating systems.
- Develop knowledge and skills necessary to gain employment as computer network technicians or related roles.
- Be prepared to participate in computer networking industry certification processes, e.g., TestOut PCPro, TestOut ServerPro, TestOut LinuxPro, TestOut SecurityPro, CompTIA A+, CompTIA Network+, CompTIA Linux+, MCP and MCSA certifications.

### Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

#### Quarter 1

- COL 101 - College Success 2 Credits
- CNT 156 - CompTIA A+ Core I 5 Credits
- CSI 120 - Computer Programming I 5 Credits
- COMP 100 - Applied Composition 5 Credits
- or ENGL& 101 - English Composition I 5 Credits

#### Quarter 2

- CNT 160 - CompTIA A+ Core II 5 Credits
- CNT 240 - Routing and Switching I 5 Credits
- CNT 254 - Network Infrastructure 5 Credits

#### Quarter 3

- CNT 250 - Routing and Switching II 5 Credits
- CNT 263 - CompTIA Linux+ 5 Credits
- AMATH 175 - Financial Math 5 Credits \*

\*Students may substitute a higher math class, such as AMATH 190, MATH 095, MATH& 107, MATH& 141, MATH& 142, MATH& 146, or MATH& 151.

#### Quarter 4

- CNT 262 - Introduction to Databases with SQL 5 Credits
- CNT 264 - CompTIA Security+ 5 Credits
- ANTH& 106 - American Mosaic 5 Credits
- or ANTH& 234 - Religion and Culture 5 Credits
- or PSYC& 100 - General Psychology 5 Credits
- or SOC& 101 - Introduction to Sociology 5 Credits

#### Quarter 5

- CNT 256 - AWS Cloud Foundations 5 Credits
- CNT 259 - Secure Enterprise Networks 5 Credits
- CNT 290 - Next Level Networking Topics 5 Credits
- CNT 294 - Internship/Cooperative Education 5 Credits (optional)

#### Course Requirements for AAS Degree

##### Quarter 6

- Approved General Education Courses (15 credits)

#### Approved General Education Courses

Approved General Education classes are listed below. Students should choose options that meet their career and educational goals. Transfer credits and requests to take a class not listed below must be approved by the program Dean.

- ACCT& 201 - Principles of Accounting I 5 Credits
- ANTH& 106 - American Mosaic 5 Credits
- ART& 100 - Art Appreciation 5 Credits
- BIOL& 100 - Survey of Biology 5 Credits
- CMST& 101 - Introduction to Communication 5 Credits
- CMST& 220 - Public Speaking 5 Credits
- ECON& 201 - Microeconomics 5 Credits
- ECON& 202 - Macroeconomics 5 Credits
- ENGL& 102 - Composition II 5 Credits
- GEOL& 101 - Introduction to Physical Geology 5 Credits
- HUM& 101 - Introduction to Humanities 5 Credits
- MATH& 142 - Precalculus II 5 Credits
- MATH& 148 - Business Calculus 5 Credits
- MATH& 151 - Calculus I 5 Credits
- MUSC& 105 - Music Appreciation 5 Credits
- NUTR& 101 - Human Nutrition 5 Credits
- PSYC& 100 - General Psychology 5 Credits

- SOC& 101 - Introduction to Sociology 5 Credits

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

### Computer Network Technology, AAS-T

#### Associate of Applied Science - Transfer Degree: 92

#### Enrollment Point: Fall, Winter or Spring Quarter

The Computer Network Technology program is designed for entry-level students to develop skills needed to gain employment as computer network installation, configuration, and support technicians. Students receive training in basic electronic theory and progress through classes in maintenance and repair of Microsoft Windows and Linux Operating system environments. Students are prepared for industry certifications, including CompTIA A+, Security+, Linux+, and Microsoft Certified Professional (MCP). Both server and workstation configurations are taught in this 5-quarter program.

Students who successfully pass all competencies are awarded a Certificate of Completion (77 credits). Advanced standing is possible for Tech Prep students or for those able to present transcript evidence of prior training.

To earn an Associate of Applied Science degree, the student must complete all requirements for the certificate program (77 credits) plus 15 credits of General Education.

To earn an Associate of Applied Science-Transfer Degree, the student must complete all requirements for the Computer Network certificate program (77 credits) and 15 additional credits of General Education, with specific requirements in English and mathematics.

#### Program Learning Outcomes:

- Obtain knowledge and experience in the computer networking field.
- Possess technical skills to successfully manage and troubleshoot system environments running on the Windows 10, Windows Server 2012 R2 and Linux operating systems.
- Develop knowledge and skills necessary to gain employment as computer network technicians or related roles.
- Be prepared to participate in computer networking industry certification processes,

e.g., TestOut PCPro, TestOut ServerPro, TestOut LinuxPro, TestOut SecurityPro, CompTIA A+, CompTIA Network+, CompTIA Linux+, MCP and MCSA certifications.

## Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

### Quarter 1

- COL 101 - College Success *2 Credits*
- CNT 156 - CompTIA A+ Core I *5 Credits*
- CSI 120 - Computer Programming I *5 Credits*
- ENGL& 101 - English Composition I *5 Credits*

### Quarter 2

- CNT 160 - CompTIA A+ Core II *5 Credits*
- CNT 240 - Routing and Switching I *5 Credits*
- CNT 254 - Network Infrastructure *5 Credits*

### Quarter 3

- CNT 250 - Routing and Switching II *5 Credits*
- CNT 263 - CompTIA Linux+ *5 Credits*
- AMATH 175 - Financial Math *5 Credits* \*

\*Students may substitute a higher math class, such as AMATH 190, MATH 095, MATH& 107, MATH& 141, MATH& 142, MATH& 146, or MATH& 151.

### Quarter 4

- CNT 262 - Introduction to Databases with SQL *5 Credits*
- CNT 264 - CompTIA Security+ *5 Credits*
- ANTH& 106 - American Mosaic *5 Credits*
- or ANTH& 234 - Religion and Culture *5 Credits*
- or PSYC& 100 - General Psychology *5 Credits*
- or SOC& 101 - Introduction to Sociology *5 Credits*

### Quarter 5

- CNT 256 - AWS Cloud Foundations *5 Credits*
- CNT 259 - Secure Enterprise Networks *5 Credits*
- CNT 290 - Next Level Networking Topics *5 Credits*
- CNT 294 - Internship/Cooperative Education *5 Credits* (optional)

## Course Requirements for AAS-T Degree

Students must complete ENGL& 101 for the AAS-T degree.

Students who complete one of the math classes below as part of the certificate requirements may substitute any additional approved General Education class for those credits.

### Quarter 6

- MATH& 107 - Math in Society *5 Credits*
- or MATH& 141 - Precalculus I *5 Credits*
- or MATH& 146 - Introduction to Statistics *5 Credits*
- or More Advanced Math Class
- Approved General Education Courses (10 credits)

## Approved General Education Courses

Approved General Education classes are listed below. Students should choose options that meet their career and educational goals. Transfer credits and requests to take a class not listed below must be approved by the program Dean.

- ACCT& 201 - Principles of Accounting I *5 Credits*
- ANTH& 106 - American Mosaic *5 Credits*
- ART& 100 - Art Appreciation *5 Credits*
- BIOL& 100 - Survey of Biology *5 Credits*
- CMST& 101 - Introduction to Communication *5 Credits*
- CMST& 220 - Public Speaking *5 Credits*
- ECON& 201 - Microeconomics *5 Credits*
- ECON& 202 - Macroeconomics *5 Credits*
- ENGL& 102 - Composition II *5 Credits*
- GEOL& 101 - Introduction to Physical Geology *5 Credits*
- HUM& 101 - Introduction to Humanities *5 Credits*
- MATH& 142 - Precalculus II *5 Credits*
- MATH& 148 - Business Calculus *5 Credits*
- MATH& 151 - Calculus I *5 Credits*
- MUSC& 105 - Music Appreciation *5 Credits*
- NUTR& 101 - Human Nutrition *5 Credits*
- PSYC& 100 - General Psychology *5 Credits*
- SOC& 101 - Introduction to Sociology *5 Credits*

## GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **2.0**
- \*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.

## Computer Science, AAS

**Associate of Applied Science Degree: 92 credits**

**Enrollment Point: Fall, Winter or Spring Quarter**



Students prepare for entry in various careers in the Information Technology industry that require a solid foundation in computer programming. Students design, develop and test client-server applications, practice more advanced database tasks, and bring their learning together in a capstone project or internship at the conclusion of the program. Reinforcement of theory is achieved through lab projects and close instructor contact. General education classes needed for the degree are offered both in person and online.

Students completing the AAS or AAS-T degree requirements may transfer to one of the many local Bachelor of Applied Science (BAS) programs in computer science, including the BAS in Application Development at RTC. They also can enroll at City University, DeVry University, and University of Phoenix with junior standing in a variety of business- and computer-related bachelor degree programs.

#### **Program Learning Outcomes:**

- Develop database-connected programming solutions.
- Develop web applications.
- Write clean code in at least two industry-standard programming languages.
- Apply basic knowledge of data structures and algorithms to programming tasks.
- Work effectively on diverse teams.
- Communicate effectively both verbally and in writing.

#### **Program Requirements**

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

##### **Quarter 1**

- COL 101 - College Success 2 Credits
- CNT 156 - CompTIA A+ Core I 5 Credits
- CSI 120 - Computer Programming I 5 Credits
- COMP 100 - Applied Composition 5 Credits
- or ENGL& 101 - English Composition I 5 Credits

##### **Quarter 2**

- CSI 122 - Computer Programming II 5 Credits
- CSI 130 - Database Design 5 Credits
- ANTH& 234 - Religion and Culture 5 Credits
- or PSYC& 100 - General Psychology 5 Credits
- or SOC& 101 - Introduction to Sociology 5 Credits

##### **Quarter 3**

- CSI 124 - Computer Programming III 5 Credits
- CSI 140 - Front-End Web Development 5 Credits
- AMATH 175 - Financial Math 5 Credits \*
- or AMATH 190 - Financial Algebra 5 Credits \*\*

*\*Students who place into higher math or present math transfer credit may substitute other approved general education courses for the developmental math sequence.*

*\*\*These classes have prerequisites. Students should plan carefully based on their math skills and placement results.*

##### **Quarter 4**

- CSI 226 - Computer Programming IV 5 Credits
- CSI 234 - Applied Database Development 5 Credits
- ART& 100 - Art Appreciation 5 Credits
- or HUM& 101 - Introduction to Humanities 5 Credits
- or MUSC& 105 - Music Appreciation 5 Credits

##### **Quarter 5**

- CSI 242 - Client-Side Scripting 5 Credits
- CSI 260 - Introduction to Data Structures and Algorithms 5 Credits
- Approved General Education Course (5 credits)^

##### **Quarter 6**

- CSI 250 - Rich Internet Applications 5 Credits
- CSI 293 - Capstone Design and Development Project 5 Credits
- CSI 294 - Cooperative Education/Internship (Optional) 10 Credits ^^
- Approved General Education Course (5 credits)^

*^At least one course in Natural Science (BIOL& 100, GEOL& 101, or NUTR& 100) is recommended.*

*^^Students who find a full-time internship may substitute CSI 294 for all 10 CSI credits in the final quarter (CSI 250 and CSI 293).*

#### **Approved General Education Courses**

Approved General Education classes are listed below. Students should choose options that meet their career and educational goals. Transfer credits and requests to take a class not listed below must be approved by the program Dean.

- ACCT& 201 - Principles of Accounting I 5 Credits
- ANTH& 106 - American Mosaic 5 Credits
- ART& 100 - Art Appreciation 5 Credits
- BIOL& 100 - Survey of Biology 5 Credits

- CMST& 101 - Introduction to Communication 5 Credits
- CMST& 220 - Public Speaking 5 Credits
- ECON& 201 - Microeconomics 5 Credits
- ECON& 202 - Macroeconomics 5 Credits
- ENGL& 102 - Composition II 5 Credits
- GEOL& 101 - Introduction to Physical Geology 5 Credits
- HUM& 101 - Introduction to Humanities 5 Credits
- MATH& 142 - Precalculus II 5 Credits
- MATH& 148 - Business Calculus 5 Credits
- MATH& 151 - Calculus I 5 Credits
- MUSC& 105 - Music Appreciation 5 Credits
- NUTR& 101 - Human Nutrition 5 Credits
- PSYC& 100 - General Psychology 5 Credits
- SOC& 101 - Introduction to Sociology 5 Credits

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each CNT and CSI course: **2.0**
- Minimum grade for all other courses: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Computer Science, AAS-T

**Associate of Applied Science - Transfer Degree:  
92 credits**

### Enrollment Point: Fall, Winter or Spring Quarter

Students prepare for entry in various careers in the Information Technology industry that require a solid foundation in computer programming. Students design, develop and test client-server applications, practice more advanced database tasks, and bring their learning together in a capstone project or internship at the conclusion of the program. Reinforcement of theory is achieved through lab projects and close instructor contact. General education classes needed for the degree are offered both in person and online.

Students completing the AAS or AAS-T degree requirements may transfer to one of the many local Bachelor of Applied Science (BAS) programs in computer science, including the BAS in Application Development at RTC. They also can enroll at City University, DeVry University, and University of Phoenix with junior standing in a variety of business- and computer-related bachelor degree programs.

### Program Learning Outcomes:

- Develop database-connected programming solutions.

- Develop web applications.
- Write clean code in at least two industry-standard programming languages.
- Apply basic knowledge of data structures and algorithms to programming tasks.
- Work effectively on diverse teams.
- Communicate effectively both verbally and in writing.

### Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

#### Quarter 1

- COL 101 - College Success 2 Credits
- CNT 156 - CompTIA A+ Core I 5 Credits
- CSI 120 - Computer Programming I 5 Credits
- ENGL& 101 - English Composition I 5 Credits

#### Quarter 2

- CSI 122 - Computer Programming II 5 Credits
- CSI 130 - Database Design 5 Credits
- ANTH& 234 - Religion and Culture 5 Credits
- *or* PSYC& 100 - General Psychology 5 Credits
- *or* SOC& 101 - Introduction to Sociology 5 Credits

#### Quarter 3

- CSI 124 - Computer Programming III 5 Credits
- CSI 140 - Front-End Web Development 5 Credits
- AMATH 175 - Financial Math 5 Credits \*
- *or* AMATH 190 - Financial Algebra 5 Credits \*\* (strongly recommended)

*\*Students who place into higher math or present math transfer credit may substitute other general education courses for the developmental math sequence. The AAS-T requires just 5 credits of a MATH& option.*

*\*\*These classes have prerequisites. Students should plan carefully based on their math skills and placement results.*

#### Quarter 4

- CSI 226 - Computer Programming IV 5 Credits
- CSI 234 - Applied Database Development 5 Credits
- ART& 100 - Art Appreciation 5 Credits
- *or* HUM& 101 - Introduction to Humanities 5 Credits
- *or* MUSC& 105 - Music Appreciation 5 Credits

#### Quarter 5

- CSI 242 - Client-Side Scripting 5 Credits
- CSI 260 - Introduction to Data Structures and Algorithms 5 Credits
- MATH& 107 - Math in Society 5 Credits \*\*
- or MATH& 141 - Precalculus I 5 Credits \*\*
- or MATH& 146 - Introduction to Statistics 5 Credits \*\*

*\*\*These classes have prerequisites. Students should plan carefully based on their math skills and placement results.*

#### Quarter 6

- CSI 250 - Rich Internet Applications 5 Credits
- CSI 293 - Capstone Design and Development Project 5 Credits
- CSI 294 - Cooperative Education/Internship (Optional) 10 Credits ^
- Approved General Education Course (5 credits)^

*^Students who find a full-time internship may substitute CSI 294 for all 10 CSI credits in the final quarter (CSI 250 and CSI 293).*

*^^Natural Science (BIOL& 100, GEOL& 101, or NUTR& 100) is recommended.*

#### Approved General Education Courses

Approved General Education classes are listed below. Students should choose options that meet their career and educational goals. Transfer credits and requests to take a class not listed below must be approved by the program Dean.

- ACCT& 201 - Principles of Accounting I 5 Credits
- ANTH& 106 - American Mosaic 5 Credits
- ART& 100 - Art Appreciation 5 Credits
- BIOL& 100 - Survey of Biology 5 Credits
- CMST& 101 - Introduction to Communication 5 Credits
- CMST& 220 - Public Speaking 5 Credits
- ECON& 201 - Microeconomics 5 Credits
- ECON& 202 - Macroeconomics 5 Credits
- ENGL& 102 - Composition II 5 Credits
- GEOL& 101 - Introduction to Physical Geology 5 Credits
- HUM& 101 - Introduction to Humanities 5 Credits
- MATH& 142 - Precalculus II 5 Credits
- MATH& 148 - Business Calculus 5 Credits
- MATH& 151 - Calculus I 5 Credits
- MUSC& 105 - Music Appreciation 5 Credits
- NUTR& 101 - Human Nutrition 5 Credits
- PSYC& 100 - General Psychology 5 Credits
- SOC& 101 - Introduction to Sociology 5 Credits

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each CNT and CSI course, and ENGL& 101: **2.0**
- Minimum grade for all other courses: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

### IT Fundamentals Certificate

#### Certificate of Completion: 47 credits

#### Enrollment Point: Fall, Winter or Spring Quarter

This is a three-quarter certificate option that introduces students to fundamental concepts in information technology (IT): computer programming, hardware and networking, basic web design, and relational databases. Students may choose to continue in the Computer Science AAS or AAS-T options. Graduates of the IT Fundamentals certificate program are qualified for entry-level jobs in website development, database management, and IT help desk support.

#### Program Learning Outcomes:

- Work effectively on diverse teams.
- Manage computer hardware across more than one platform.
- Create functional web pages.
- Work with and implement basic functionality of relational databases.
- Write clean code in at least one industry-standard programming language.

#### Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

#### Quarter 1

- COL 101 - College Success 2 Credits
- CNT 156 - CompTIA A+ Core I 5 Credits
- CSI 120 - Computer Programming I 5 Credits
- COMP 100 - Applied Composition 5 Credits
- or ENGL& 101 - English Composition I 5 Credits

#### Quarter 2

- CSI 122 - Computer Programming II 5 Credits
- CSI 130 - Database Design 5 Credits
- ANTH& 234 - Religion and Culture 5 Credits
- or PSYC& 100 - General Psychology 5 Credits

- or SOC& 101 - Introduction to Sociology 5 Credits

### Quarter 3

- AMATH 175 - Financial Math 5 Credits (Any 5-credit equivalent (AMATH 17X) or higher-level (AMATH 18X or 19X or MATH&) class also satisfies this requirement)
- CSI 124 - Computer Programming III 5 Credits
- CSI 140 - Front-End Web Development 5 Credits

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each CNT and CSI course: **2.0**
- Minimum grade for all other courses: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Transportation Technology

The Transportation Technology programs are your on-ramp into a career as an automotive mechanic, technician, or specialist. These programs focus on three areas: Automotive Technology, Autobody Repair and Refinishing, and the specialized Ford ASSET (Automotive Student Service Educational Training) program - the only one offered in Washington. Students in these programs learn from industry experts in a new, state-of-the-art facility featuring the same tools and technology they will encounter in the field.

### Autobody Repair & Refinishing Certificate

**Certificate of Completion: 72 credits**

**Enrollment Point: Fall or Spring Quarter**

This program prepares students for entrance into the automotive collision repair industry. All courses are taught in accordance with recommended industry procedures and standards set forth by industry recognized organizations such as the National Institute for Automotive Service Excellence (ASE) and the Inter-Industry Conference on Auto Collision Repair (ICAR). The program courses are divided into five main areas of study: Non-Structural Analysis and Damage Repair, Structural Analysis and Damage Repair, Mechanical and Electrical Components, Plastics and Adhesives, and Painting and Refinishing. All shop training is performed using state-of-the-art tools and equipment within one of the most modern facilities in the nation. Emphasis is placed on safety and professionalism.

This program articulates with TechPrep programs through the Puget Sound Dual Credit Career Consortium.

### Program Learning Outcomes:

- Use safe practices in context of a body repair facility.
- Perform structural straightening, panel repairs, and sheet metal welding as per OEM specifications.
- Perform painting and refinishing processes that meet OEM specifications.
- Research and gather information necessary to perform body and paint repairs in a variety of vehicles.
- Demonstrate professional and ethical behavior within a commercial body shop environment.
- Communicate effectively in oral and written form within a diverse team in a commercial body shop.

### Program Requirements

#### Quarter 1

- COL 101 - College Success 2 Credits
- ABDY 100 - Introduction to Collision Repair 2 Credits
- ABDY 102 - Surface Preparation and Masking 5 Credits
- ABDY 105 - Paint Application I 5 Credits
- ABDY 111 - HAZMAT, Personal Safety, and Refinish Safety 3 Credits
- ABDY 243 - Auto Detail 3 Credits
- INDS 101 - First Aid/CPR & AED 1 Credits

#### Quarter 2

- ABDY 112 - Welding for Autobody Repair 6 Credits
- ABDY 114 - Autobody Construction I 9 Credits
- ABDY 250 - Collision Related Mechanical Repair 3 Credits
- ABDY 280 - Human Relations and Shop Safety for Autobody Repair 1 Credits

#### Quarter 3

- AMATH 160J - Math for Autobody Repair 1 Credits
- ABDY 101 - Estimating I 1 Credits
- ABDY 123 - Straightening Metal 5 Credits
- ABDY 128 - Autobody Structure and Mechanics 7 Credits

#### Quarter 4

- ABDY 116 - Autobody Plastics Repair and Refinishing *5 Credits*
- ABDY 129 - Communication for Autobody Repair *1 Credits*
- ABDY 232 - Impact Analysis and Repair *2 Credits*
- ABDY 234 - Autobody Construction II *2 Credits*
- ABDY 235 - Door and Quarter Panel Replacement *8 Credits*

#### **GPA Requirements**

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## **Autobody Repair & Refinishing, AAS**

**Associate of Applied Science Degree: 92 credits**

**Enrollment Point: Fall or Spring Quarter**

This program prepares students for entrance into the automotive collision repair industry. All courses are taught in accordance with recommended industry procedures and standards set forth by industry recognized organizations such as the National Institute for Automotive Service Excellence (ASE) and the Inter-Industry Conference on Auto Collision Repair (ICAR). The program courses are divided into five main areas of study: Non-Structural Analysis and Damage Repair, Structural Analysis and Damage Repair, Mechanical and Electrical Components, Plastics and Adhesives, and Painting and Refinishing. All shop training is performed using state-of-the-art tools and equipment within one of the most modern facilities in the nation. Emphasis is placed on safety and professionalism.

This program articulates with TechPrep programs through the Puget Sound Dual Credit Career Consortium.

#### **Program Learning Outcomes:**

- Use safe practices in context of a body repair facility.
- Perform structural straightening, panel repairs, and sheet metal welding as per OEM specifications.
- Perform painting and refinishing processes that meet OEM specifications.
- Research and gather information necessary to perform body and paint repairs in a variety of vehicles.
- Demonstrate professional and ethical behavior within a commercial body shop environment.

- Communicate effectively in oral and written form within a diverse team in a commercial body shop.

#### **Program Requirements**

##### **Quarter 1**

- COL 101 - College Success *2 Credits*
- ABDY 100 - Introduction to Collision Repair *2 Credits*
- ABDY 102 - Surface Preparation and Masking *5 Credits*
- ABDY 105 - Paint Application I *5 Credits*
- ABDY 111 - HAZMAT, Personal Safety, and Refinish Safety *3 Credits*
- ABDY 243 - Auto Detail *3 Credits*
- INDS 101 - First Aid/CPR & AED *1 Credits*

##### **Quarter 2**

- ABDY 112 - Welding for Autobody Repair *6 Credits*
- ABDY 114 - Autobody Construction I *9 Credits*
- ABDY 250 - Collision Related Mechanical Repair *3 Credits*
- ABDY 280 - Human Relations and Shop Safety for Autobody Repair *1 Credits*

##### **Quarter 3**

- ABDY 101 - Estimating I *1 Credits*
- ABDY 123 - Straightening Metal *5 Credits*
- ABDY 128 - Autobody Structure and Mechanics *7 Credits*
- AMATH 160J - Math for Autobody Repair *1 Credits*
- AMATH 175 - Financial Math *5 Credits*
- *or* AMATH 190 - Financial Algebra *5 Credits*
- *or* MATH& 107 - Math in Society *5 Credits*
- *or* MATH& 146 - Introduction to Statistics *5 Credits*

##### **Quarter 4**

- ABDY 116 - Autobody Plastics Repair and Refinishing *5 Credits*
- ABDY 129 - Communication for Autobody Repair *1 Credits*
- ABDY 232 - Impact Analysis and Repair *2 Credits*
- ABDY 234 - Autobody Construction II *2 Credits*
- ABDY 235 - Door and Quarter Panel Replacement *8 Credits*
- CMST& 101 - Introduction to Communication *5 Credits*



## Quarter 5

- COMP 100 - Applied Composition 5 Credits
- or ENGL& 101 - English Composition I 5 Credits
- PSYC& 100 - General Psychology 5 Credits

## GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Automotive Maintenance and Light Repair Certificate

### Certificate of Completion: 36 credits

### Enrollment Point: Fall, Winter or Spring Quarter; or with instructor permission

The Automotive Maintenance and Light Repair Technician program is the entry point for both Automotive Technology programs. Students receive three quarters of NATEF/ASE training in a hands-on, live-work environment. Successful students should be able to pass ASE Certification exams in Maintenance and Light Repair, Brakes, Steering & Suspension, and Heating and Air Conditioning. Successful students may choose to advance to the Automotive Technology program for more advanced training in vehicle power trains and electronics.

## Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

## Quarter 1

- COL 101 - College Success 2 Credits
- AUTC 101 - Safety/Environmental Issues 2 Credits
- AUTC 112 - Maintenance and Light Repair 7 Credits
- AUTC 117 - Electrical Systems 7 Credits
- AUTC 171 - Written Communications 1 Credits
- INDS 101 - First Aid/CPR & AED 1 Credits

## Quarter 2

- AMATH 178J - Automotive Mathematics 1 Credits
- AUTC 118 - Brakes 7 Credits
- AUTC 132 - Steering and Suspension 7 Credits
- AUTC 180 - Human Relations/Customer Relations 1 Credits

## GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Automotive Technology Certificate

### Certificate of Completion: 80 credits

### Enrollment Point: Fall, Winter or Spring Quarter; or with instructor permission

In the Automotive Technology Certificate of Completion program, students are prepared for the challenges of working on today's sophisticated and complex automobiles. Students learn all aspects of automotive repair and are provided with hands-on training in real-world shop environments using modern state of the art technologically advanced equipment and facilities. Students graduate with an ASE Refrigerant Recovery and Recycling Certificate. Students are provided the opportunity for ASE certification in Engine Repair, Automatic Transmission/Transaxle, Manual Drive Train, Suspension and Steering, Brakes, Electrical/Electronic Systems, Heating and Air Conditioning, Engine Performance, and Advanced Engine Diagnostics. By combining mechanical, electronic, math, communication and problem-solving skills with hands-on training, students develop a solid foundation to ensure their success in the automotive field.

## Program Learning Outcomes:

- Diagnose and repair of vehicles to NATEF certification standards.
- Use technical service materials, printed or online, to analyze and determine proper repair procedures for vehicles of different brands.
- Perform repairs using the proper tools and diagnostic equipment as per manufacturer's specifications.
- Troubleshoot vehicle systems using logical, traceable steps that lead to identification of the root cause of malfunction.
- Apply mathematical skills essential to the requirements of the automotive service industry.
- Communicate effectively in oral or written form within the environment of a commercial repair shop.
- Model professional and ethical behavior, and practice good customer communication skills essential to the requirements of the work place.

## Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

#### Quarter 1

- COL 101 - College Success *2 Credits*
- AUTC 101 - Safety/Environmental Issues *2 Credits*
- AUTC 112 - Maintenance and Light Repair *7 Credits*
- AUTC 117 - Electrical Systems *7 Credits*
- AUTC 171 - Written Communications *1 Credits*
- INDS 101 - First Aid/CPR & AED *1 Credits*

#### Quarter 2

- AMATH 178J - Automotive Mathematics *1 Credits*
- AUTC 118 - Brakes *7 Credits*
- AUTC 132 - Steering and Suspension *7 Credits*
- AUTC 180 - Human Relations/Customer Relations *1 Credits*

#### Quarter 3

- AUTC 228 - Engine Repair and Shop Computations *8 Credits*
- AUTC 233 - Manual Drive Train and Axles *8 Credits*

#### Quarter 4

- AUTC 124 - Heating and Air Conditioning *6 Credits*
- AUTC 226 - Advanced Electronics *6 Credits*

#### Quarter 5

- AUTC 204 - Automatic Transmissions/Transaxle Repair *6 Credits*
- AUTC 216 - Engine Performance and Emissions *10 Credits*

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Automotive Technology, AAS

**Associate of Applied Science Degree: 100 credits**

**Enrollment Point: Fall, Winter or Spring Quarter; or with instructor permission**

The Automotive Technology Associate of Applied Science (AAS) program is an option in which students receive training in all eight NATEF/ASE automotive repair areas (Engine Repair, Manual Drive Train, Automatic

Transmission, Brakes, Steering and Suspension, Heating and Air Conditioning, Electrical/Electronic Systems, and Engine Performance). Students gain real work experience in the automotive shop environment and develop the competencies of a professional automotive technician.

In addition to the technical courses, four General Education courses are required to obtain an Associate of Applied Science (AAS) degree.

#### Program Learning Outcomes:

- Diagnose and repair of vehicles to NATEF certification standards.
- Use technical service materials, printed or online, to analyze and determine proper repair procedures for vehicles of different brands.
- Perform repairs using the proper tools and diagnostic equipment as per manufacturer's specifications.
- Troubleshoot vehicle systems using logical, traceable steps that lead to identification of the root cause of malfunction.
- Apply mathematical skills essential to the requirements of the automotive service industry.
- Communicate effectively in oral or written form within the environment of a commercial repair shop.
- Model professional and ethical behavior, and practice good customer communication skills essential to the requirements of the work place.

#### Program Requirements

Below is the course sequence for students who enter in Fall Quarter. The course sequence for other entry points may vary.

#### Quarter 1

- COL 101 - College Success *2 Credits*
- AUTC 101 - Safety/Environmental Issues *2 Credits*
- AUTC 112 - Maintenance and Light Repair *7 Credits*
- AUTC 117 - Electrical Systems *7 Credits*
- AUTC 171 - Written Communications *1 Credits*
- INDS 101 - First Aid/CPR & AED *1 Credits*

#### Quarter 2

- AMATH 178J - Automotive Mathematics *1 Credits*
- AUTC 118 - Brakes *7 Credits*
- AUTC 132 - Steering and Suspension *7 Credits*
- AUTC 180 - Human Relations/Customer Relations *1 Credits*

### Quarter 3

- AUTC 228 - Engine Repair and Shop Computations *8 Credits*
- AUTC 233 - Manual Drive Train and Axles *8 Credits*

### Quarter 4

- AUTC 124 - Heating and Air Conditioning *6 Credits*
- AUTC 226 - Advanced Electronics *6 Credits*

### Quarter 5

- AUTC 204 - Automatic Transmissions/Transaxle Repair *6 Credits*
- AUTC 216 - Engine Performance and Emissions *10 Credits*

### Course Requirements for AAS Degree

- AMATH 175 - Financial Math *5 Credits*
- CMST& 101 - Introduction to Communication *5 Credits*
- COMP 100 - Applied Composition *5 Credits*
- PSYC& 100 - General Psychology *5 Credits*

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Automotive, Ford ASSET, AAS

**Associate of Applied Science Degree: 130 credits**

### Enrollment Point: Fall Quarter

Ford ASSET is a joint effort of Ford Motor Company, Renton Technical College, and a sponsoring Ford or Lincoln dealership. The ASSET program utilizes specific periods (approximately nine weeks) of classroom/lab instruction alternating with specific periods of full-time work experience at a Ford or Lincoln dealership.

Technical training on Ford automotive products is provided in all Automotive Service Excellence (ASE) repair areas plus specific Ford Motor Company Service Technician Specialty Training certification courses and covers the latest development of Ford technology including: engines, fuel management, electronics, transmission/transaxles, brake systems, and air conditioning.

The program applies, in a real work setting, what a student learns during the previous instructional session. The student becomes familiar with the dealership

environment and the organizational structure while developing competencies that are expected of a professional automotive technician.

### Program Learning Outcomes:

- Diagnose and repair vehicles to NATEF and Ford certification standards.
- Use technical service materials, printed or online, to analyze and determine proper repair procedures for Ford vehicles.
- Perform warranty repairs using the proper tools and software as per Ford specifications.
- Troubleshoot vehicle systems using logical, traceable steps that lead to identification of the root cause of malfunction.
- Communicate effectively in oral or written form within the environment of a Ford dealership.
- Model professional and ethical behavior in all aspects of automotive repair interactions.

### Program Requirements

#### Quarter 1

- COL 101 - College Success *2 Credits*
- FAS 101 - Safety and Environmental Issues *2 Credits*
- FAS 112 - Basic Shop Skills *1 Credits*
- FAS 115 - Electrical/Electronic Systems *9 Credits*
- FAS 191 - Cooperative Training I Part A *3 Credits*
- INDS 101 - First Aid/CPR & AED *1 Credits*

#### Quarter 2

- FAS 118 - Brake Systems *6 Credits*
- FAS 119 - Steering & Suspension Systems *6 Credits*
- FAS 192 - Cooperative Training I Part B *3 Credits*

#### Quarter 3

- FAS 120 - Engine Repair *7 Credits*
- FAS 193 - Cooperative Training II *7 Credits*

#### Quarter 4

- FAS 123 - Diesel Fundamentals *4 Credits*
- FAS 124 - Climate Control Systems *4 Credits*
- FAS 171 - Written Communications *3 Credits*

#### Quarter 5

- FAS 216 - Manual Transmissions and Drivetrains *8 Credits*
- FAS 294 - Cooperative Training III *7 Credits*

#### Quarter 6

- FAS 217 - Automatic Transmissions *8 Credits*
- FAS 295 - Cooperative Training IV *7 Credits*

#### Quarter 7

- FAS 223 - Engine Performance *14 Credits*
- FAS 296 - Cooperative Training V Part A *3 Credits*

#### Quarter 8

- FAS 297 - Cooperative Training V Part B *5 Credits*

#### Course Requirements for AAS Degree

- AMATH 175 - Financial Math *5 Credits*
- COMP 100 - Applied Composition *5 Credits*
- CMST& 101 - Introduction to Communication *5 Credits*
- PSYC& 100 - General Psychology *5 Credits*

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Direct Transfer Agreements (DTA)

### Associate in Business DTA/MRP

**DTA Associate: 90 credits**

**Enrollment Point: Fall, Winter, Spring or Summer Quarter**

This program is for students who want to transfer to a participating Washington State four-year college or university. The Business DTA/MRP meets all requirements of Washington's Direct Transfer Agreement, between the baccalaureate institutions offering a bachelor of science or bachelor of arts in business administration including accounting, management, and management information systems and the community and technical college system. The program consists of 90 college-level credits. At least 60 of these credits are general education in areas like communication, mathematics, humanities, social sciences, and natural sciences. When you finish your Business DTA/MRP, if you are admitted to a four-year degree program, you will have junior standing. You will have met all prerequisites for the business major except as noted by specific universities.

Business programs are competitive and may require a higher GPA overall, a higher GPA in a selected subset of courses or a specific minimum grade in one or more courses, particularly English, calculus, statistics, and economics.

Renton Technical College

**Students should contact their potential transfer institutions early regarding the following:**

- Specific course choices in each area of the agreement where options are listed.
- The requirement for overall GPA, a higher GPA in a selected subset of courses or a specific minimum grade in one or more courses, such as math or English.
- Students must apply to graduate.

#### Program Requirements

##### Business Core

4 required (20 credits)

- ACCT& 201 - Principles of Accounting I *5 Credits*
- ACCT& 202 - Principles of Accounting II *5 Credits*
- ACCT& 203 - Principles of Accounting III *5 Credits*
- BUS& 201 - Business Law *5 Credits*

##### Communication

2 required (10 credits)

- ENGL& 101 - English Composition I *5 Credits*
- ENGL& 102 - Composition II *5 Credits*

##### Quantitative / Symbolic Reasoning

2 required (10 credits)

- MATH& 141 - Precalculus I *5 Credits*
- MATH& 148 - Business Calculus *5 Credits*
- *or* MATH& 151 - Calculus I *5 Credits*

##### Humanities

3 required (15 credits)

Choose 3:

- CMST& 101 - Introduction to Communication *5 Credits*
- CMST& 220 - Public Speaking *5 Credits* (recommended)
- ENGL& 254 - World Literature *5 Credits*
- MUSC& 105 - Music Appreciation *5 Credits*
- PHIL& 101 - Introduction to Philosophy *5 Credits*
- SPAN& 121 - Spanish I *5 Credits*

##### Social Sciences

3 required (15 credits)

- ECON& 201 - Microeconomics *5 Credits*
- ECON& 202 - Macroeconomics *5 Credits*

Choose 1:

- HIST 110 - Survey of American History *5 Credits*
- POLS 150 - Contemporary World Issues *5 Credits*
- POLS& 202 - American Government *5 Credits*
- PSYC& 100 - General Psychology *5 Credits*
- PSYC& 200 - Lifespan Psychology *5 Credits*
- SOC& 101 - Introduction to Sociology *5 Credits*

### Natural Sciences

3 required (15 credits)

- MATH& 146 - Introduction to Statistics *5 Credits*

Choose 2:

- BIOL& 160 - General Biology *5 Credits*
- BIOL& 241 - Human Anatomy & Physiology I *5 Credits*
- BIOL& 260 - Microbiology *5 Credits*
- CHEM& 121 - Introduction to Chemistry *5 Credits*
- CHEM& 131 - Introduction to Organic and Biological Chemistry *5 Credits*
- GEOL& 101 - Introduction to Physical Geology *5 Credits*
- NUTR& 101 - Human Nutrition *5 Credits*

### Electives

1 required (5 credits)

- Approved general education option. BUS& 101 and MATH& 142 recommended.

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each core course (ACCT& 201, ACCT& 202, ACCT& 203, and BUS& 201): **2.0**
- Minimum grade for all other courses: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Associate in Computer Science DTA/MRP

### DTA Associate: 90 Credits

Enrollment Point: Fall, Winter, or Spring Quarter (Summer start is available, but will take longer to complete.)

The Associate in Computer Science DTA/MRP is a special statewide degree that prepares you for a four-year bachelor's degree in computer science, computer engineering, information technology, media design, or software development. It is accepted by all major public and private universities in Washington.

The degree includes important courses in mathematics, computer programming, and lab science, as well as general education classes in humanities and social sciences.

You must follow all course prerequisites. Several classes require mathematics proficiency.

The two engineering physics classes are not offered at RTC currently. You must take PHYS&221 and PHYS&222 at another college and transfer the credits back to RTC to complete your degree.

Talk to an advisor or instructor to determine a course sequence option that works best for you, including pathways for part-time enrollment.

A minimum cumulative GPA of 2.0 is required to earn this degree. You must pass each individual class with a 1.0 or higher. A GPA of 2.0 or higher in each class is strongly recommended to maximize the transfer of all credits.

Admission to a university computer science program is extremely competitive. You will need very high grades in your calculus, physics, and programming classes. Some universities also may have specific admission requirements, such as world language proficiency, standardized tests, recommendations, or interviews, in addition to the transfer degree.

### Students should contact their potential transfer institutions early regarding the following:

- Specific course choices in each area of the agreement where options are listed.
- The requirement for overall GPA, a higher GPA in a selected subset of courses or a specific minimum grade in one or more courses, such as math or English.
- Students must apply to graduate.

### Program Learning Outcomes:

- Construct computer programs and code using Java syntax.
- Write effectively.
- Solve problems by interpreting, representing, calculating, and applying mathematical and scientific methods.
- Understand our diverse world through the exploration of social sciences and the humanities.

### Program Requirements

#### Communication

2 required (10 credits)



- ENGL& 101 - English Composition I *5 Credits*
- ENGL& 235 - Technical Writing *5 Credits*
- *or* ENGL& 102 - Composition II *5 Credits* (for EWU)

### Quantitative / Symbolic Reasoning

1 required (5 credits)

- MATH& 151 - Calculus I *5 Credits*

### Humanities

3 required (15 credits)

- ART& 100 - Art Appreciation *5 Credits*
- CMST& 101 - Introduction to Communication *5 Credits*
- CMST& 220 - Public Speaking *5 Credits*
- ENGL& 111 - Introduction to Literature *5 Credits*
- HUM& 101 - Introduction to Humanities *5 Credits*
- MUSC& 105 - Music Appreciation *5 Credits*
- PHIL& 101 - Introduction to Philosophy *5 Credits*
- SPAN& 121 - Spanish I *5 Credits*

### Social Sciences

3 required (15 credits)

- ANTH& 106 - American Mosaic *5 Credits*
- ANTH& 234 - Religion and Culture *5 Credits*
- ANTH& 235 - Cross-Cultural Medicine *5 Credits*
- ECON& 201 - Microeconomics *5 Credits*
- ECON& 202 - Macroeconomics *5 Credits*
- HIST 110 - Survey of American History *5 Credits*
- POLS 150 - Contemporary World Issues *5 Credits*
- POLS& 202 - American Government *5 Credits*
- PSYC& 100 - General Psychology *5 Credits*
- PSYC& 200 - Lifespan Psychology *5 Credits*
- SOC& 101 - Introduction to Sociology *5 Credits*

### Natural Sciences

3 required (15 credits)

- MATH& 152 - Calculus II *5 Credits*
- PHYS& 221 - Engineering Physics I
- PHYS& 222 - Engineering Physics II

### Major Requirements

4 required (20 credits)

- CS& 141 - Java Programming I *5 Credits*
- CS 142 - Java Programming II *5 Credits*
- MATH& 146 - Introduction to Statistics *5 Credits*
- MATH& 163 Calculus III

### University Specific Requirements

1 required (5 credits)

- BIOL& 100 - Survey of Biology *5 Credits*
- BIOL& 160 - General Biology *5 Credits*
- CHEM& 121 - Introduction to Chemistry *5 Credits*

### Electives

1 required (5 credits)

*Choose 1 course not already taken from any category above, or one of the following:*

- ACCT& 201 - Principles of Accounting I *5 Credits*
- BIOL& 241 - Human Anatomy & Physiology I *5 Credits*
- BIOL& 260 - Microbiology *5 Credits*
- BUS& 201 - Business Law *5 Credits*

### Sample Course Sequence

Below is the course sequence for students who enter in Winter Quarter. The course sequence for other entry points may vary.

#### Quarter 1

- ENGL& 101 - English Composition I *5 Credits*
- MATH& 151 - Calculus I *5 Credits*
- Choose an approved humanities option. SPAN& 121 or ART& 100 recommended.

#### Quarter 2

- CS& 141 - Java Programming I *5 Credits*
- MATH& 152 - Calculus II *5 Credits*
- Choose an approved social science option. ANTH& 234 recommended.

#### Quarter 3

- CS 142 - Java Programming II *5 Credits*
- Choose an approved humanities option. MUSC& 105 recommended.
- Choose any 5-credit approved general education elective.\*

*\*Students can take any class not already completed in any area (humanities, social science, science) or one of the additional approved general education electives.*

#### Quarter 4

- ENGL& 235 - Technical Writing *5 Credits* \*
- MATH& 163 Calculus III
- Choose an approved science option. BIOL& 100 or CHEM& 121 recommended.

*\*ENGL& 235 is recommended. Students who plan to attend EWU may substitute ENGL& 102.*

#### Quarter 5

- MATH& 146 - Introduction to Statistics 5 Credits
- PHYS& 221 - Engineering Physics I or equivalent
- Choose an approved social science option. SOC& 101 recommended.

#### Quarter 6

- PHYS& 222 - Engineering Physics II or equivalent
- Choose an approved humanities option. CMST& 101 recommended.
- Choose an approved social science option. ECON& 201 recommended.

#### Approved General Education

##### Approved Humanities Options

- ART& 100 - Art Appreciation 5 Credits
- CMST& 101 - Introduction to Communication 5 Credits
- CMST& 220 - Public Speaking 5 Credits
- ENGL& 111 - Introduction to Literature 5 Credits
- HUM& 101 - Introduction to Humanities 5 Credits
- MUSC& 105 - Music Appreciation 5 Credits
- PHIL& 101 - Introduction to Philosophy 5 Credits
- SPAN& 121 - Spanish I 5 Credits

##### Approved Social Sciences Options

- ANTH& 106 - American Mosaic 5 Credits
- ANTH& 234 - Religion and Culture 5 Credits
- ANTH& 235 - Cross-Cultural Medicine 5 Credits
- ECON& 201 - Microeconomics 5 Credits
- ECON& 202 - Macroeconomics 5 Credits
- HIST 110 - Survey of American History 5 Credits
- POLS 150 - Contemporary World Issues 5 Credits
- POLS& 202 - American Government 5 Credits
- PSYC& 100 - General Psychology 5 Credits
- PSYC& 200 - Lifespan Psychology 5 Credits
- SOC& 101 - Introduction to Sociology 5 Credits

##### Approved Natural Sciences Options

- BIOL& 100 - Survey of Biology 5 Credits
- BIOL& 160 - General Biology 5 Credits
- CHEM& 121 - Introduction to Chemistry 5 Credits

##### Additional Approved General Education Electives

- ACCT& 201 - Principles of Accounting I 5 Credits
- BIOL& 241 - Human Anatomy & Physiology I 5 Credits
- BIOL& 260 - Microbiology 5 Credits

- BUS& 201 - Business Law 5 Credits
- CHEM& 131 - Introduction to Organic and Biological Chemistry 5 Credits
- GEOL& 101 - Introduction to Physical Geology 5 Credits
- MATH& 107 - Math in Society 5 Credits
- MATH& 142 - Precalculus II 5 Credits
- NUTR& 101 - Human Nutrition 5 Credits
- PHYS& 223 - Engineering Physics III
- SPAN& 122 - Spanish II 5 Credits
- SPAN& 123 - Spanish III 5 Credits

#### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0 (2.0 or higher is strongly recommended)**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

### Associate in Construction Management DTA/MRP

#### DTA Associate: 90 credits

#### Enrollment Point: Fall, Winter, Spring or Summer Quarter

Get your education started here! Renton Technical College offers three Direct Transfer Agreement / Major Related Program (DTA/MRP) Associate of Arts degree programs that lead to direct transfer to four year universities. Begin your career in construction management at Renton Technical College and in just six quarters, you'll be prepared to finish your degree in applied management, construction management, administrative management, operations management, or sustainable practices at one of Washington's outstanding universities. Talk to an advisor or instructor to determine a course sequence option that works best for you, including pathway for part-time enrollment. You must follow all prerequisite requirements for classes listed below.

Minimum cumulative GPA of 2.0 is required. Universities may other specific admission requirements in addition to those of the transfer degree. For more information, please visit: <http://www.rtc.edu/transfer-degree-options>.

#### Program Requirements

##### Construction Core

3 required (13 credits)

- ACCT& 201 - Principles of Accounting I 5 Credits

- ACCT& 202 - Principles of Accounting II *5 Credits*
- DFTS 114 - AutoCAD Level I *3 Credits*

### Communication

2 required (10 credits)

- ENGL& 101 - English Composition I *5 Credits*
- ENGL& 102 - Composition II *5 Credits*
- *or* ENGL& 235 - Technical Writing *5 Credits*

### Quantitative / Symbolic Reasoning

1 required (5 credits)

- MATH& 151 - Calculus I *5 Credits*

### Humanities

3 required (15 credits)

- CMST& 220 - Public Speaking *5 Credits* - Required

Choose 2:

- CMST& 101 - Introduction to Communication *5 Credits*
- ENGL& 254 - World Literature *5 Credits*
- HIST 110 - Survey of American History *5 Credits*
- HIST& 136 - U.S. History I *5 Credits*
- HUM& 101 - Introduction to Humanities *5 Credits*
- MUSC& 105 - Music Appreciation *5 Credits*
- SPAN& 121 - Spanish I *5 Credits*
- PHIL& 101 - Introduction to Philosophy *5 Credits*

### Social Sciences

3 required (15 credits)

- BUS& 201 - Business Law *5 Credits*
- ECON& 201 - Microeconomics *5 Credits*

Choose 1:

- ANTH& 234 - Religion and Culture *5 Credits*
- ANTH& 235 - Cross-Cultural Medicine *5 Credits*
- ECON& 202 - Macroeconomics *5 Credits*
- POLS 150 - Contemporary World Issues *5 Credits*
- POLS& 202 - American Government *5 Credits*
- PSYC& 100 - General Psychology *5 Credits*
- PSYC& 200 - Lifespan Psychology *5 Credits*
- SOC& 101 - Introduction to Sociology *5 Credits*

### Natural Sciences

3 required (15 credits)

- CHEM& 121 - Introduction to Chemistry *5 Credits*
- GEOL& 101 - Introduction to Physical Geology *5 Credits*

- PHYS& 114 - General Physics I *5 Credits*

### Electives

17-20 credits

Choose according to transfer destination

- ACCT& 203 - Principles of Accounting III *5 Credits*
- CONST 101 - Introduction to Construction and Architecture *2 Credits*
- DFTS 116 - AutoCAD Level II *3 Credits*
- MATH& 141 - Precalculus I *5 Credits*
- MATH& 142 - Precalculus II *5 Credits*
- MATH& 146 - Introduction to Statistics *5 Credits*
- MATH& 152 - Calculus II *5 Credits*

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each course: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## Associate in Pre-Nursing DTA/MRP

**DTA Associate: 90 credits**

**Enrollment Point: Fall, Winter, Spring or Summer Quarter**

This program is for students who want to transfer to a participating Washington State four-year college or university. The Pre-Nursing DTA/MRP meets all requirements of Washington's Direct Transfer Agreement, between the baccalaureate institutions offering a bachelor of science in nursing (BSN) and the community and technical college system. The program consists of 90 college-level credits. At least 60 of these credits are general education in areas like communication, mathematics, humanities, social sciences, and natural sciences. When you finish your Pre-Nursing DTA/MRP, if you are admitted to a four-year degree program, you will have junior standing. You will have met all prerequisites for the BSN degree except as noted by specific universities. You also will meet the prerequisites for other bachelor degrees - nursing is not your only possible destination!

Due to high interest and limited space in baccalaureate nursing programs, admission to all BSN programs is highly competitive with many qualified applicants finding themselves on waiting lists for admission.

**Students should contact their potential transfer institutions early regarding the following:**

- Specific course choices in each area of the agreement where options are listed.
- The requirement for overall GPA, a higher GPA in a selected subset of courses or a specific minimum grade in one or more courses, such as math or English.
- Students must apply to graduate

## Program Requirements

### Communication

2 required (10 credits)

- ENGL& 101 - English Composition I *5 Credits*
- ENGL& 102 - Composition II *5 Credits*

### Quantitative / Symbolic Reasoning

1 required (5 credits)

- MATH& 146 - Introduction to Statistics *5 Credits*

### Humanities

3 required (15 credits)

- CMST& 220 - Public Speaking *5 Credits*

Choose 2:

- CMST& 101 - Introduction to Communication *5 Credits*
- ENGL& 254 - World Literature *5 Credits*
- MUSC& 105 - Music Appreciation *5 Credits*
- PHIL& 101 - Introduction to Philosophy *5 Credits*
- SPAN& 121 - Spanish I *5 Credits*

### Social Sciences

3 required (15 credits)

- PSYC& 100 - General Psychology *5 Credits*
- PSYC& 200 - Lifespan Psychology *5 Credits*
- SOC& 101 - Introduction to Sociology *5 Credits*

### Natural Sciences

7 required (35 credits)

- BIOL& 160 - General Biology *5 Credits*
- BIOL& 241 - Human Anatomy & Physiology I *5 Credits*
- BIOL& 242 - Human Anatomy & Physiology II *5 Credits*
- BIOL& 260 - Microbiology *5 Credits*
- NUTR& 101 - Human Nutrition *5 Credits*
- CHEM& 121 - Introduction to Chemistry *5 Credits*

- CHEM& 131 - Introduction to Organic and Biological Chemistry *5 Credits*

### Electives

2 required (10 credits)

- ACCT& 201 - Principles of Accounting I *5 Credits*
- ACCT& 202 - Principles of Accounting II *5 Credits*
- ACCT& 203 - Principles of Accounting III *5 Credits*
- BIOL 105 - Introduction to Anatomy and Physiology *5 Credits*
- BUS& 201 - Business Law *5 Credits*
- CMST& 101 - Introduction to Communication *5 Credits*
- ECON& 201 - Microeconomics *5 Credits*
- ECON& 202 - Macroeconomics *5 Credits*
- ENGL& 235 - Technical Writing *5 Credits*
- ENGL& 254 - World Literature *5 Credits*
- GEOL& 101 - Introduction to Physical Geology *5 Credits*
- HIST 110 - Survey of American History *5 Credits*
- HIST& 126 - World Civilization I *5 Credits*
- HIST& 136 - U.S. History I *5 Credits*
- HIST& 137 - U.S. History II *5 Credits*
- MATH& 107 - Math in Society *5 Credits*
- MATH& 141 - Precalculus I *5 Credits*
- MATH& 142 - Precalculus II *5 Credits*
- MUSC& 105 - Music Appreciation *5 Credits*
- PHIL& 101 - Introduction to Philosophy *5 Credits*
- PHYS& 114 - General Physics I *5 Credits*
- POLS 150 - Contemporary World Issues *5 Credits*
- POLS& 202 - American Government *5 Credits*
- SPAN& 121 - Spanish I *5 Credits*
- SPAN& 122 - Spanish II *5 Credits*
- SPAN& 123 - Spanish III *5 Credits*

### GPA Requirements

- Minimum cumulative GPA: **2.0**
- Minimum grade for each Natural Sciences and MATH& 146 course: **2.0**
- Minimum grade for all other courses: **1.0**
- *\*Note: Clinical & Field-Based Experience courses require a Satisfactory (S) grade.*

## General Education Distribution Areas

The general education courses are organized by distribution area. Many Career Training programs require certain general education courses to complete a degree.

### Gen Ed: Communication Distribution

These courses meet the Communication distribution area requirement.

- ENGL& 101 - English Composition I *5 Credits*
- ENGL& 102 - Composition II *5 Credits*
- ENGL& 235 - Technical Writing *5 Credits*

## Gen Ed: Humanities Distribution

These courses meet the Humanities distribution area requirement.

- ART& 100 - Art Appreciation *5 Credits*
- CMST& 101 - Introduction to Communication *5 Credits*
- CMST& 220 - Public Speaking *5 Credits*
- ENGL& 111 - Introduction to Literature *5 Credits*
- HIST 110 - Survey of American History *5 Credits*
- HIST& 126 - World Civilization I *5 Credits*
- HIST& 136 - U.S. History I *5 Credits*
- HIST& 137 - U.S. History II *5 Credits*
- HUM& 101 - Introduction to Humanities *5 Credits*
- MUSC& 105 - Music Appreciation *5 Credits*
- PHIL& 101 - Introduction to Philosophy *5 Credits*
- SPAN& 121 - Spanish I *5 Credits*
- SPAN& 122 - Spanish II *5 Credits*
- SPAN& 123 - Spanish III *5 Credits*

## Gen Ed: Natural Science Distribution

These courses meet the Natural Science distribution area requirement.

- NUTR& 101 - Human Nutrition *5 Credits*

Gen Ed: Natural Science with Lab Distribution

## Natural Science with Lab Distribution Courses

These courses meet the Natural Science (with Lab) distribution area requirement.

- BIOL 105 - Introduction to Anatomy and Physiology *5 Credits*
- BIOL& 100 - Survey of Biology *5 Credits*
- BIOL& 160 - General Biology *5 Credits*

- BIOL& 241 - Human Anatomy & Physiology I *5 Credits*
- BIOL& 242 - Human Anatomy & Physiology II *5 Credits*
- BIOL& 260 - Microbiology *5 Credits*
- CHEM& 121 - Introduction to Chemistry *5 Credits*
- CHEM& 131 - Introduction to Organic and Biological Chemistry *5 Credits*
- GEOL& 101 - Introduction to Physical Geology *5 Credits*
- PHYS& 114 - General Physics I *5 Credits*

## Gen Ed: Quantitative/Symbolic Reasoning Distribution

These courses meet the Quantitative/Symbolic Reasoning distribution area requirement.

- MATH& 107 - Math in Society *5 Credits*
- MATH& 141 - Precalculus I *5 Credits*
- MATH& 142 - Precalculus II *5 Credits*
- MATH& 146 - Introduction to Statistics *5 Credits*
- MATH& 148 - Business Calculus *5 Credits*
- MATH& 151 - Calculus I *5 Credits*
- MATH& 152 - Calculus II *5 Credits*

## Gen Ed: Social Science Distribution

These courses meet the Social Science distribution area requirement.

- ANTH& 106 - American Mosaic *5 Credits*
- ANTH& 234 - Religion and Culture *5 Credits*
- ANTH& 235 - Cross-Cultural Medicine *5 Credits*
- ECON& 201 - Microeconomics *5 Credits*
- ECON& 202 - Macroeconomics *5 Credits*
- HIST 110 - Survey of American History *5 Credits*
- HIST& 126 - World Civilization I *5 Credits*
- HIST& 136 - U.S. History I *5 Credits*
- HIST& 137 - U.S. History II *5 Credits*
- POLS 150 - Contemporary World Issues *5 Credits*
- POLS& 202 - American Government *5 Credits*
- PSYC& 100 - General Psychology *5 Credits*
- PSYC& 200 - Lifespan Psychology *5 Credits*
- SOC& 101 - Introduction to Sociology *5 Credits*



## College & Career Pathways

College & Career Pathways programs are offered to students who need and want the background skills and knowledge necessary to succeed in college programs and the workplace. Courses include instruction in the basic skills of reading, writing, math, listening and speaking in the context students need to achieve educational or career-related goals. Classes are scheduled at convenient times - morning, afternoon, and evening - to meet student needs. Additionally, classes are available in online and hybrid options. Students can improve their basic skills to be successful in technical programs, obtain employment, qualify for job promotions, and improve the quality of their personal lives. Programs include High School Equivalency (HSE) and English Language Acquisition (ELA).

A quarterly \$25 tuition fee will be charged for enrolling in courses in this section.

College & Career Pathways classes are offered at the following locations:

- RTC Main Campus
- Bellevue Library (Bellevue)
- Birch Creek Apartments (Kent)
- Creston Point Apartments (Seattle)
- El Centro Rendu (Renton)
- Kent Alliance Center (Kent)
- Renton Library (Renton)
- RTC Downtown Center (Renton)
- YouthSource (Tukwila)
- YWCA Opportunity Place (Seattle)

You can find more off-campus CCP program information on the RTC website.

### I-BEST

I-BEST is designed to support student learning in college training programs.

I-BEST students are taught by a CCP (College and Career Pathways) instructor and a Program instructor.

As an I-BEST student, you will receive more support than in a traditional college program. Both instructors teach together, but focus on different

skills. The Program instructor focuses on skills needed for the industry, while the CCP instructor teaches skills like math, reading, and writing to help students be successful in the program and in the industry.

I-BEST students also have an extra class to help develop study skills.

I-BEST students are 20% more likely to complete their certificate and degree programs compared to students enrolled in traditional programs.

### High School Equivalency (HSE)

The High School Equivalency (HSE) program supports adults in improving their skills in reading, writing, oral communication and math in the context of science, social studies, art, health, and technology. Students may elect to prepare for their GED® exams or pursue their Adult High School Diploma (HS+). HS+ is an opportunity for adults to complete their Washington State High School Diploma by demonstrating competency in the required subject areas. The program combines current coursework with previous learning and experience. Bilingual Spanish/English courses are also available in the HSE program.

Classes are available in the morning, afternoon, and evening, as well as online. There is a quarterly tuition of \$25 per student per quarter.

### Youth High School Completion

Youth High School Completion is an opportunity for youth and young adults aged 16-20 to complete a Washington State High School Diploma and/or GED with Renton Technical College. Youth High School Completion students sit alongside adults on our campus, taking high school level classes to earn their diploma or GED. Students also have the optional opportunity to take college classes to count for dual-credit similar to Running Start. Students do not pay tuition for the high school or college classes, though some college programs might have fees.

## English Language Acquisition (ELA)

The English Language Acquisition (ELA) Foundations program supports immigrants and refugees to improve their English for college and career success. Courses address skills in reading, writing, listening, speaking, technology, and math.

Students are assessed at entry and placed in a class consistent with their English level. Classes are offered at Levels the beginning, intermediate, and advanced levels. Classes are available in the morning, afternoon, evening, as well as in hybrid formats and online. There is a quarterly tuition of \$25 per student per quarter.

# Transfer Opportunities

## Class-by-Class Transfer

RTC credits may transfer to another college or university on a class-by-class basis. The receiving institution decides which classes and credits they will accept. Usually they require a grade of "C" (2.0) or better in each class. Many universities have a transfer equivalency guide that lists all of the classes that are accepted automatically:

- Transfer equivalency for the University of Washington (all campuses)
- Transfer equivalency for Central Washington University
- Transfer equivalency for Western Washington University
- Transfer equivalency for Washington State University
- Transfer equivalency for Seattle Pacific University
- Transfer equivalency for Seattle University
- Transfer equivalency for the University of Idaho

If a class is not included in a transfer equivalency guide, students may be able to request a review of class materials to see if the RTC course is equivalent to a course at the receiving institution. Students should be prepared to present the class syllabus and samples of major assignments for the review. The process can take time, so advance planning is key.

Technical classes are the hardest to transfer. Many four-year universities will award credit for general education classes in math or English or psychology, but not for program classes. There is an innovative program, however, at the Evergreen State College, which offers an Upside Down Transfer Option for a bachelor's degree in liberal arts. They will accept up to 90 credits of a technical AAS or AAS-T. Students then complete 90 credits at Evergreen, mostly in general education.

## Transfer Degrees

RTC offers two types of associate's degrees: technical & career focused Associate of Applied Science (AAS) and Associate of Applied Science-Transfer (AAS-T) degrees, and Direct Transfer Agreement (DTA) degrees which are meant to transfer to a four-year university.

Students with a technical AAS or AAS-T degree also have many options for the Bachelor of Applied Science (BAS). These programs accept more technical classes, sometimes an entire program. BAS degrees emphasize hands-on, real-world work, and they are available at community and technical colleges across Washington state. Popular BAS choices include management, information technology, and education.

*Notice: Accepting credits is at the discretion of the receiving institution. Effective academic planning for those who think they may want to transfer includes a complete understanding of how the receiving institution will evaluate courses taken at RTC. We recommend you discuss your proposed educational plan with the receiving institution(s) and ask for an evaluation of credits. Not all courses you take will be directly transferable; check with the receiving institution about what options may be available to you to receive credit for non-transferring courses. If you intend to transfer following completion of RTC's courses or programs, alert your counselor so you can receive additional help during your program planning process.*

## Apprenticeship Programs

Numerous apprenticeship programs are affiliated with Renton Technical College. Apprenticeship programs offer the opportunity to "earn while you learn." Apprentices typically work full time in their field, while attending school a few weeks per year or a few nights per week. Most apprenticeships are in the building and construction trades, manufacturing, or maritime navigation. Apprenticeship programs last two to five years, and an apprentice's wages increase with experience.

Some programs - Custodial, Machinists, and Stationary Engineers - are only open to current employees in participating companies. Other programs accept applications from the broader community.

Although the following apprenticeship programs are affiliated with Renton Technical College, each program has its own coordinator, joint labor-management committee, and selection procedures. Generally, applicants must be at least 17 or 18 years old, have a valid Washington state driver's license, and go through a selection process which might include a written test, physical test, drug test, and interview. For more information on specific programs, please contact the apprenticeship coordinators listed with each program or view the Washington State Department of Labor & Industries Catalog.

This link is to the Washington State Department of Labor and Industries, Catalog of Programs and Services. Washington State Registered Apprenticeships Catalog information includes descriptions of each occupation, apprenticeship, entry requirements, and a link to program standards.

## Apprenticeship Partner Programs

### Aerospace Joint Apprenticeship Committee

Lynn Strickland, Executive Director  
6770 E. Marginal Way S., Bldg. A., Seattle, WA 98108  
Contact: (206) 764-5359  
[ajactraining.org](http://ajactraining.org)

Program	Hours	Years
Machinist	144 hours	4 years

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### Ardagh Group Apprenticeship

Jason Noble, Manager  
Human Resources  
5801 E. Marginal Way S., Seattle, WA 98134  
Contact: (206) 768-6295

Program	Hours	Years
Maintenance Mechanic/Repairer	144 hours +	4 years
Mold Maker	144 hours +	4 years

### Culinary Arts Apprenticeship

Tony Parker, CEC, AAC  
Renton Technical College  
3000 NE 4<sup>th</sup> Street, Renton, WA 98056  
Contact: (425) 235-2352, ext. 2437  
[tparker@rtc.edu](mailto:tparker@rtc.edu)  
<http://www.washingtonstatechefs.com/apprenticeship.html>

Program	Hours	Years
Culinary Arts	394 hours+	3 years

### Northwest Carpenter's Institute (NWCi) Carpenters Apprenticeship

Thomas Barrett, Director  
King County Carpenters  
P. O. Box 2020, Renton, WA 98056-4195  
Contact: (425) 235-2465  
[ini.wa.gov/TradesLicensing/Apprenticeship/files/standards/0128.pdf](http://ini.wa.gov/TradesLicensing/Apprenticeship/files/standards/0128.pdf)  
[ctwww.org](http://ctwww.org)

Program	Hours	Years
Carpenters	160 hours +	4 years
Maintenance Carpenters	160 hours +	4 years
Residential Carpenters	160 hours +	4 years
Scaffold Erector	160 hours +	4 years

## Northwest Carpenter's Institute (NWCi) Lathing, Acoustical, Drywall Systems (LADS) Apprenticeship

Justin McClendon, Coordinator  
Carpenters Specialty Training Center  
20474 72nd Avenue South, Kent, WA 98032  
Contact: (253) 437-5235  
[ini.wa.gov/TradesLicensing/Apprenticeship/files/standards/0128.pdf](http://ini.wa.gov/TradesLicensing/Apprenticeship/files/standards/0128.pdf)  
[ctww.org](http://ctww.org)

Program	Hours	Years
<b>Acoustical Applicator</b>	160 hours	3 years
<b>Drywall System Installer</b>	160 hours	3 years
<b>Leather</b>	160 hours	3 years
<b>Residential Drywall Applicator</b>	160 hours	3 years

## Northwest Carpenter's Institute (NWCi) Millwrights and Pile Drivers Apprenticeship

Justin McClendon, Coordinator  
Carpenters Specialty Training Center  
20474 72nd Avenue South, Kent, WA 98032  
Contact: (253) 437-5235  
[ini.wa.gov/TradesLicensing/Apprenticeship/files/standards/0128.pdf](http://ini.wa.gov/TradesLicensing/Apprenticeship/files/standards/0128.pdf)  
[ctww.org](http://ctww.org)

Program	Hours	Years
<b>Millwright</b>	160 hours	4 years
<b>Pile Driver</b>	160 hours	4 years

## Pacific Maritime Institute

Dale Bateman, Assistant Director  
1729 Alaskan Way South, Seattle, WA 98134  
Contact: (206) 441-2880  
[mitags-pmi.org](http://mitags-pmi.org)

Program	Hours	Years
<b>Officer in Charge of</b>	811 hours	2 years

Renton Technical College

Program	Hours	Years
<b>Navigational Watch</b>		

## Seattle Area Heat & Frost Insulators & Asbestos Workers JATC

Larry Nettekoven, Director  
Renton Technical College  
3000 NE Fourth Street, Bldg. L, Renton, WA 98056-4195  
Contact: (425) 235-7827  
[ini.wa.gov/TradesLicensing/Apprenticeship/files/standards/0080.pdf](http://ini.wa.gov/TradesLicensing/Apprenticeship/files/standards/0080.pdf)

Program	Hours	Years
<b>Heat and Frost Insulator/Asbestos Worker</b>	160 hours	5 years
<b>Fire Stop Containment Worker</b>	144 hours	4 years

## Seattle Area Roofers Apprenticeship Committee

Gregg Gibeau, Director  
2800 First Avenue, Room 321, Seattle, WA 98121-1114  
Contact: (206) 728-2777  
[ini.wa.gov/TradesLicensing/Apprenticeship/files/standards/0113.pdf](http://ini.wa.gov/TradesLicensing/Apprenticeship/files/standards/0113.pdf)

Program	Hours	Years
<b>Roofer</b>	168 hours	2 years

## Western Washington Plasterers JATC

Rosie Bernard, Director  
Renton Technical College  
3000 NE Fourth Street, Bldg. E, Renton, WA 98056-4195  
Contact: (425) 235-7879  
[ini.wa.gov/TradesLicensing/Apprenticeship/files/standards/0106.pdf](http://ini.wa.gov/TradesLicensing/Apprenticeship/files/standards/0106.pdf)

Program	Hours	Years
<b>Plasterer</b>	144 hours +	3.5 years



## Western Washington Stationary Engineers Apprenticeship Committee

Christian Dube, Training Coordinator

18 E St. S.W., Auburn, WA 98001

Contact: (253) 351-0184

[ini.wa.gov/TradesLicensing/Apprenticeship/files/standards/0227.pdf](http://ini.wa.gov/TradesLicensing/Apprenticeship/files/standards/0227.pdf)

[iuoe286.org](http://iuoe286.org)

Program	Hours	Years
Facilities Custodial Technician	144 hours	2 years
Facilities Maintenance Mechanic	144 hours	4 years
Gardener/Maintenance Specialist	144 hours	2 years
Stationary Engineer	144 hours	4 years

## Multi-Occupational Trades Degree

### General Occupational Degree

### *Associate of Applied Science Degree*

This degree is an option for apprentices who have graduated from Renton Technical College in apprenticeship programs of at least 432 classroom hours and 6,000 on-the-job training hours in construction and machining trades. For the maritime industry, this degree is an option for apprentices graduating from RTC in apprenticeship programs of at least 811 classroom hours and 3,000 on-the-job training hours. The following programs are eligible:

- Ardagh Group
- Carpenters
- Fire Stop Containment Workers
- LADS
- Machinists
- Millwrights
- Officers in Charge of Navigational Watch
- Pile Drivers
- Plumbers
- Plasterers
- Refrigeration
- Stationary Engineers

Completion of a registered apprenticeship program affiliated with Renton Technical College, including documentation such as apprenticeship completion certificate from the Washington State Department of Labor and Industries.

Apprentices must have completed at least 25% of their coursework at RTC. Apprentices may begin taking general education coursework before, during, or after their apprenticeship.

See a counselor if you have transferable credits from other colleges.

### *Requirements for AAS Degree*

Course #	Course Title	Credits
	<i>Apprenticeship Hours</i>	<i>60</i>
AMATH 185	Applied Algebra for Business and Industry	5
CMST& 101	Introduction to Communication	5
COMP 100	Applied Composition	5
or ENGL& 101	English Composition	
PSYC& 100	General Psychology	5
	<b>Total</b>	<b>90</b>

# Course Descriptions

This section includes descriptions for courses offered at RTC. Each course listing includes the course code, course title, credits, and description. Visit the RTC Class Schedule to find up-to-date class offerings for each quarter.

## Accounting

### ACCT 124 - Small Business Accounting

#### 5 Credits

This course introduces the student to preprogrammed computer software used to efficiently manage general ledgers, accounts receivable, accounts payable, depreciation, inventory, payroll and financial statements in a small business.

#### Course Outcomes

1. Use the QuickBooks Accountant to create a retail company, enter purchases, sales, various other transactions, and payroll to record a variety of transactions. 100% accuracy required.
2. Prepare financial statements and other applicable accounting reports using QuickBooks Accountant.
3. Integrate general ledger data with Excel and Word to prepare professional reports.

### ACCT 130 - Payroll Accounting

#### 5 Credits

This class covers the collection and recording of payroll data, such as wages, overtime, leave, salary calculations, and payroll taxes such as Social Security (OASDI and HI), Federal Unemployment (FUTA) and State Unemployment (SUTA).

**Prerequisite(s):** ACCT& 201

### ACCT 132 - Basic Excel

#### 5 Credits

This course introduces students to Microsoft Excel and its application to accounting functions.

#### Course Outcomes

1. Create a worksheet using business appropriate formatting.
2. Apply appropriate Excel formulas for a variety of calculations.
3. Appropriately apply relative and absolute cell references in formulas.

4. Prepare a payroll register using an embedded "IF" function.
5. Prepare a depreciation schedule by creating a table.
6. Perform financial analysis using "solver" and "goal seek" functions.
7. Apply the "PMT" function to compute a periodic payment.
8. Apply the "PV" and "FV" function to compute a present value and future value of a series of cash flows.
9. Create a pivot table.

### ACCT 150 - Bookkeeping Certification Preparation

#### 8 Credits

This course is a culmination of the core courses of the accounting program. Students completing this capstone course will be qualified to take the 4-part Certified Professional Bookkeeper Exam.

**Prerequisite(s):** ACCT 124, ACCT 179, ACCT& 201, and ACCT& 202.

### ACCT 179 - Taxation I - Individuals

#### 5 Credits

This is a fundamental course designed to introduce the student to the preparation of federal income tax returns for individuals. Basic tax principles relating to gross income, exemptions, standard and itemized deductions, tax computation, and credits are covered. Income or loss from business and rental activities, and capital gains and losses are also covered. Students will prepare a series income tax returns both manually and using tax preparation software. Students also explore researching tax questions using IRS and other publications.

#### Course Outcomes

1. Apply the tax formula for individual taxpayers and complete a basic individual income tax return accordance with Internal Revenue Service (IRS) regulations.
2. Identify variety of items that included or excluded from gross income including the

taxable portion of annuities and social security benefits in accordance with IRS regulations.

3. Identify various common business expenses and apply the rules relating to travel and automobile expenses and the home office deduction.
4. Apply the tax rules for rental property and vacation home including the applicable Passive Loss limitations.
5. Determine the long-term and short-term gains and losses from various capital asset transactions and prepare a Schedule D.
6. Compute income tax on long term capital gains and qualified dividends.
7. Apply current tax rules for contributions and distributions for Traditional and ROTH IRA's and Pension Plans in accordance with IRS regulations.
8. Apply the applicable tax rules relating to each of the various itemized deductions and complete an individual income tax return involving itemized deductions, hobby losses and moving expenses.
9. Calculate Self Employment taxes, Alternative Minimum Tax and Special Taxes for high income taxpayers.
10. Compute the tax on unearned income of minor children.
11. Prepare a moderate to difficult income tax return using computerized tax preparation software.

### **ACCT 275 - Taxation II - Business Entities**

#### *5 Credits*

Income tax principles relating to MACRS depreciation, capital gains and losses, preparing a partnership and corporate return. S-Corporations and Limited Liability Companies will be discussed. The course will also discuss income tax administration as well as preparing forms 940 and 941 and introduce the state of Washington's combined Business and Occupation (B&O) tax.

**Prerequisite(s):** ACCT 179

#### **Course Outcomes**

1. Calculate the Child Tax Credit, Earned Income Credit, Child and Dependent Care Credit, Education Credits.
2. Calculate the Premium Tax Credit from the Affordable Care Act.
3. Compute depreciation using the MACRS tables including the Section 179 Election to Expense, "listed property" and "luxury automobile" limitations.
4. Calculate the gain, loss and recapture amounts from the sale of business property
5. Compute tax withholding and Estimated Tax payments.
6. Apply the regulations for the Federal and State Deposit system.
7. Prepare a Partnership Tax return, Form 1065 and related K-1's using tax preparation software.
8. Prepare a Corporate Income Tax Return, Form 1120 using tax preparation software.

### **ACCT& 201 - Principles of Accounting I**

#### *5 Credits*

Students develop skills in recording transactions to specific areas of accounting including: accounts receivable, inventories, plant and equipment, asset valuation, notes receivable and notes payable. Emphasis is on preparing general journal entries in accordance with Generally Accepted Accounting Principles (GAAP).

#### **Course Outcomes**

1. Identify a group of basic business transactions and prepare the related journal entries.
2. Construct an income statement, statement of owner's equity, and a balance sheet.
3. Post transactions to the general ledger and special ledgers.
4. Create a bank reconciliation, petty cash fund and change fund and prepare the related journal entries.
5. Calculate the cost of inventories and depreciation using First-In, First Out, Last-In, First Out and Weighted Average methods.
6. Identify and record various Notes Payable and Notes Receivable transaction.

7. Account for Accounts Receivable Transactions using the Allowance Method and Direct Write off method.

### **ACCT& 202 - Principles of Accounting II**

#### *5 Credits*

This course incorporates the basics covered in ACCT& 201 and relates them to more complex accounting functions. Topics include forms of business (proprietorships, partnerships, and corporations), internal control, debt and equity, bonds, inventories, intangible assets, depreciation, statement analysis, and cash flow. This course concentrates on theory and assumes the student has some background in accounting.

**Prerequisite(s):** Placement into ACCT& 202 or completion of ACCT& 201 with a 2.0 or higher.

#### **Course Outcomes**

1. Construct an income statement, statement of owner's equity, balance sheet and a cash flow statement.
2. Post transactions to the general ledger and special ledgers.
3. Prepare various analysis ratios.
4. Analyze the effects of purchasing, disposing, and valuing long term assets.
5. Demonstrate an understanding of Internal Control situations.
6. Calculate present values of cash as it relate to bonds.
7. Prepare journal entries to record bond issuance, interest payments, and redemption of Bonds.
8. Account for the issuance of common and preferred stock and cash and stock dividends and stock splits.
9. Describe debt financing and equity financing.
10. Prepare a Statement of Cash Flows using the Direct and Indirect methods.

### **ACCT& 203 - Principles of Accounting III**

#### *5 Credits*

Emphasis of this course is on using accounting information to support and assist decision making. Topics covered include cost-volume-profit analysis, budgeting, performance evaluation and special business decisions. Students also present their conclusions and

analysis using a variety of methods such as written memoranda, budgeted financial statements and reports, and PowerPoint slide presentations.

**Prerequisite(s):** ACCT& 202 with a 2.0 or higher or placement into ACCT& 203.

#### **Course Outcomes**

1. Record a variety of transactions based on Job Order Costing. Prepare Financial statements and a Job Cost Sheet.
2. Apply overhead to multiple products using Activity Based Costing.
3. Prepare a Cost of Production report using the Weighted Average method of Process Costing.
4. Explain fixed, variable and semi variable cost behavior and determine fixed and variable components of mixed cost data using the High-Low method.
5. Apply Cost-Volume-Profit analysis to determine the breakeven point and the required number of units to be sold to earn a desired profit in accordance with generally accepted accounting principles.
6. Prepare an income statement using Absorption Costing and Variable Costing. Explain the difference in net income.
7. Apply cost analysis relating to a series of short term business decisions.
8. Apply capital budgeting models and present value techniques to business investment decisions.
9. Prepare a Master Budget and supporting schedules using excel.

### **Aerospace Apprentice**

#### **APM 101 - Precision Machining I**

##### *5 Credits*

This course covers the fundamental safety, drawings, tools and manual machining skills and knowledge required for a job in aerospace and advanced manufacturing and introduces the four basic methods for subtractive manufacturing: drilling, milling, turning and grinding and the requisite measuring skills to make a product from a drawing.

#### **APM 102 - Precision Machining II**

### *5 Credits*

This course builds on the four basic methods for subtractive manufacturing practiced in Precision Machining I: drilling, milling, turning, and grinding, and the requisite measuring skills to make a product from a drawing. Added skills include: single point threading, knurling on lathe, alignment of head to cut a specific angle. To that end, apprentices will complete a course project: constructing a C-clamp.

### **APM 103 - Engineering Drawings**

#### *5 Credits*

Interpretation and application of technical drawings, including drawing zones, the relationship of detail, standard, section and auxiliary views. Students will learn linear dimensioning, tolerancing, lines, symbols and 3rd angle projection. Students will delve into scales, datums and orthographic projection, as well as examine and understand parts lists and how to navigate and utilize process specifications.

### **APM 121 - Shop Algebra**

#### *5 Credits*

This course covers the properties of real numbers, simplifying expressions and solving equations and proportions. It also covers the manipulation of algebraic formulas and their applications to shop problems such as calculation of cutting speed, RPM, and cutting time.

### **APM 122 - Applied Geometry & Trigonometry**

#### *5 Credits*

This course focuses on the fundamentals and applications of geometry and trigonometry. Topics include perimeters, area and volume, trigonometric ratios and function, and right angles and non-right angles. Students will learn relationships of lines, planes, angles, congruent and similar triangles, polygons and circles. Additional topics include special triangles and the Pythagorean Theorem

### **APM 123 - CNC Operation & Set-up**

#### *5 Credits*

Introduction to Computer Numerical Control (CNC) focuses on, reading basic G&M code, XYZ coordinates, establishing tool length offsets (TLO) using manual entry methods and automatic machine functions, and cutter radius compensation (CRC). Concentration on the role of rapid and feed override, distance to go, single block, dry run, and reading the program for successful crash avoidance. Special emphasis is on CNC equipment theory, functions and processes, maintenance of the

machines, and machine setup. Students will learn maintenance of spindles, taper, fluid, coolant system and tool changer. Machine setup concentrates on tramming surfaces, establishing squareness to spindle, dialing in holes and bosses, setting TLOs, establishing coordinates, problem solving 3- axis setups, all while monitoring and troubleshooting machine noises and behavior.

### **APM 201 - GD & T and Precision Fits**

#### *5 Credits*

Students will study the theory and application of the use of standard tolerances and GD&T concentrating on geometric dimensioning and its relation to engineering drawings. They will understand the feature control frame and center on basic dimension, form (straightness, flatness, cylindricity, circularity), profile of a line and surface, orientation (angularity, perpendicularity, parallelism), location (position, concentricity, symmetry), and total runout. The student will appraise the Maximum Material Condition, Least Material Condition and Regardless of Feature Size. Calculation of true position, bonus tolerance, datums and datum targets, fixed fastener and floating fastener formulas will be examined. Students will learn Rules #1 - #2.

### **APM 221 - Materials, Processes, References**

#### *5 Credits*

Apprentices will learn how to use the Machinery's Handbook to acquire information necessary to their jobs. Apprentices will be able to understand basic metallurgical principles, and how these principles allow the manipulation and processing of metallic materials. Apprentices will learn about the basic composition and characteristics of plastics, ceramics, and other composites. Apprentices will learn how to heat-treat and anneal steel and anneal other non-ferrous materials. Apprentices will learn about a variety of other outside processing methods, and how these methods relate to their current job. Apprentices will learn how to read, interpret, and utilize standardization documentation.

### **APM 222 - Inspection**

#### *5 Credits*

Delivering quality efficiently is the key to strong manufacturing. To be competitive, today's machinist must be able to measure multiple ways using a variety of instruments. This course focuses on the science and skill of measuring and inspection. They will learn to measure size, position, form, surface finish and



orientation. Students will have hands-on practice using a variety of measuring instruments such as micrometers, calipers, gages and CMM's. Students will learn the methods and instruments used to effectively inspect parts in the shop. Instructors will reinforce the theory and technique of accuracy, precision and repeatability to help students develop an uncompromising attitude towards good measuring technique.

### **APM 223 - Advanced Machining Technology**

#### *5 Credits*

Apprentices will be introduced to a variety of advanced machining technologies currently available to machine shops. Apprentices will learn to identify machine parts manufactured by some of the different technologies available - laser cutting, EDM, and waterjet - as well as understand the advantages of each of these methods as well as when they are appropriate for use.

### **MT 101 - Industrial Manufacturing Safety**

#### *5 Credits*

Students will be oriented to the occupation and will learn about foundational safety requirements specific to manufacturing and production. Course content will include basic shop safety, OSHA 10, and CPR/First Aid. The course will introduce the concepts of working in a safe and productive manufacturing workplace, safety and environmental assessments, emergency drills and emergency teams, unsafe conditions and corrective actions, equipment safety training, processes, and procedures that support a safe work environment, safety and health requirements for maintenance, installation and repair, monitoring safe equipment and operator performance, and effective safety enhancing workplace practices.

### **MT 102 - Industrial Manufacturing Basics**

#### *5 Credits*

Students will apply quality and continuous improvement practices to manufacturing and production. The course will introduce quality assurance, inspection, blueprint reading, interpreting manufacturing documents, precision measurement, and basic tools/equipment use and knowledge. Students will learn the process of periodic or statistically based internal quality audit activities, check and document calibration of gauges and other data collection equipment, suggest continuous improvements, inspect materials and product/process at all stages to ensure they meet specifications, document the results of quality tests, communicate quality problems, take

corrective actions to restore or maintain quality, use common measurement systems and precision measurement tools.

### **MT 103 - Industrial Manufacturing Production Processes**

#### *4 Credits*

Students will learn to identify customer needs and required resources for production.

### **MT 104 - Industrial Manufacturing Machine Maintenance**

#### *4 Credits*

Students will learn to identify customer needs and required resources for production.

### **MT 201 - Industrial Maintenance Mechanic Apprenticeship**

#### *5 Credits*

Application of mathematics to industrial maintenance environment. Perform standard computations and conversions between measurement systems. Relevant mathematical concepts are taken from algebra, geometry, and trigonometry to help students understand formulas and common technical application problems. Basic math skills will be reviewed including decimals, fractions and conversions between them. This course also includes the use and application of formulas seen in industry. Students will learn properties of angles and common geometric shapes and relevant trigonometric functions, and they will be introduced to graphs and statistics.

### **MT 202 - Communications**

#### *4 Credits*

Apprentices are introduced to basic communication concepts relating to the workplace. Concepts include theory and skills practice related to interpersonal, intercultural, and production team communications, technical writing and business communications, phone and email etiquette, and conflict management.

### **Anesthesia Technologist**

### **ANES 100 - Healthcare Provider First Aid/CPR, AED and Bloodborne Pathogens**

#### *2 Credits*

This course covers one and two person, adult, child and infant CPR. Students practice caring for a person with foreign body airway obstruction (FBAO), personal barriers techniques and use of Automated External Defibrillator (AED). The course teaches to effectively recognize and treat in critical minutes until Emergency

Medical Services (EMS) arrive. Topics include: general first aid principles, medical, injury and environmental emergencies, and bloodborne pathogens. This course is approved by OSHA, WISHA (Labor and Industries) for healthcare providers. An AHA card will be issued upon the successful completion of a written exam and skills evaluation. In addition, the mandatory seven hours of HIV/AIDS education for healthcare providers is included.

### **ANES 101 - Introduction to Anesthesia Technology**

#### *3 Credits*

This course offers an opportunity to learn and apply basic anesthesia competencies and the role of the anesthesia care team, as well as the scope of practice and duties of the Anesthesia Technologist. These include but are not limited to: basic airway management; anesthesia machine daily checkout and troubleshooting; basic anesthesia equipment set up maintenance and trouble shooting. The course also includes patient care skills including positioning and dialogue IV set up and placement, basic physiological monitoring, assisting the anesthesiologist, anatomy and physiology as it applies to anesthesia, the OR environment including appropriate wear, personal protective equipment, and interpersonal skills. The course also focuses on policies and procedures associated with anesthesia technologist work practice. Different types of anesthesia: regional, local, general, and MAC. Diagnosis and minor maintenance of anesthesia equipment.

### **ANES 102 - Anesthesia Equipment: Principals and Applications**

#### *3 Credits*

The student will learn and handle basic and complex anesthesia equipment and airway management devices. Students will create algorithms and strategies for preparation and use. The learner will practice set up and troubleshooting of routine and complex equipment.

### **ANES 103 - Anesthesia Technology Lab I**

#### *4 Credits*

This course offers an opportunity to learn and put into practice basic anesthesia competencies including but not limited to: basic airway management, anesthesia machine daily checkout and troubleshooting, basic anesthesia equipment set up maintenance and trouble shooting. Patient care skills including positioning and dialogue IV set up and placement, placement and troubleshooting, basic physiological monitoring, assisting the anesthesiologist, intubation strategies, and rapid response to airway management crisis. Also,

anesthesia machine checkout, working in the OR environment including appropriate wear, personal protective equipment, interpersonal skills, ergonomics, and basic pharmacology. Additionally, drawing up drugs and sharps safety, the OR turn over, equipment identification handling and use, and regional anesthesia theory and practice.

### **ANES 104 - Anesthesia Technology Lab II**

#### *3 Credits*

This course offers an opportunity to build on competencies learned during Anesthesia Lab I and practice advanced Anesthesia competencies including but not limited to: advanced airway management, advanced anesthesia machine troubleshooting, advanced anesthesia equipment set up maintenance and trouble shooting, advanced physiological monitoring including arterial lines, central and pulmonary artery lines, and assisting the anesthesiologist. Intubation strategies and rapid response to airway management crisis, and care and use of emergency airway management devices. Hemodynamic monitoring equipment set up maintenance and troubleshooting.

### **ANES 105 - Pharmacology I**

#### *3 Credits*

This course offers an opportunity to learn and apply basic pharmacology with particular relevance to the operating room. The course describes pharmacological sources and development. The course introduces families and classification of drugs to the students with emphasis on treatment of the surgical patient. Students learn crisis management for cardiac arrest and malignant hyperthermia, including reactive scenario training. Students are introduced to pharmacology math. Students are shown how to manage drugs in the OR including preoperative and perioperative situations, handling, labeling, and storage protocols. Students will be able to gain insight into different anesthesia techniques including general, local, and regional anesthesia. Students will be able to gain knowledge of medical terminology with regard to pharmacology.

### **ANES 106 - Pharmacology II**

#### *3 Credits*

This course offers an opportunity to learn and apply advanced pharmacology with particular relevance to the operating room. The course allows students to become proficient in the use and theory of intravenous therapy with the preoperative, perioperative, and post-operative environment, labeling, and storage protocols.

Students will be able to gain insight into emergency situations and appropriate pharmacological interventions. Students will continue to gain knowledge of medical terminology with regard to pharmacology.

#### **Course Outcomes**

1. Apply knowledge of basic pharmacology of central nervous system (CNS) drugs to explain clinical uses and adverse effects of these agents for treatment of common disease states.
2. Apply knowledge of basic pharmacology of autonomic nervous system (ANS) agents to explain clinical uses and adverse effects of drugs for treatment of common disease states.
3. Apply knowledge of basic pharmacology of vitamins, minerals, and nutritive agents to explain clinical uses and adverse effects of drugs for treatment of common disease states.
4. Apply knowledge of basic pharmacology of antimicrobial agents to explain clinical uses and adverse effects of drugs for treatment of common disease states.
5. Apply knowledge of basic pharmacology of antineoplastic agents to explain clinical uses and adverse effects for treatment of common disease states.

#### **ANES 107 - Law and Ethics of Healthcare**

##### *3 Credits*

The student will learn about legal and ethical issues in the healthcare field. This will include medical malpractice healthcare law, HIPAA, and the physician/patient relationship. Students will comprehend and demonstrate foundational medico-legal terminology that relates to the workplace and interpersonal ethics.

#### **Course Outcomes**

1. Demonstrate basic knowledge of the legal and court system.
2. Accurately use vocabulary related to law and ethics.
3. Demonstrate critical thinking when dealing with legal/ethical decision making.
4. Explain health work legal requirements.
5. Show familiarity with the medical record, HIPAA and confidentiality.

6. Articulate the core concepts medical malpractice and how to avoid it.

#### **ANES 108 - Medical Terminology**

##### *3 Credits*

This course offers an opportunity to learn and apply basic and advanced medical terminology with particular relevance to the Operating Room. The course introduces the learner to the structure of medical language, word building skills and deconstructive analysis of medical terms. The course describes the body systems including relevant procedure tests and diagnostic terms in medical language. Students are asked to develop rationale and to use medical terminology routinely in the classroom. The course reinforces commonly used acronyms and abbreviations that will be part of the daily language within their profession.

#### **ANES 109 - Microbiology**

##### *3 Credits*

In this course the learner will correlate the impact of microbiology in relationship to the practice of sterile technique and infection control in the operative setting in regards to decontamination, sterilization and disinfection. The learner will identify the name and function of various parts of the compound microscope. The learner will also compare and contrast the structure and characteristics of different microorganisms. Also, the student will analyze the various immune responses that occur in the body as defenses and relate the infectious process to surgical practice.

#### **ANES 110 - EKG Analysis**

##### *2 Credits*

The student will learn cardiac anatomy and the normal electrical conduction system of the heart and be able to relate normal EKG traces of the heart. The student will acquire the basic knowledge to interpret common cardiac arrhythmias, including sinus, atrial, junctional, and ventricular dysrhythmias. Students will develop skills in reading and analyzing electrocardiograms (EKG). Students will learn the use of EKG equipment and rapid response in crisis situations.

#### **Course Outcomes**

1. Explain the role and reporting structure for the Monitor Technician in the clinical environment.
2. Explain the purpose of ECG monitoring on an ongoing basis.
3. Describe the principles of electronic monitoring.

4. Measure and calculate the rate and rhythm of ECG's.
5. Identify normal and abnormal ECG rhythms.
6. Access medical resources to acquire up to date data.
7. Differentiate between an artifact and an abnormal rhythm.
8. Recognize lethal and non lethal rhythm changes and state appropriate actions to be taken.

### **ANES 112 - Operating Room Environment**

#### *3 Credits*

This is a required course in Anesthesia Technologist program. Students will learn about the layout and ergonomics of the operating room. Students will learn about operating room attire and protocols with regard to hand hygiene and infection control. The learner will study the physiology of patient positioning and operating table equipment.

### **ANES 115 - Anesthesia Technology Lab III**

#### *3 Credits*

This course offers an opportunity to build on competencies learned during Anesthesia Lab II and practice advanced anesthesia competencies including but not limited to: advanced airway algorithms, advanced troubleshooting, advanced anesthesia equipment set up maintenance and trouble shooting, advanced rapid response to airway management crisis, care and use of emergency airway management devices, and hemodynamic monitoring equipment set up maintenance and troubleshooting.

### **Course Outcomes**

1. Explain the Theory, Principles and Practice of the Anesthesia Technician scope of practice.
2. Demonstrate basic knowledge of invasive monitoring placement.
3. Demonstrate basic knowledge off the theory and practice advanced hemodynamic monitoring.
4. Demonstrate basic knowledge of a range of basic and advanced airway management protocols.
5. Develop increased confidence and competence in a range in life threatening situations where the anesthesia technician's expertise is crucial.

6. Demonstrate basic knowledge of advanced concepts of Physiological Observations, measurement and monitoring in a range of situations.
7. Utilize and practice safe use of blood warmers and rapid infusers.

### **ANES 118 - Phlebotomy**

#### *4 Credits*

This is a required course in the Anesthesia Technologist program, teaching common phlebotomy practices for adults and children. Students learn how to safely and effectively draw blood using venipuncture and capillary puncture methods for adults and children, plus finger sticks or heel sticks for young children and infants. Students learn proper phlebotomy specific infection control. They receive instruction on how to prepare the blood collection site, how to choose the proper collection tools and how to handle the transportation, processing, and management of collected samples. During practicum students practice the blood and specimen collection and handling skills learned in their theory class. They practice these duties on adult and pediatric simulation arms as well as other students. The course leads to Washington State certification in Phlebotomy.

### **ANES 125 - Anesthesia Technology Lab IV**

#### *3 Credits*

This course offers an opportunity to build on competencies learned during Anesthesia Lab III and practice advanced anesthesia competencies including but not limited to: blood management, cell salvage, balloon pump management and care, advanced rapid response to airway management crisis, care and use of emergency airway management devices, and hemodynamic monitoring equipment set up maintenance and troubleshooting.

### **ANES 130 - Advanced Cardiac Life Support and Pediatric Cardiac Life Support**

#### *3 Credits*

In the ACLS course the learners enhance their skills in treating adult victims of cardiac arrest or other cardiopulmonary emergencies, while earning their American Heart Association ACLS (AHA ACLS) for Healthcare Providers Course Completion Card. The Pediatric Advanced Life Support (PALS) Provider course enables allied healthcare students to develop the knowledge and skills necessary to better recognize and treat critically ill infants and children. The course is scenario-based, and a team approach is used to teach

emergency management of pediatric patients approaching, or already in, respiratory or cardiac arrest. The learner will engage in simulation and scenario training incorporating treatment, stabilization, and/or the transport phases of a pediatric emergency, particularly in the perioperative environment.

### **ANES 135 - Anesthesia Technology Lab V**

#### *3 Credits*

This course offers an opportunity to build on competencies learned during Anesthesia Lab IV and practice advanced anesthesia competencies including but not limited to: blood management, cell salvage, balloon pump management and care, advanced rapid response to airway management crisis, care and use of emergency airway management devices, and hemodynamic monitoring equipment set up maintenance and troubleshooting.

### **ANES 191 - Anesthesia Technology Clinical Practicum I**

#### *6 Credits*

Students experience practical applications of their knowledge and skills by application of clinical skills and work ethic during the anesthesia technician clinical rotation. Students practice job search skills for an entry-level position as an anesthesia technician.

### **ANES 192 - Anesthesia Technology Clinical Practicum II**

#### *6 Credits*

Students experience practical applications of their knowledge and skills by application of clinical skills and work ethic during the anesthesia technician clinical rotation. Students practice job search skills for an entry-level position as an anesthesia technician.

### **ANES 193 - Anesthesia Technology Clinical Practicum III**

#### *6 Credits*

Students experience practical applications of their knowledge and skills by application of clinical skills and work ethic during the anesthesia technician clinical rotation. Students practice job search skills for an entry-level position as an anesthesia technician.

### **ANES 194 - Certification Exam Prep**

#### *2 Credits*

The student revisits and reviews the core concepts of the Anesthesia Technician course. Emphasis is placed on preparation and strategies for success in the national certification exam. Students will be able to participate in mock exams and consider relevant content and concepts. Students will work to prepare study and revision guides.

## **Anthropology**

### **ANTH& 106 - American Mosaic**

#### *5 Credits*

This course will explore contemporary American life through various cultural phenomena. Students learn core anthropological theories to make sense of race, gender, class and the "other," and they explore historical processes from which these cultural notions have emerged and evolved.

**General education distribution area: Social Science.**

#### **Course Outcomes**

1. Define key concepts, such as culture, power and gender.
2. Understand various phenomena within American culture, such as the media portrayal of immigrants.
3. Appreciate cultural diversity.
4. Analyze the intersections of various cultural categories, such as race and class.
5. Read scholarly works carefully and critically.
6. Use basic research skills.

### **ANTH& 234 - Religion and Culture**

#### *5 Credits*

This course is an anthropological exploration of religion. Using a combination of classical and contemporary works, students explore how religion is understood and lived by different people, how it shapes culture and cultural perceptions, and how it manifests in various political and cultural expression, including in popular culture. Additionally, the class examines how religions are informed by historical and cultural change, and how they position different groups of people in relation to their respective sociopolitical worlds, with themes such as religion as a cultural system; ritual and symbols, gender, sexuality and religion; religion and media; secularism; and religion in a post-9/11 United States.

**General education distribution area: Social Science.**

#### **Course Outcomes**

1. Demonstrate knowledge of key concepts, such as belief, ritual and symbols.
2. Describe, interpret and compare religious phenomena within various cultures.



3. Gain an appreciation for religious and cultural diversity.
4. Analyze intersections of religion and the various cultural dimensions in written assignments.
5. Read scholarly works critically and carefully.
6. Hone research and writing skills.

### **ANTH& 235 - Cross-Cultural Medicine**

#### *5 Credits*

In this course on medical anthropology, students study the concepts of disease, illness, health, treatment, and healing in global cultures. Topics may include ethnomedicine, aging, socioeconomic factors, epidemiology, and spirituality, with an emphasis on culturally competent care.

**General education distribution area: Social Science.**

#### **Course Outcomes**

1. Demonstrate knowledge of key concepts in medical anthropology.
2. Analyze the sociocultural aspects of wellness, healing and healthcare.
3. Discuss how gender, race, economic class and other categories affect people's health.
4. Engage with cross-cultural issues in health and wellness.
5. Acquire a basic framework for how to offer culturally competent care to diverse patients.
6. Exhibit honed reading, writing, research and critical thinking skills.

### **Applied Mathematics**

#### **AMATH 160G - Mathematics for the Ophthalmic Assistant**

#### *5 Credits*

An introductory course developed to introduce mathematics concepts related to a variety of fields in the health sciences. The content is designed at the basic pre-algebra level (MATH 075) to promote student success in mathematics and to develop problem-solving skills. Topics covered include: review of whole number operations, fractions, decimals, integers, simplifying algebraic expressions.

#### **AMATH 160J - Math for Autobody Repair**

#### *1 Credits*

Students are taught basic math skills including addition,

subtraction, division, and multiplication of whole numbers, fractions, decimals, and metrics.

#### **AMATH 160R - Mathematics - Cost Control**

#### *3 Credits*

Students have the opportunity to learn how to evaluate the components and functions of a standardized recipe, complete food costing worksheets, convert formulas/recipes correctly and perform basic math functions to include fractions, weights and measurements. Menu pricing to include giving the overall cost, individual cost and menu sales price with yield test percentages for purchasing is reviewed. Determine the amounts of product needed in a baking and pastry recipe using the baker's percentage method. Labor cost and benefits are discussed.

#### **Course Outcomes**

1. Demonstrate the ability to perform basic math functions from addition to division, fractions and percentages.
2. Calculate and demonstrate finding a total cost and cost per unit for recipes using a food cost form.
3. Convert basic units of measure to mixed units of measure based on the U.S. kitchen weight and volume standards.
4. Demonstrate the ability to convert metric and US units.
5. Demonstrate the ability to find as-purchased (APC) and edible portion (EPC) costing, and yield percentages for edible portion quantity (EPQ) from as purchased quantity (APQ).
6. Conduct yield tests of various products and explain EPC/APC effect on overall recipe costs.
7. Demonstrate the ability to determine a selling price for menu items in a restaurant based on standard recipe cost and expected food cost percentage.
8. Explain what variables, semi-variable, and fixed expense are and how to control them per industry standards.

#### **AMATH 160S - Related Mathematics/Measurement**

#### *3 Credits*

Instruction in mathematics includes adding, subtracting, multiplying and dividing of whole numbers, decimals and fractions as a tool for calculating dimensions, tolerances, scales, surface areas of materials, weights of

materials; converting measurements from U.S. Customary to Metrics and using geometric formulas. Instruction also includes the use of tape measures, framing and combination squares.

### **AMATH 160V - Basic Math for Accounting**

#### *2 Credits*

This course prepares students for the basic math skills needed in many entry level positions. It covers whole numbers, fractions, decimals, ratio and proportion, percent, signed numbers, geometry, units of measurement, graphs, and statistics.

### **AMATH 161G - Mathematics**

#### *3 Credits*

In this course of study, the student receives an introduction to basic mathematical procedures including, but not limited to, whole numbers, fractions, decimals, ratios and proportions, percentages, combined applications, roman numerals, and problem solving.

### **AMATH 161V - Mathematics for Band Instrument Repair**

#### *3 Credits*

Students learn how to measure woodwind pads using fractional and metric systems and operate calipers, micrometers and other measuring tools as they relate to band instrument repair. Students learn business math applications as they relate to the band instrument service technician.

#### **Course Outcomes**

1. Analyze and calculate measurements of items related to the field of musical instrument repair.
2. Demonstrate ability to take consistent accurate measurements, using digital calipers, dial calipers, and micrometers.
3. Measure and calculate the screw pitch of a presented screw for the purpose of replicating that screw.
4. Demonstrate knowledge of the common systems for the measurement of woodwind pads

### **AMATH 162G - Mathematics**

#### *1 Credits*

This course focuses on basic business mathematics required for financial management, record keeping, and billing. Students review basic mathematical procedures

including addition, subtraction, multiplication, division, and problem solving.

### **AMATH 163V - Business Math**

#### *3 Credits*

Students apply basic math computations (addition, subtraction, multiplication, division, percentages, fractions and decimals) to a variety of business problems. Students develop skills using electronic calculators.

#### **Course Outcomes**

1. Demonstrate proficiency in basic math computations (addition, subtraction, multiplication, division, fractions, decimals and percents) with and without using a calculator.
2. Demonstrate ability to calculate interest and per diems for a variety of legal activities such as promissory notes, real estate taxes and settlement of judgments.
3. Demonstrate skills using electronic calculators.

### **AMATH 164V - Introduction to Mathematical Operations**

#### *2 Credits*

This course familiarizes the student with basic business math operations, with an emphasis on the ability to complete business application problems that require addition, subtraction, multiplication, division, fractions and percent. Emphasis will be placed on integrating these concepts into Microsoft Excel.

### **AMATH 166V - Integrated Financial Applications**

#### *7 Credits*

Students improve proficiency applying basic math concepts and critical thinking to business situations using the 10-key calculator, spreadsheet software, and forms. Students gain competency in performing business computations that include banking transactions, budgets, inventory, commissions, retail sales, cash and trade discounts, percentages, financial statements, and payroll applications. Students discuss the importance of demonstrating ethical conduct in financial matters.

### **AMATH 168G - Healthcare Mathematics**

#### *4 Credits*

This course is a comprehensive review of fundamental math skills including addition, subtraction, multiplication and division of whole numbers, fractions and decimals, calculating ratios, proportions, and

percentages, as well as calculating medication dosages using the metric system.

#### **Course Outcomes**

1. Demonstrate knowledge of basic math computations.
2. Apply mathematical computations to solve equations.
3. Identify and define basic units of measurement in metric, apothecary and household systems.
4. Convert among measurement systems.
5. Identify both abbreviations and symbols used in calculating medication dosages.
6. Analyze charts, graphs and/or tables in the interpretation of healthcare results.
7. Students will be able to communicate effectively with both peers and instructors.

#### **AMATH 170 - Mathematics for the Health Sciences**

##### *5 Credits*

An introductory course developed to introduce mathematic concepts related to a variety of fields in the health sciences. The content is designed at the pre-algebra level (MATH 075) to promote student success in mathematics and to develop problem-solving skills. Topics covered include: review of whole number operations, fractions, decimals, percents, ratio and proportion; signed numbers and operations on signed numbers; real numbers; simplifying algebraic expressions; solving linear equations; geometry; conversions involving dimensional analysis; dosage calculations, mixture calculations, body surface area and body weight calculations; introductory solution calculations and a variety of health related application problems.

**Prerequisite(s):** Completion of MATH 065 with a grade of 2.0 or higher, or a COMPASS pre-algebra score of 40 or greater.

#### **Course Outcomes**

1. Apply fundamental math skills in the role of Anesthesia Techs.
2. Explore math concepts that form the basis for further learning, particularly in statistics.

#### **AMATH 170S - Math Refresher**

##### *4 Credits*

This is a refresher course of practical mathematics used by individuals working in the industrial and commercial maintenance fields. The gas laws, heat load calculations and various common electrical calculations are covered.

#### **AMATH 170T - Mathematics for the Health Sciences Technician**

##### *3 Credits*

An introductory course developed to introduce mathematic concepts related to a variety of fields in the health sciences. The content is designed at the pre-algebra level (MATH 075) to promote student success in mathematics and to develop problem-solving skills. Topics covered include: review of the whole number operations, fractions, decimals, percents, ratio and proportion; signed numbers and operations on signed numbers; real numbers; simplifying algebraic expressions; solving linear equations; geometry; introduction to graphs and statistics; measurement systems (metric, apothecary, and household); conversions involving dimensional analysis; dosage calculations, mixture calculations, body surface area and body weight calculations; introductory solution calculations and a variety of health related application problems.

**Prerequisite(s):** Completion of MATH 065 with a grade of 2.0 or higher, or a COMPASS pre-algebra score of 40 or greater.

#### **Course Outcomes**

1. Apply fundamental math skills in the role of Anesthesia Techs.
2. Explore math concepts that form the basis for further learning, particularly in statistics.

#### **AMATH 170V - Applied Math for Accounting**

##### *3 Credits*

This course is a continuation of AMATH 160V, *Basic Math for Accounting*, with extra emphasis on geometry, units of measurement, graphs, and statistics.

**Prerequisite(s):** AMATH 160V with a 2.0 or higher or placement into AMATH 170V

#### **AMATH 171V - Business Math/Calculators**

##### *5 Credits*

This course presents basic math skills students use in business-related applications. Students gain practical experience using, interpreting and calculating figures in everyday business forms such as invoices, reports, and others. Students learn 10-key calculator proficiency and

numeric keypad software designed specifically to reinforce skills.

### **AMATH 173J - Survey of Electronics with Mathematics**

#### *4 Credits*

This course provides a brief introduction to concepts and mathematics related to electronic and digital circuits. It includes such topics as measurement of circuit components, mathematical and functional analysis of circuit components, series and parallel circuit diagrams and calculations, safety in electronics environments, digital concepts, binary numbering systems, and related concepts.

#### **Course Outcomes**

1. Convert numbers between the binary octal, decimal, and hexadecimal number systems.
2. Understand the application of binary, octal, and hexadecimal number systems to the solution of common computer related operations such as subnetting.
3. Understand the principles of operation and use of basic electronic components such as switches, resistors, capacitors, and transistors.
4. Create working electronic circuits using a simple breadboard.

### **AMATH 174J - Computer Mathematics**

#### *4 Credits*

Mathematics, including fractions, percent, and ratios are reviewed as specific to computer science applications. Algebraic equations, order of operations, Boolean algebra, base number conversions and computational functions with a computer are used to solve a variety of practical problems.

### **AMATH 175 - Financial Math**

#### *5 Credits*

This course applies mathematics to personal finance. Concepts include linear and piecewise linear functions; quadratic, exponential, and logarithmic relationships; graphing; distributions; measures for center; and spread of distributions. Financial concepts include income, taxes, discounts, simple and compound interest, buying on credit, depreciation, expenses, budgeting, annuities, stocks and bonds, and planning for retirement.

#### **Course Outcomes**

1. Analyze problems and persist in solving them.

2. Communicate mathematical solutions by using a variety of mathematical concepts and representations.
3. Explain your mathematical reasoning.
4. Listen to or read the point of view of others, ask questions to improve understanding and provide feedback.
5. Model with mathematics.
6. Use appropriate tools and mathematical strategies.
7. Analyze and interpret graphs, charts and data.
8. Use clear definitions in discussions with others, specify symbols, labels and units of measure.
9. Calculate accurately and efficiently.
10. Look for and make sense of mathematical patterns and structures.
11. Look for patterns and/or repeated calculations to apply math formulas and strategies.
12. Evaluate the reasonableness of results.

### **AMATH 175J - Technical Mathematics for Advanced Manufacturing**

#### *5 Credits*

The course begins with a review of arithmetic operations and progresses through multiplication of fractions and whole numbers, to converting fractions to decimals, applying accuracy, precision, and different forms of measurement, solving algebraic equations, and learning and applying trigonometry to solve right triangles in practical engineering design problems.

### **AMATH 175S - Industrial Math for Thermodynamics**

#### *2 Credits*

This course provides the skills to calculate pressure and temperature ratios, superheat zones, heat loss, refrigerant load requirements and operational cost.

#### **Course Outcomes**

1. Apply mathematical formulas to solve to refrigeration problems and determine proper operation of equipment.

### **AMATH 176S - Math for Machine Technology 1**

#### *5 Credits*

This is an introductory course combining basic algebra and geometry concepts as applied in machining and manufacturing. The use of and transformation of

algebraic formulas is emphasized. Geometric principles are taught and applied to: triangles, polygons, circles, arcs, angles, tangents, areas, volumes, and geometric constructions. Students learn to convert measurements in all 3 dimensions without conversion factors. In this course students practice repeated application of math skills essential to both the machining and CNC programming.

**Prerequisite(s):** MTEC 161 with a minimum 2.0

#### **Course Outcomes**

1. Solve problems involving decimals, ratios, proportions, triangles, Pythagorean Theorem, polygons, circles, and solids.
2. Solve problems involving negatives numbers, addition of terms, substitution, coefficients, subtraction, multiplication, symbols grouping, equations, and transposition of terms.
3. Demonstrate measuring techniques with a variety of machining measuring instruments.

#### **AMATH 177J - Automotive Mathematics**

##### *3 Credits*

This course prepares students to solve common automotive related problems including: measurement systems, fraction to decimal conversions, ratios and proportions, weights and measures, metric/English conversions, mechanical, electrical, pressure and vacuum measurements.

#### **AMATH 178J - Automotive Mathematics**

##### *1 Credits*

Students learn to identify and solve common automotive related mathematics problems including: weights & measures, measurement systems, fraction to decimal conversions, ratios, proportions, English/metric conversions, brake and transmission hydraulics, steering geometry, and mechanical, electrical, pressure and vacuum measurements.

#### **AMATH 179J - Basic Mathematics for Field Surveying**

##### *4 Credits*

This course is an introduction to mathematics used in Land Surveying. Topics include operations with real numbers, exponents and radicals, operations with algebraic expressions, solving equations, classical geometry, solution of right triangles, and introduction to vectors.

#### **AMATH 180V - Algebra for the Paraprofessional**

##### *3 Credits*

This course prepares students for the algebra needed in many positions in business and industry. It includes real numbers, linear equations and inequalities, factoring, problems solving, and rational expressions.

**Prerequisite(s):** Placement into MATH 085 or AMATH 180V, or completion of AMATH 170V or MATH 075 with a 2.0 or higher.

#### **AMATH 182 - Beginning Algebra for Accounting**

##### *2 Credits*

This course is a continuation of AMATH 180V, Algebra for the Paraprofessional, with extra emphasis on graphing, linear systems, and exponents and polynomials.

**Prerequisite(s):** Placement into MATH 085 or AMATH 182 or completion of AMATH 180V or MATH 075 with a 2.0 or higher.

#### **AMATH 185 - Applied Algebra for Business and Industry**

##### *5 Credits*

This introductory course in algebra covers the following topics and their applications to business and industry: solving linear inequalities, compound inequalities, absolute value equations and inequalities; exponential notation and simplifying exponents using the product, quotient and power rules; scientific notation; polynomial operations; factoring polynomials; solving quadratic equations by factoring; introduction to graphing; systems of two equations in two unknowns and their applications; solving a system of three equations in three variables; systems of inequalities; solving applied problems.

**Prerequisite(s):** Completion of MATH 075, or AMATH 175, with a grade of 2.0 or higher, or ACCUPLACER placement.

#### **Course Outcomes**

1. Solve inequalities and equations, systems of inequalities and equations, in one and two variables.
2. Solve absolute value equations and inequalities in one variable.
3. Apply properties of real numbers to performing operations with algebraic expressions.



4. Factor polynomials in one variable and use factoring to solve polynomial equations in one variable.
5. Use the Cartesian coordinate system to graph points and linear relationships.
6. Calculate the slope and vertical intercept given two pieces of information about a linear relationship.
7. Apply algebraic and geometric concepts, and numerical computations, to answer word problems.
8. Apply beginning algebra concepts and solution techniques to explore and solve real contextualized problems.
9. Communicate using mathematical notation and language.

### **AMATH 186S - Math for Machine Technology 2**

#### *5 Credits*

This course covers the application of trigonometry to problems in precision machining and computer numerical control (CNC). It includes an introduction and analysis of trigonometric functions, basic calculations of missing sides or angles of triangles in order to find manufacturing dimensions. Other practical machine applications include finding measurement over wires, sine bar and gauge block calculation and corresponding indicator check. It culminates with higher level applications using trigonometry to determine point plots for CNC machining.

**Prerequisite(s):** AMATH 176S with a minimum 2.0

#### **Course Outcomes**

1. Solve problems using sine, cosine, tangent.
2. Represent trigonometric concepts verbally, numerically, graphically and algebraically.
3. Define and compare the 3 most commonly used trigonometric functions in terms of right triangles and the unit circle.

### **AMATH 187S - Geometry for Machine Technology**

#### *6 Credits*

This is an introductory application-based course in plane geometry as it is used in manufacturing. Axioms and propositions linked to industrial applications are covered. This is a self-paced course in which students practice math skills that are essential to machining and CNC programming.

#### **Course Outcomes**

1. Apply a variety of geometric axioms and propositions to manufacturing based problems.

### **AMATH 188S - Trigonometry for Machining**

#### *7 Credits*

This course emphasizes practical applications of right angle trigonometry using sine, cosine, and tangent. This is a self-paced course in which students practice math skills that are essential to machining and CNC programming.

### **AMATH 189J - Intermediate Mathematics for Field Surveying**

#### *4 Credits*

This course is a continuation of AMATH 179J. Covered topics include mathematical functions, oblique triangles, factoring, and analysis of linear functions.

#### **Course Outcomes**

1. Solve oblique triangles using laws of sines and cosines, recognizing ambiguous and impossible scenarios.
2. Solve systems of two or three linear equations by algebraic techniques.
3. Solve systems of equations using determinants by hand and machine.
4. Factor algebraic expressions including factorable polynomials to degree three.
5. Simplify fractional expressions and solve fractional equations using algebraic operations and factoring.

### **AMATH 190 - Financial Algebra**

#### *5 Credits*

This course applies intermediate algebra to personal finance. Mathematical concepts will include linear, quadratic, exponential, logarithmic, and piecewise defined functions; graphing; distributions; measures for center; and spread of distributions. Financial concepts include income, taxes, discounts, simple and compound interest, buying on credit, depreciation, expenses, budgeting, annuities, stocks and bonds, and planning for retirement.

#### **Course Outcomes**

1. Analyze problems and persist in solving them.

2. Communicate mathematical solutions by using a variety of mathematical concepts and representations.
3. Explain your mathematical reasoning.
4. Listen to or read the point of view of others, ask questions to improve understanding and provide feedback.
5. Model with mathematics.
6. Use appropriate tools and mathematical strategies.
7. Analyze and interpret graphs, charts and data.
8. Use clear definitions in discussions with others, specify symbols, labels and units of measure.
9. Calculate accurately and efficiently.
10. Look for and make sense of mathematical patterns and structures.
11. Look for patterns and/or repeated calculations to apply math formulas and strategies.
12. Evaluate the reasonableness of results.

### **AMATH 193 - Bridge to Precalculus**

#### *3 Credits*

This course covers intermediate algebra topics necessary for success in precalculus and beyond. Students study polynomials and functions (quadratic, rational, exponential, and logarithmic).

**Prerequisite(s):** AMATH 190 with a 2.0 or higher, or placement.

#### **Course Outcomes**

1. Apply properties of real numbers to perform operations with rational expressions and solve rational equations.
2. Apply properties of real and complex numbers to solve quadratic equations.
3. Apply exponential and logarithmic properties to solve exponential and logarithmic equations.
4. Evaluate, graph, and perform operations on functions.
5. Apply intermediate algebra concepts and solution techniques to explore and solve real contextualized problems.
6. Communicate using mathematical notation and language.

### **AMATH 195 - Advanced Applied Algebra**

#### *5 Credits*

This course covers the following topics and their applications to business and industry: rational expressions; solving rational equations; rational formulas and variation; rational exponents and radicals; complex numbers and operation with complex numbers; quadratic equations; completing the square and quadratic formula; functions and their graphs; domain and range of functions; inverse functions; exponential and logarithmic functions; properties of logarithms; solving exponential and logarithmic equations; solving applied problems related to business and industry.

**Prerequisite(s):** Completion of MATH 085, or AMATH 185, with a grade of 2.0 or higher, or a ACCUPLACER elementary score of 70 or greater, or other placement.

#### **Course Outcomes**

1. Apply properties of real numbers to perform operations with radical expressions and solve radical equations.
2. Apply properties of real and complex numbers to solve quadratic equations.
3. Determine the domain and range of functions using algebraic and graphical methods.
4. Evaluate, graph, and perform operations on functions.
5. Apply exponential and logarithmic properties to solve exponential and logarithmic equations.
6. Apply algebraic and geometric concepts, and numerical computations, to answer word problems.
7. Apply intermediate algebra concepts and solution techniques to explore and solve real contextualized problems.
8. Communicate using mathematical notation and language.

### **Art**

### **ART& 100 - Art Appreciation**

#### *5 Credits*

This course helps students analyze and appreciate art from diverse world cultures. Topics may include technique, design, terminology, style, and theme applied to a variety of art forms.

## **General education distribution area: Humanities.**

### **Course Outcomes**

1. Understand styles of art.
2. Understand and recognize various images that are historical and contemporary works of art.
3. Communicate about art using the correct vocabulary and terms.
4. Demonstrate and understand how to appreciate art.
5. Demonstrate critical thinking skills as they relate to visual art.

### **Asbestos Apprenticeship**

#### **ASB 101 - Heat & Frost Insulators/Asbestos Workers Apprenticeship**

*0 Credits*

This course is consistent with the State Apprenticeship Standards as approved by the Washington State Apprenticeship Council for the Heat & Frost Insulators/Asbestos Workers Apprenticeship Program and prepares indentured apprentices with the related knowledge and skill to perform the tasks of a Journey-level Heat & Frost Insulator/Asbestos Worker.

#### **ASB 102 - Firestop Penetrations Training**

*1 Credits*

#### **ASB 103 - Heat & Frost Apprenticeship**

*1 Credits*

This course is consistent with the State Apprenticeship Standards as approved by the Washington State Apprenticeship Council for the Heat & Frost Insulators/Asbestos Workers Apprenticeship Program and prepares indentured apprentices with the related knowledge and skill to perform the tasks of a Journey-level Heat & Frost Insulator/Asbestos Worker.

#### **ASB 104 - Ups & Downs of Fall Protection**

*1 Credits*

This course is an in-depth study of fall protection.

#### **ASB 105 - Safety Refresher**

*1 Credits*

Basic journeyman training.

#### **ASB 106 - Green Awareness Training**

*1 Credits*

Mechanical conservation requirements.

#### **ASB 107 - OSHA 30 Training**

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*3 Credits*

Foreman safety training.

#### **ASB 108 - Journeymen Upgrade Training**

*1 Credits*

### **Autobody Repair**

#### **ABDY 100 - Introduction to Collision Repair**

*2 Credits*

The Introduction to Collision Repair course is designed to prepare entry-level students with the fundamental knowledge needed to be successful in the collision repair industry. Subjects include personal safety, vehicle construction materials, parts terminology, safety systems, tools, equipment and attachment methods, industry repair terms, mechanical systems terminology, refinishing, and corrosion protection.

#### **ABDY 101 - Estimating I**

*1 Credits*

Students review damage reports and analyze damage to determine appropriate methods for overall repair; develop and document repair plan. Training prepares students for certification in I-CAR Non-Structural Technician, ProLevel I.

### **Course Outcomes**

1. Diagnose various types of collision damage, including twist, mash, sag, and sidesway.
2. List the factors that determine whether to repair or replace a component.
3. Interpret Crash Estimating Guides.
4. Estimate repair sequence and labor times.
5. Determine parts, labor, materials and hazardous waste costs.
6. Hand write both original estimates and correct existing estimates.

#### **ABDY 102 - Surface Preparation and Masking**

*5 Credits*

Students learn proper spray gun care by a combination of classroom lectures, product seminars by paint company representatives, and shop demonstrations. Techniques for preparing various substrates for top coating are explained and demonstrated. Students practice these skills on auto body panels. Training prepares students for certification in I-CAR Refinish Technician, ProLevel I.

### **Course Outcomes**

1. Prepare and mask repaired areas of a vehicle.
2. Demonstrate knowledge of the basic roles of primers and the proper prep for refinishing top coat applications.
3. Locate and interpret material safety data in the workplace.

### **ABDY 105 - Paint Application I**

#### *5 Credits*

Students become familiar with the proper, safe and lawful use of topcoat paint products. Sheet metal panels are provided for students to practice spray techniques.

### **Course Outcomes**

1. Demonstrate the proper use of all the safety equipment and tools that is required to preform the task of refinishing an automobile.
2. Ensure a clean vehicle before masking it.
3. Demonstrate correct masking procedure, including spray gun selection and cleaning.
4. Demonstrate an understanding of undercoats or (sealers).

### **ABDY 111 - HAZMAT, Personal Safety, and Refinish Safety**

#### *3 Credits*

Students learn the proper and safe use of tools commonly used within the auto body industry. Environmental issues, applicable laws and ordinances and related safety concerns in the workplace are studied. Training prepares students for certification in I-CAR Refinish Technician, ProLevel I.

### **Course Outcomes**

1. Demonstrate the correct use of respirators, ear protection, gloves and eye protection.
2. Discuss the reason why you need to cover all bare skin when spraying refinishing produces.
3. Handle paint and solvents that can harm you and the environment.
4. Explain what to do in-case of a hazardous martial (paint) spill.
5. Read hazardous labels and articulate what they mean.

### **ABDY 112 - Welding for Autobody Repair**

#### *6 Credits*

Following instruction in the safe use of oxy-acetylene MIG, and TIG welders, students are taught to weld to industry standards. Training prepares students for certification in I-CAR Welding Qualification WCS03, WCA03.

### **Course Outcomes**

1. Identify weldable and non-weldable materials used in collision repair.
2. Operate GMAW (MIG) welder, including set-up, tuning, and operation.
3. Operate TIG welder, including set-up, tuning and operation.
4. Operate Oxygen/Acetylene welder, including set-up, tuning and operation.
5. Operate Oxygen/Acetylene welder to cut and heat metal.
6. Demonstrate alternative operations that may be used to join structural components. (Squeeze type resistance spot welding (STRSW), riveting, structural adhesive, silicone bronze, etc.).
7. Identify different welding joints.
8. Identify welding problems and solutions, including how to destructive test a weld.
9. Demonstrate how to consistently achieve a good weld.

### **ABDY 114 - Autobody Construction I**

#### *9 Credits*

Students learn how unibody cars are assembled and how parts work together to form a strong unit. Students working in teams disassemble and re-assemble automobile components. Basic panel adjustment and alignment are explained and practiced. Other subjects include discussions of steel unibodys, front and rear rails, floors and front structure, A-B-C-D pillars and rocker panels. Training prepares students for certification in I-CAR Non-Structural Technician, ProLevel I.

### **Course Outcomes**

1. Demonstrate familiarity with different trim and hardware used on vehicles.

2. Demonstrate how to remove various components on the interior and exterior of vehicles.
3. Analyze how various power components work and how to diagnose ways to repair those components.
4. Demonstrate knowledge of electricity works and how to measure, test and design different systems.

#### **ABDY 116 - Autobody Plastics Repair and Refinishing**

##### *5 Credits*

Students are taught how to identify, repair, and refinish plastics and composites used in late model vehicles. Training prepares students for certification in I-CAR Non-Structural Technician, ProLevel I.

#### **ABDY 123 - Straightening Metal**

##### *5 Credits*

Students determine the extent of direct and indirect damage and direction of impact; develop and document a repair plan to straighten and rough-out contours of damaged panels to a suitable condition for body filling or metal finishing using power tools, hand tools, and weld-on pull attachments. Students locate and reduce surface irregularities on damaged body panels. Demonstrate hammer and dolly techniques. Heat shrink stretched panel areas to proper contour. Cold shrink stretched panel areas to proper contour. Mix body filler. Apply body filler: shape during curing. Rough sand cured body filler to contour; and finish sand. Training prepares students for certification in I-CAR Non-Structural Technician, ProLevel I.

##### **Course Outcomes**

1. Differentiate between different metals used in vehicles.
2. Form a plan for the repair of a panel.
3. Differentiate between hammers and dollies and how to use and maintain those tools.  
Demonstrate how to protect the vehicle as it is being repaired so no additional damage will be introduced.
4. Demonstrate how to stretch and shrink metal, both cold and using heat.
5. Move metal safely from one area to another.
6. Prepare a panel for plastic filler.
7. Mix, apply, sand and finish plastic filler.

8. Demonstrate familiarity with how PDR is used in the industry.

#### **ABDY 128 - Autobody Structure and Mechanics**

##### *7 Credits*

Students study basic mechanical principles such as four-wheel alignment, electrical theory, electrical circuits and DVOM usage. Other subjects include steering, suspension systems, brakes, air conditioning, cooling systems, and trim and hardware. Training prepares students for certification in I-CAR Non-Structural Technician, ProLevel I.

##### **Course Outcomes**

1. Describe the fundamentals of how various brake systems work, and demonstrate the procedures for manual and pressure bleeding.
2. Define the elements of proper wheel alignment; including caster, camber, toe, thrust line alignment, steering axis inclination, and turning radius.
3. Describe the design and operation of parallelogram, rack-and-pinion, and four wheel steering.
4. Explain the basics of front, rear, and computer suspension systems.

#### **ABDY 129 - Communication for Autobody Repair**

##### *1 Credits*

Students learn how communications between management and workers affects the operation of a shop. Students also learn about the operating costs in shops, the responsibilities of management and other issues faced by companies which helps the employee understand his/her role in making the business successful. Students are taught how to effectively communicate verbally and in writing with employers, technicians, and customers.

##### **Course Outcomes**

1. Articulate the complex relationship between owners/ managers, insurance companies and the technicians.
2. Consider job opportunities in a wide range of careers in the repair industry.
3. Explain the importance of effective communication in stressful shop environments.



4. Demonstrate culturally sensitive communication skills with a variety of owners, customers or co-workers.

### **ABDY 232 - Impact Analysis and Repair**

#### *2 Credits*

Students perform several different structural sectioning techniques on different structural members to ICAR and industry standards. Using state-of-the-art frame and unibody straightening benches, students align auto body frames and shells.

### **ABDY 234 - Autobody Construction II**

#### *2 Credits*

Using damaged autos, students install and align various auto body panels and glass to industry standards.

### **ABDY 235 - Door and Quarter Panel Replacement**

#### *8 Credits*

Students replace an outer door panel and a quarter panel on damaged vehicle in the shop.

### **ABDY 243 - Auto Detail**

#### *3 Credits*

Following completion of repairs to assigned auto shop projects, students clean and detail various automobiles to industry standards. Training prepares students for certification in I-CAR Refinish Technician, ProLevel I.

#### **Course Outcomes**

1. Demonstrate all aspects of detailing a vehicle.

### **ABDY 250 - Collision Related Mechanical Repair**

#### *3 Credits*

Using a combination of classroom theory and shop practice, students examine the effects of collision forces and study the resulting damage to the following mechanical systems: suspension, air-conditioning, heating, braking, and active and passive restraints.

### **ABDY 280 - Human Relations and Shop Safety for Autobody Repair**

#### *1 Credits*

Following a review of the safety practices to be adhered to in the auto body repair industry, students learn how to get along with others in the workplace and are encouraged to be a professional. Students also work with customers and fill out necessary job related paperwork.

### **Automotive Technology**

### **AUTC 101 - Safety/Environmental Issues**

#### *2 Credits*

Students learn proper safety procedures in an automotive shop environment to protect themselves, their co-workers, their customers and the environment through Web-based, classroom, and hands-on lab instruction. Students are introduced to information literacy and the proper use of library resources and the Internet. Topics include: personal safety, proper use of shop equipment and tools, identification, handling, storage and disposal of hazardous automotive waste, worker "Right to Know" hazard communication, and the use and procurement of Material Safety Data Sheets.

#### **Course Outcomes**

1. Demonstrate shop and environmental safety protocol.
2. Identify relevant tools.
3. Demonstrate proper handling and disposal of current automotive products.

### **AUTC 112 - Maintenance and Light Repair**

#### *7 Credits*

Students learn fundamental automotive shop operations and repair based on NATEF competencies through Web-based, classroom, and hands-on lab instruction. Topics include: vehicle identification, the use of service information (publications, electronic media, and Web-based), care of customer vehicles, handling repair orders, procuring parts, proper use of hand tools, measuring devices, and fastener applications. Students learn basic automotive service (oil change, transmission and cooling system service) diagnostic procedures, and basic mechanical adjustments.

**Prerequisite(s):** Concurrent enrollment in AUTC 101 or Articulated MLR program.

#### **Course Outcomes**

1. Demonstrate the necessary skills to perform Maintenance and light repairs on vehicles per NATEF guidelines.
2. Identify and use related hand and power tools.
3. Analyze reference materials to retrieve service data, specifications and maintenance schedules.
4. Demonstrate basic vehicle maintenance, vehicle inspections and light repairs.
5. Employ basic shop skills.

## **AUTC 117 - Electrical Systems**

### *7 Credits*

Students learn electrical/electronic theory, application, diagnosis and repair based on NATEF competencies through Web-based, classroom, and hands-on lab instruction. Topics include: batteries, starting systems, charging systems, lighting systems, accessories (gauges, warning devices, driver information systems, horns, and wipers), schematic diagrams, and the use of testing equipment. Concurrent enrollment in AUTC 101 and AUTC 112.

### **Course Outcomes**

1. Perform battery services.
2. Perform Starting system diagnostics and repairs.
3. Perform Charging system diagnostics and repairs.
4. Perform Lighting system diagnostics and repairs.
5. Perform Accessories system diagnostics and repairs.

## **AUTC 118 - Brakes**

### *7 Credits*

Students learn brake and anti-lock system theory, application, diagnosis and repair based on NATEF competencies through Web-based, classroom, and hands-on lab instruction in a live work environment. Topics include: hydraulic systems, drum brakes, disc brakes, power assist, wheel bearings, parking brakes, electrical systems, anti-lock brakes and traction control systems. Students prepare for ASE Certification test A-5.

**Prerequisite(s):** AUTC 101, AUTC 112, AUTC 117.

## **AUTC 124 - Heating and Air Conditioning**

### *6 Credits*

Students learn heating and air conditioning system theory, application, diagnosis and repair based on NATEF competencies through Web-based, classroom and hands-on lab instruction in a live work environment. Topics include: refrigeration systems, heating systems, ventilation systems, engine cooling systems, operational controls, and refrigerant recovery, recycling and handling. Students perform refrigerant recovery and recycling per EPA regulations and prepare for EPA recycling certification. Students prepare for ASE Certification A-6.

**Prerequisite(s):** AUTC 101, AUTC 112, AUTC 117.

### **Course Outcomes**

1. Perform refrigeration components diagnostics and repairs.
2. Perform A/C system diagnostics and repairs.
3. Perform heating and ventilation system diagnostics and repairs.
4. Perform engine cooling system diagnostics and repairs.
5. Perform refrigerant recovery and recycling.

## **AUTC 132 - Steering and Suspension**

### *7 Credits*

Students learn steering and suspension system theory, application, diagnosis and repair based on NATEF competencies through Web-based, classroom and hands-on lab instruction in a live work environment. Topics include: steering systems, suspension systems, wheel alignment, wheels, and tires. Students prepare for ASE Certification test A-4.

**Prerequisite(s):** AUTC 101, AUTC 112, AUTC 117.

## **AUTC 171 - Written Communications**

### *1 Credits*

Students learn the writing skills necessary in an automotive service environment including: describing repairs, repair procedures and repair suggestions on a repair order, developing a written repair estimate, requesting parts, timekeeping, the use of electronic data systems, completing job application, and preparing a resume.

## **AUTC 180 - Human Relations/Customer Relations**

### *1 Credits*

Students learn to interview customers, determine needed automotive repairs, and prepare a complete repair order with clear terms and descriptions of needed repairs/services. Conflict resolution, employer/employee relationships, sexual harassment, and other workplace issues are covered.

### **Course Outcomes**

1. Demonstrate conflict resolution techniques with customers and co-workers per NATEF guidelines.
2. Demonstrate respectful behavior to customers and service personnel per NATEF guidelines.

3. Explain automotive repair operations in clear terms to customers per NATEF guidelines.
4. Interview customers and determine repair concerns per NATEF guidelines..

### **AUTC 191 - Cooperative Education (Optional)**

#### *1-7 Credits*

The student will be working in a Renton Technical College approved automotive repair facility performing the duties assigned by the management and/or mentoring technician. Student should demonstrate abilities in shop safety, pollution prevention, and shop procedures to NATEF and industry standards.

**Prerequisite(s):** AUTC 101, AUTC 112, AUTC 117, INDS 101.

### **AUTC 204 - Automatic Transmissions/Transaxle Repair**

#### *6 Credits*

Students learn automatic transmission/transaxle system theory, application, diagnosis and repair based on NATEF competencies through Web-based, classroom and hands-on lab instruction in a live work environment. Topics include: maintenance and adjustment, in-vehicle repairs, and off-vehicle repairs. Students prepare for ASE Certification test A-2. Together with this course, the students will learn the skills to effectively handle interactions with customers and co-workers within a shop environment.

**Prerequisite(s):** AUTC 101, AUTC 112, AUTC 117.

#### **Course Outcomes**

1. Inspect and road test automatic transmission/transaxles.
2. Diagnose and repair automatic transmission/transaxles.
3. Inspect/diagnose and repair automatic transmission/transaxles components off vehicles.

### **AUTC 216 - Engine Performance and Emissions**

#### *10 Credits*

Students learn engine performance theory, application, and diagnosis of ignition, fuel, emissions and on-board diagnostic computer systems based on NATEF competencies through Web-based, classroom and hands-on lab instruction in a live work environment. Topics include: engine diagnosis, computerized engine controls, ignition systems, fuel systems, air induction and exhaust systems, emissions controls and related

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systems. Included in this course are the communications competencies for writing repair reports and presenting pricing and repair options. Students prepare for ASE Certification test A-8.

**Prerequisite(s):** AUTC 101, AUTC 112, AUTC 117.

#### **Course Outcomes**

1. Inspect engine operation.
2. Maintain vehicle maintenance requirements.
3. Inspect, diagnose and repair vehicle engine systems as needed.

### **AUTC 226 - Advanced Electronics**

#### *6 Credits*

Students learn advanced automotive electronics theory, application, diagnosis and repair based on NATEF competencies through Web-based, classroom and hands-on lab instruction in a live work environment. Topics include: electrical system diagnosis, battery diagnosis and service, starting system diagnosis and repair, charging system diagnosis and repair, lighting systems diagnosis and repair, driver information systems, horns, wiper/washer systems, accessories (locks/ keyless entry, power windows, cruise control, airbags, anti-theft). Advanced concepts include: computerized control systems, sensor operation and diagnosis, actuator operation and diagnosis, the use of scan tools, lab scopes, and on-board diagnostic systems. Students prepare for ASE Certification test A-6.

**Prerequisite(s):** AUTC 101, AUTC 112, AUTC 117.

#### **Course Outcomes**

1. Perform NATEF Master Automobile Service Technology Electrical/Electronics Tasks at:
  - o 95% of P1 Tasks at a "Requires Supervision" level or better
  - o 80% of P2 Tasks at a "Requires Supervision" level or better
  - o 50% of P3 Tasks at a "Requires Supervision" level or better
2. Pass the ASE Certification Test A-6.

### **AUTC 228 - Engine Repair and Shop Computations**

#### *8 Credits*

Students learn engine theory, operation, application, diagnosis, disassembly, inspection, component measurement and reassembly based on NATEF

competencies through Web-based, classroom and hands-on lab instruction in a live work environment. Topics include: engine removal and reinstallation, cylinder head diagnosis and repair, engine block diagnosis and repair, lubrication systems, cooling systems, and timing components. The students also learn to perform computations related to engine displacement, horse power, torque, firing angle, and cam geometry. Students prepare for ASE Certification test A-1.

**Prerequisite(s):** AUTC 101, AUTC 112, AUTC 117.

### **Course Outcomes**

1. Perform NATEF Master Automobile Service Technology Engine Repair Tasks at:
  - 95% of P1 Tasks at a "Requires Supervision" level or better
  - 80% of P2 Tasks at a "Requires Supervision" level or better
  - 50% of P3 Tasks at a "Requires Supervision" level or better
2. Pass the ASE Certification Test A-1.

### **AUTC 233 - Manual Drive Train and Axles**

#### *8 Credits*

Students learn manual transmission and drive train system theory, application, diagnosis and repair based on NATEF competencies through Web-based, classroom and hands-on lab instruction in a live work environment. Topics include: clutches, manual transmission/transaxles, drive shafts, constant velocity joints, differentials, and four wheel/all-wheel drive systems. Students prepare for ASE Certification test A-3.

**Prerequisite(s):** AUTC 101, AUTC 112, AUTC 117.

### **Course Outcomes**

1. Inspect and road test manual drive train and axles.
2. Diagnose and repair manual drive train and axles.
3. Inspect/diagnose four wheel/all wheel drive.

### **Aviation**

#### **AVIA 101 - Aviation Ground School - Private Pilot**

#### *5 Credits*

This 60 hour aviation pilot ground course offers

guidance and training to help pass the required FAA "written" knowledge test, the first step required toward achieving a FAA Pilot License. Also a great course for those just interested in learning more about aviation as it relates associated flight operations. 1/2 hour of Motion Simulator time is also included! (Subject to CFI availability). In addition, it provides an excellent in depth review for returning pilots. Some elements covered are generic piston aircraft systems, aerodynamics, weather, navigation, airport & airspace operations, communications and Federal Air Regulations. Upon successful completion of the course a certificate will be provided allowing the student to take the actual FAA multiple choice "written" test. Includes all books and other items such a plotter and mechanical flight computer. Off campus site classroom is located at Renton Municipal Airport, allowing direct access to aircraft, associated support items and airport operations when needed.

#### **AVIA 102 - Aviation Ground School - Instrument Rating**

#### *5 Credits*

This 54-hour course is designed for people with private pilot licenses who wish to pursue an instrument rating. It prepares students to pass the FAA Instrument Rating-Airplane knowledge test. Topics include the principles of instrument flight, including the operation, use, and limitations of flight instruments and instrument navigation systems. Students learn how the air traffic control system functions and become familiar with the Federal Air Regulations applicable to instrument flight operations. Students learn how to use the charts and procedures applicable to all phases of instrument flight. Emphasis is placed on advanced human factors concepts directly related to instrument flight. The course also emphasizes weather factors and hazards, and the associated resources available. Upon successful completion of the course, students receive an instructor's endorsement, which is required in order to take the official FAA knowledge test. The fee includes an excellent Jeppesen textbook, the complete FAA test question bank with a preparation kit, and a copy of the Federal Air Regulations and Aeronautical Information Manual book. (It does not cover the fee for taking the actual FAA test at an approved FAA Testing Center.) Off site classroom is located at the Renton Municipal Airport.

#### **Band Instrument Repair Technology**

#### **BIR 101 - Introduction to Band Instrument Repair**

#### *1 Credits*

This course introduces the new students to the field of

Band Instrument Repair. It also familiarizes them with Renton Technical College. Class discussions cover topics such as course descriptions, tool and material requirements, rules of the shop, class conduct, and the specifics of the trade.

#### **Course Outcomes**

1. Exhibit a commitment to diversity and enhanced employability through the practice of multicultural appreciation and teamwork skills.
2. Demonstrate the basic skills and attributes required of a band instrument repair technician.
3. Articulate the basic terminology used in the band instrument repair industry.
4. Utilize facilities and services available to students of Renton Technical College.
5. Produce a working copy of a professional résumé.

#### **BIR 102 - Shop Practices and Safety for Band Instrument Repair**

##### *1 Credits*

Students learn the fundamentals of shop safety and shop layout/design. Students learn the proper use and maintenance of hand and power tools. Additionally, the student learns the proper use, storage, and disposal of chemical cleaning, degreasing, and surface preparation reagents used commonly in the trade, as well as environmental consideration in the use and disposal of chemical agents.

#### **Course Outcomes**

1. Demonstrate the proper use of tools and equipment in the BIRT Labs.
2. Employ safe and responsible use and choice of chemicals used in the industry, with regard to the environment and student.
3. Demonstrate the considerations necessary for the safe, responsible use and operation of chemicals and tools as they affect others in the immediate area.
4. Recognize the proper policies and procedures to follow in the event of emergencies of various types.

#### **BIR 103 - Band Instrument Cleaning and Sanitization**

##### *2 Credits*

Students learn proper cleaning techniques on

instruments of the woodwind and brasswind families. This course includes instruction in the Texas-style flush, ultrasonic cleaning, and other techniques. Emphasis is placed on the safe storage, use and the proper disposal of chemicals used in the repair industry.

#### **Course Outcomes**

1. Demonstrate knowledge of the personal safety equipment required in the cleaning of band instruments in the BIRT cleaning facility.
2. Demonstrate knowledge of the cleaning equipment used in the BIRT cleaning facility with emphasis on personal safety and the safety of other individuals in the cleaning facility.
3. Demonstrate the use of the chemicals used in the band instrument repair industry with emphasis on safe usage, safe storage, and safe, responsible disposal.
4. Employ safe usage and set up of Ultrasonic cleaning equipment its chemicals and its applications.
5. Perform the "Texas Flush" technique of cleaning brasswind musical instruments.
6. Perform safe, responsible, Ultrasonic cleaning of band instruments.
7. Perform safe, responsible, Traditional chemical cleaning of cleaning band instruments.
8. Assemble and disassemble band instruments including, but not limited to; flute, clarinet, saxophone, trumpet, and trombone, safely, efficiently, and responsibly.
9. Discriminate the proper cleaning technique to suit the particular instrument and situation at hand, emphasis to be placed on maintaining the integrity of the finish of the instrument.

#### **BIR 104 - Soldering and Brazing Techniques**

##### *2 Credits*

Students learn the proper techniques of soft soldering and brazing woodwind and brasswind parts using acetylene and oxy-acetylene equipment. Information on the use of different types of solders and fluxes is included.

#### **BIR 115 - Dent Removal Techniques**

##### *2 Credits*

Students learn proper techniques of dent removal on brass and nickel band instruments. Instruction is

provided in the use of dent hammers, dent balls and barrels, mandrels, burnishers, and other tools of the industry. Additional instruction is provided in the use of the Votaw® pneumatic tools, Ferree's Dent Machine® and the C.G. Conn Dent Eraser®.

### **Course Outcomes**

1. Demonstrate awareness at all times of the potential for injury to themselves or others when using dent removal equipment, and should utilize the equipment in such a way as to minimize that risk.
2. Demonstrate the ability to remove dents from brasswind instruments without inflicting additional damage.
3. Properly use and maintain of all dent removal equipment.
4. Select the proper dent removal equipment to suit the task at hand.
5. Demonstrate capability in the removal of dents from bells, bodies, slides, and other various parts of brasswind instruments.

### **BIR 122 - The Percussion Instruments**

#### *1 Credits*

Students learn preventive and basic maintenance of percussion instruments including: snare and field drum; bass drum; timpani; mallet percussion; and cymbals.

### **Course Outcomes**

1. Demonstrate knowledge of the basic function of percussion instruments.
2. Demonstrate practical knowledge of component nomenclature of common percussion instruments
3. Demonstrate practical knowledge of basic maintenance and tuning of percussion instruments.

### **BIR 123 - Woodwind Padding Techniques**

#### *4 Credits*

This course introduces students to general woodwind padding, focusing on tonehole preparation, adhesive properties and pad selection techniques. Students learn specific aspects of pad materials and construction, properties of common adhesives and the techniques of basic padding of the clarinet, flute and saxophone.

### **Course Outcomes**

1. Demonstrate knowledge of the construction of woodwind pads, different styles of woodwind pads, and their proper usage and applications.
2. Evaluate the condition of tone holes on woodwind instruments and surface and/or repair them in the most efficient and responsible manner.
3. Demonstrate fitting, straightening, and aligning of woodwind keys. Also, choose the proper tools and techniques for varying issues and mechanisms.
4. Select the proper pad style, size, and thickness for various types, makes, and qualities of woodwind instruments.
5. Select and use proper pad adhesive for various applications.
6. Install correctly sized woodwind pad/pads into a properly prepared key using the proper amount of adhesive or shim in such a manner as to provide the basis to level a pad which also presents a clean appearance.
7. Produce a pad which is level to the tone hole of a woodwind instrument. A level pad shall make simultaneous contact around the entire surface of the tone hole circumference. Produce a level pad with keys and tone holes in various conditions, consistently.
8. Locate pad leaks accurately and consistently using various techniques available to check pads for leaks.

### **BIR 124 - Clarinet Family Repair Techniques**

#### *6 Credits*

This course introduces students to specific repair techniques of members of the clarinet family, focusing on padding, regulation and body repair techniques. Students learn specific aspects of repair related to instruments of the clarinet family. It also gives them the opportunity to fabricate specialized tools and learn to repair clarinet instrument cases and latches. Students learn the history and development of the clarinet. Concurrent enrollment in BIR 125, Saxophone Family Repair Techniques, also required.

### **Course Outcomes**

1. Demonstrate knowledge of the history and development of the clarinet, including the important manufacturers of the clarinet both past and present.



2. Disassemble and assemble a Bb clarinet in an expedient fashion.
3. Identify component parts of the Bb clarinet.
4. Demonstrate full understanding of the procedures of complete regulation of the Bb clarinet including the removal of unacceptable lost motion.
5. Accurately evaluate a Bb clarinet to determine the repair necessary to make the clarinet fully functional.
6. Demonstrate the ability to return a Bb clarinet to playing condition.
7. Perform a mechanical overhaul on a Bb clarinet.
8. Recognize the other members of the clarinet family including, but not limited to; Eb soprano clarinet, Eb alto clarinet, and Bb bass clarinet.

### **BIR 125 - Saxophone Family Repair Techniques**

#### *6 Credits*

This course introduces students to specific repair techniques of members of the saxophone family, focusing on padding, regulation and body repair techniques. Students learn specific aspects of repair related to instruments of the saxophone family. It also gives them the opportunity to fabricate specialized tools and learn to repair saxophone instrument cases and latches. Students learn the history and development of the saxophone. Concurrent enrollment in BIR 124, Clarinet Family Repair Techniques, and BIR 134, Woodwind Performance and Testing Techniques required.

### **BIR 126 - Flute Family Repair Techniques**

#### *6 Credits*

This course introduces students to specific repair techniques of members of the flute family, focusing on padding, regulation and body repair techniques. Students learn specific aspects of repair related to instruments of the flute family. It also gives them the opportunity to fabricate specialized tools and learn to repair flute instrument cases and latches. Students learn the history and development of the flute. Concurrent enrollment in BIR 130, Advanced Woodwind Repair Techniques, also required.

#### **Course Outcomes**

1. Exhibit a working knowledge of the history and development of the flute, including the

important manufacturers of the flute both past and present.

2. Disassemble and assemble a flute in an expedient fashion.
3. Identify and name the component parts of the flute.
4. Demonstrate full understanding of the procedures of complete regulation of the flute including the removal of all lost motion.
5. Accurately evaluate a flute to determine the repair necessary to make the flute fully functional.
6. Perform common body work on a flute to include, but not limited to; straightening bent body, fitting foot and head tenons, and removal of dents.
7. Demonstrate the ability to return a flute to playing condition.
8. Demonstrate the knowledge and ability to perform a mechanical overhaul on a flute.

### **BIR 130 - Advanced Woodwind Repair Techniques**

#### *4 Credits*

This course expands on the basics of woodwind repair through the introductions of advanced techniques including: tonehole and chimney replacement; barrel shortening, tenon rebuilding and other topics appropriate to the advanced woodwind technician. Additional techniques specific to oboe and bassoon repair are also covered in this course. Concurrent enrollment in BIR 126, Flute Family Repair Techniques, and BIR 136, Advanced Brass Repair Techniques, required.

### **BIR 134 - Woodwind Performance and Testing Techniques**

#### *1 Credits*

This course introduces students to basic playing and testing techniques on flute, clarinet, and saxophone through individual and group lessons. The emphasis of this course is proper tone production, hand position, and the development of alternate fingerings culminating in the performance of a two-octave chromatic scale on each instrument. Additionally, students learn play-testing patterns specific to each instrument.

#### **Course Outcomes**

1. Work efficiently and independently to acquire and hone the skills needed to perform the play test exercises on flute, clarinet, and saxophone.
2. Demonstrate competency on flute, clarinet, and saxophone by performing the play test exercises for the instructor.

### **BIR 135 - Piston Valve Instrument Repair Techniques**

#### *4 Credits*

This course introduces students to general brasswind repair, focusing on playing condition and overhaul techniques of small and large piston valve instruments. Students learn specific aspects of repair related to trumpets, cornets, baritones, euphoniums, tubas and Sousaphones as well as special dent removal and soldering techniques. It also gives them the opportunity to fabricate specialized brasswind tools and learn to repair brass instrument cases and latches. Students learn the history and development of the piston valve and advancements made in valve design and fitting. Concurrent enrollment in BIR 137, Rotary Valve Repair Techniques, and BIR 115, Dent Removal Techniques, also required.

#### **Course Outcomes**

1. Demonstrate understanding and knowledge of the history and development of the piston valve.
2. Demonstrate knowledge of the component nomenclature of the piston valve.
3. Demonstrate knowledge of the use and maintenance of piston valve repair tools.
4. Repair a damaged valve casing.
5. Repair a damaged valve piston.
6. Perform common repairs on piston valve instruments including, but not limited to; trumpet, cornet, euphonium, and tuba.

### **BIR 136 - Advanced Brass Repair Techniques**

#### *4 Credits*

This course expands on the basics of brass repair through additional instruction and practice covering parts fabrication and modifications to existing instruments that enhance their playability and dependability. Concurrent enrollment in BIR 130, Advanced Woodwind Repair Techniques, and BIR 138, Trombone Repair Techniques, also required.

### **BIR 137 - Rotary Valve Instrument Repair Techniques**

#### *4 Credits*

This course introduces students to advanced brasswind repair, focusing on playing condition and overhaul techniques of rotary valve instruments. Students learn specific aspects of repair related to rotary valves including rotary valve fitting and repair techniques. It also gives them the opportunity to fabricate specialized rotary valve repair tools. Students learn the history and development of the rotary valve and advancements made in valve design and fitting. Concurrent enrollment in BIR 135, Piston Valve Instrument Repair Techniques, and BIR 144, Brasswind Performance and Testing Techniques, required.

#### **Course Outcomes**

1. Demonstrate understanding and knowledge of the history and development of the rotary valve.
2. Demonstrate knowledge of the component nomenclature of the rotary valve.
3. Demonstrate knowledge of the use and maintenance of rotary valve repair tools.
4. Perform maintenance on a rotary valve including the restringing of the lever.
5. Fit a rotary valve to its bearing surfaces in order to eliminate both side and end play.
6. Perform common repairs on rotary valve instruments including, but not limited to; horn, trombone, and tuba.

### **BIR 138 - Trombone Repair Techniques**

#### *4 Credits*

This course introduces students to advanced brasswind repair, focusing on playing condition and overhaul techniques of the trombone. Students learn specific aspects of repair related to trombone handslides including general repair and overall techniques. Concurrent enrollment in BIR 136, Advanced Brass Repair Techniques, required.

### **BIR 144 - Brasswind Performance and Testing Techniques**

#### *1 Credits*

This course introduces students to basic playing and testing techniques on trumpet, trombone, and tuba through individual and group lessons. The emphasis of this course is proper tone production, hand position, and the development of a one-octave chromatic scale on each instrument. Additionally, students learn play-testing patterns specific to each instrument.

## Course Outcomes

1. Work efficiently and independently to acquire and hone the skills needed to perform the play test exercises on flute, trumpet and trombone.
2. Demonstrate competency on trumpet and trombone by performing the play test exercises for the instructor.

### **BIR 150 - Capstone Project in Band Instrument Repair**

#### *1 Credits*

This project is designed to provide the graduating student-technician with a final experience in band instrument repair. The culmination of this course includes the repair of an instrument along with comprehensive documentation of the techniques applied by the student for presentation to potential employers.

### **BIR 173 - Written and Oral Communications for Band Instrument Repair**

#### *3 Credits*

This class is an introduction to the terminology and nomenclature of the band instrument repair technician. Students practice skills through simulated interactions with clients and music educators. Students develop skills in the reading of parts diagrams and ordering of supplies.

### **BIR 185 - Human Relations for Band Instrument Repair**

#### *1 Credits*

Students learn concepts of employer-employee, employee-employee, and customer relations and negotiation skills. Also covered are interpersonal relationship skills necessary to function as a productive member of a working team. Discussions of topics relating to cultural and gender-sensitive issues relate these issues to the work place.

## Course Outcomes

1. Establish and maintain good working relationships and proper behavior in a diverse workplace environment.
2. Demonstrate the tools needed to maintain a good working relationship with a manager or employer.
3. Illustrate the complexities and sensitivities of good customer relation skills as related, but not limited to; frustrated customers, music

educators, first time band parents, and presentation of estimates.

### **BIR 188 - Employment Skills for Band Instrument Repair**

#### *1 Credits*

Students create and fully develop a résumé appropriate to the Band Instrument Repair trade. Students prepare for job interviews with simulations and bench tests. Participation in actual job searches and interviews, where appropriate, is encouraged.

### **BIR 191 - String Instrument Repair for the Band Instrument Technician**

#### *4 Credits*

This course introduces students to general string repair, focusing on those items necessary to place the instrument in playing condition. Students learn specific string related repair including: tuning methods; restringing; tuning peg and gear replacement; bridge, nut, and tailpiece repairs; soundboard repairs and refinishing.

## Course Outcomes

1. Identify all of the parts of the violin family instruments using the correct nomenclature.
2. Select and use the correct tool for string repair, and exhibit safe usage of the tools.
3. Demonstrate a set up on an existing violin sound post.
4. Construct and properly install a new violin sound post.
5. Demonstrate the knowledge and ability to properly fit a violin bridge.
6. Install tuning pegs.
7. Properly and safely remove a violin fingerboard and re-install it.

### **BIR 192 - Machining Topics for Band Instrument Repair Technology**

#### *4 Credits*

This course introduces students to equipment that is available for use in the band instrument repair industry. Safe operation of lathing and milling equipment are included as well as the application of power equipment in the field of brass and woodwind repair. Students fabricate small replacement parts for use on musical instruments.

### **Boiler Operator - Supplemental**

## **BLRS 108 - Boiler Operator Licensing Class 1 & 2**

### *8 Credits*

Students review boiler and pressure vessel construction and operation of steam and hot water heating plants and systems, including moderate size high-pressure boilers, generators, steam turbines, and other auxiliary equipment. This class prepares individuals for the more advanced first or second grade license examination with the City of Seattle and the Tacoma Steam Advisory Certification Board. Textbook required.

## **BLRS 110 - Boiler Operator Licensing Class 3 & 4**

### *8 Credits*

Students review boiler and pressure vessel construction and operation of steam and hot water heating plants and systems, including moderate size high-pressure boilers. This class is the first step in preparing individuals for a third or fourth grade license examination with the City of Seattle and the Tacoma Steam Advisory Certification Board. To qualify for license examination, eighty hours of observation time is also required. The eighty hours can be either observation on a job site or completion of BLRS 111, Boiler Operator Lab. For up-to-the-minute license exam information and changes, contact the City of Seattle or the City of Tacoma. Textbook required.

## **BLRS 111 - Boiler Operator's Lab**

### *4 Credits*

Students develop and practice operating and maintenance procedures on RTC's existing steam and hot water boilers. This course qualifies for the eighty hours of boiler observation for the City of Seattle and the Tacoma Steam Advisory Certification Board.

## **BLRS 210 - Boiler Operator Refresher Course**

### *0 Credits*

The purpose of this refresher training is to ensure the safe operation of boilers and accessories with a review of the following areas: codes and regulations, safety, operation of boilers and new technology. A Certificate of Award is issued upon successful completion of this class as proof to the City of Seattle and the Tacoma Steam Advisory Certification Board for renewal of your boiler operator's license.

## **Biology**

### **BIOL 105 - Introduction to Anatomy and Physiology**

#### *5 Credits*

This course provides students with an introduction to the basic concepts of anatomy and physiology. It includes organization, classification and control of

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anatomical structures and an introduction to the major body systems. The course covers some medical terminology and introduces some concepts from chemistry and biochemistry. This course is intended for non-science majors or entry-level allied health majors.

**General education distribution area: Natural Science, with lab.**

### **Course Outcomes**

1. Demonstrate appropriate analytical/thinking skills.
2. Demonstrate the ability to integrate concepts as demonstrated by the ability to identify similarities between different systems of the body.
3. Explain the relationship between structure and function at each level of organization of the body commencing with the cell and culminating with the total organism.
4. Identify, locate and classify various anatomical structures at the cellular, histological, organ and systemic levels of organization.
5. Describe and explain selected physiological processes at the cellular, histological, organ and systemic levels of organization.
6. Use and understand correct and appropriate anatomical and directional terminology and descriptions as well as scientific terminology in general.
7. Follow written and verbal directions.

*These will be demonstrated by small group work, homework, student participation, worksheet assignments, laboratory assignments, quizzes and exams.*

### **BIOL& 100 - Survey of Biology**

#### *5 Credits*

This laboratory science class introduces students to important concepts in biology and how they apply to problems relevant to humans and society. Students will explore core concepts including cells, genetics, and evolution and will apply the process of science through experimentation. Not intended for pre-nursing students.

**General education distribution area: Natural Science, with lab.**

### **Course Outcomes**

1. Understand, apply and summarize the steps of the scientific method.
2. Demonstrate a basic understanding of cellular processes necessary for life.
3. Explain the process of gene expression, and give an example of how genotypes lead to phenotypes.
4. Articulate arguments about current issues related to biology, and support those arguments with evidence.
5. Identify and evaluate sources of scientific information using accepted criteria.
6. Give scientific evidence for the theory of evolution and its role as the central theme of biology.
2. Describe each step of the scientific method. Practice the method by making observations and developing experiments.
3. List the four kinds of organic molecules and explain the general structure and function of each.
4. Explain the major parts of a cell and what their functions are.
5. Explain how materials move into and out of cells, across membranes.
6. Explain the first and second laws of thermodynamics and apply them to examples in the body.
7. Describe the structure of an enzyme, the importance of enzymes and explain how an enzymes functions.

### **BIOL& 160 - General Biology**

#### *5 Credits*

Students explore the basic biological principles that describe and explain the nature of life. Topics include cell biology, molecular biology (including basic biochemistry and DNA structure and function), metabolism, and genetics. Students practice skills in both the classroom and laboratory through formats such as group exercises, laboratory activities, quizzes and exams.

**General education distribution area: Natural Science, with lab.**

#### **Course Outcomes**

1. Use (follow, understand and apply) the scientific method
  - o by performing experiments to test formulated hypotheses and understanding the basic components of the design of those experiments.
  - o by solving problems with the correct use of appropriate scientific notation and equipment.
  - o by quantifying (observing, describing and measuring) various empirical phenomena.
  - o by logically reaching valid conclusions based on these data through critical analysis and interpretation.
8. Describe what cellular respiration is and why it is important.
9. Describe each of the three steps of cellular respiration in detail including the reactants, products and pathways.
10. Describe what photosynthesis is and why it is important.
11. Describe each step of photosynthesis. What are the reactants, products and pathways?
12. Compare and contrast cellular respiration and photosynthesis.
13. Describe how cell division occurs. Explain why it is important.
14. Describe the way that gametes are made, meiosis.
15. Analyze mono and di-hybrid genetic crosses, sex-linked crosses, and crosses where complete dominance, incomplete dominance and co-dominance are involved.
16. Describe how DNA copies itself (DNA replication).
17. Describe how a protein is made (transcription and translation).

### **BIOL& 241 - Human Anatomy & Physiology I**

#### *5 Credits*

This is the first of two classes designed for students who want to enter professional health care programs. It is a study of gross anatomy and functioning of the human

body. Covers body organization, cellular structure and function, fundamentals of chemistry and the physiology, structure and function of all the body systems. Lab includes microscopic tissue studies, dissection, work with ADAM software, and physiology projects related to the system studied.

**General education distribution area: Natural Science, with lab.**

**Prerequisite(s):** Completion of BIOL& 160, General Biology, with a 2.0 or higher.

### **Course Outcomes**

1. Demonstrate an ability to identify the components of the skeletal, muscular and nervous systems and describe their location in anatomical.
2. Recognize and describe the relationship between the anatomical structure of an organ and how it correlates to its
3. Observe and describe differences in tissue types to predict their role in the normal structure and functioning of an
4. Explain the principle of homeostasis and the use of feedback loops to control physiological systems, and how an inability to maintain homeostasis can lead to
5. Demonstrate an ability to identify the components of the endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary and reproductive systems and describe their location in anatomical terms.
6. Apply concepts and knowledge of terminology structure and function related to each organ system.
7. Perform basic physiological measurements and analyze the results to determine if they are within a "healthy" range or indicate an abnormality.
8. Effectively use anatomical and physiological vocabulary to communicate, written (with correct spelling) and orally, educate patients and work with colleagues in a professional environment.

### **BIOL& 242 - Human Anatomy & Physiology II**

#### *5 Credits*

This is the second of two classes designed for students

who want to enter professional health care programs. It is a study of gross anatomy and functioning of the human body. Covers body organization, cellular structure and function, fundamentals of chemistry and the physiology, structure and function of all the body systems. Lab includes microscopic tissue studies, dissection, work with ADAM software, and physiology projects related to the system studied.

**General education distribution area: Natural Science, with lab.**

**Prerequisite(s):** Completion of BIOL& 241, Anatomy & Physiology I, with a 2.0 or higher.

### **Course Outcomes**

1. Demonstrate an ability an ability to identify the components of the endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary and reproductive systems and describe their location in anatomical terms.
2. Apply concepts and knowledge of terminology structure and function related to each organ system.
3. Perform basic physiological measurements and analyze the results to determine if they are within a "healthy" range or indicate an abnormality.
4. Explain how the body systems function to maintain homeostasis and how imbalances of these systems lead to disease.
5. Effectively use anatomical and physiological vocabulary to communicate, written (with correct spelling) and orally, educate patients and work with colleagues in a professional setting.
6. Follow written and verbal directions.

*These course outcomes/competencies will be demonstrated by small group work, homework, student participation, worksheet assignments, laboratory assignments, quizzes, and exams.*

### **BIOL& 260 - Microbiology**

#### *5 Credits*

Microbiology is a comprehensive course introducing classification, structure, and function of microbes. Focus includes disease-causing bacteria, viruses, protozoa, and fungi. The role of these microorganisms in nature, environmental impact, and health applications are covered. Laboratory is an integral component, which



includes training on microscope, slide prep, aseptic technique transfer/inoculation of bacteria, and use of various media to select, isolate, and characterize organisms.

**General education distribution area: Natural Science, with lab.**

**Prerequisite(s):** Completion of BIOL& 160, General Biology, with a 2.0 or higher.

#### **Course Outcomes**

1. Use major characteristics and classification strategies to identify prokaryotic and eukaryotic organisms, and differentiate between prokaryotic and eukaryotic cell structure and function.
2. Describe a variety of microorganisms, including prokaryotes and eukaryotes, including the key processes they perform.
3. Describe the various physical, chemical growth factors, and nutritional requirements for the microbial growth.
4. Compare the life cycles and structures of different types of viruses and describe how viruses differ from eukaryotic and prokaryotic cells.
5. Describe the major metabolic pathways and process associated with microorganisms.
6. Describe the genetic information flow of microorganism processes; compare and contrast the processes that transmit genetic information between microbes.
7. Describe the organization of the immune system and distinguish between types of immune responses.
8. Know the tools of microbiology, safely prepare specimens of microorganisms, and use microscopes to visualize and identify their characteristics.
9. Demonstrate the background knowledge and practical skills to safely handle microbial cultures, make a pure culture, and use different culture media to isolate and enrich specific microbes.

#### **Business**

##### **BUS 110 - Social Media Marketing**

#### **5 Credits**

This class in social media marketing explores the growing popularity of using digital technologies to reach consumers. Topics include the four zones of social media (community, publishing, entertainment, and commerce) and the ways in which social media can be used to build brands, conduct business, support causes, rally the masses, forge and maintain relationships.

#### **Course Outcomes**

1. Integrate social media marketing techniques into a marketing plan.
2. Develop a strategic plan to take a business online.
3. Develop an online marketing plan.

##### **BUS 125 - Concept to Commercialization**

#### **5 Credits**

Students will work with assigned groups to come up with a concept, create a prototype, and present their concept for evaluation by a group of business professionals.

#### **Course Outcomes**

1. Formulate new business creation.
2. Identify steps in taking business ideas to market.
3. Apply market research to new business ideas.

##### **BUS 130 - Small Business Marketing**

#### **5 Credits**

Students learn the fundamentals of marketing, from feasibility studies to creating a marketing plan. Coursework focuses on differences between marketing for products and services, maintaining customer relationships, and principles of selling.

#### **Course Outcomes**

1. Define marketing, advertising, and the marketing mix.
2. Examine how the marketing mix is used in small businesses.
3. Analyze markets for individual businesses and summarize the information for stakeholders.
4. Develop and present marketing strategies for individual businesses.

##### **BUS 135 - Financing a Small Business**

### *5 Credits*

Where do start-ups find money? How can an entrepreneur protect personal assets while starting their business? Students explore where to find seed money and how to manage their existing funds through interactive business simulations, lectures, and other learning opportunities.

#### **Course Outcomes**

1. Define why businesses need money.
2. Identify funding options.
3. Explain the financial structures and tools for businesses.
4. Develop financial strategies for business success.

### **BUS 180 - Principles of Management**

#### *5 Credits*

This course gives students a foundation in practical supervision. Students will analyze many problems confronting supervisors that reflect our changing work environment. Practical resolutions and strategies for the way we work with/for employees and employers are emphasized.

#### **Course Outcomes**

1. Apply management principles in a business setting.
2. Demonstrate effective business planning strategies.
3. Identify staffing strategies.
4. Identify the difference between leadership and management.

### **BUS 230 - Principles of Operations Management**

#### *5 Credits*

The achievement of organizational objectives through people and other resources is the main emphasis of this course. Using a focus on quality tools along with human and technical resources combined in a way to achieve the organization's goals will be thoroughly explored.

#### **Course Outcomes**

1. Evaluate business operations.
2. Identify opportunities to improve operations.
3. Identify changes and ways to implement operations.

4. Analyze ways to measure outcomes.

### **BUS 240 - Principles of Selling and Negotiation**

#### *5 Credits*

This course offers practical approaches for creating a positive seller-buyer relationship. Topics may include effective preparation, clear decision-making processes, compromise, and customer satisfaction.

#### **Course Outcomes**

1. Employ the selling and negotiation roles in business settings.
2. Demonstrate effective planning and communication skills necessary for successful selling and negotiations.
3. Explore selling and negotiation methodologies and experiment using them.
4. Differentiate the roles played in marketing, customer relations, sales, and negotiation.
5. Demonstrate the partnerships required between marketing and sales departments for successful selling and negotiation performance.

### **BUS 270 - Human Resources Management**

#### *5 Credits*

This course covers fundamental human resources topics from start to finish: determining the need for new positions, writing effective job postings, conducting interviews, establishing compensation and benefits, training new and continuing employees, and retaining talent.

#### **Course Outcomes**

1. Define and demonstrate an understanding of fundamental business concepts.
2. Use ethics and laws in business decision making.
3. Anticipate and resolve human resource concerns.
4. Interpret the effects of economic conditions: local, national, global.
5. Apply marketing principles in organizational decision making.
6. Establish and demonstrate good customer service.

### **BUS 280 - Office Procedures**

### *5 Credits*

This is a practical up-to-date course that will prepare students for work in a wide variety of offices. Simulated experiences, combined with consultations with the many of most knowledgeable people in office employment, will reinforce student's knowledge for the next century. Be prepared for some field trips and other practical activities.

#### **Course Outcomes**

1. Describe and explain diversity consciousness.
2. Describe and explain the importance of diversity.
3. Describe the importance of social networking.
4. Describe and explain the connection between diversity, leadership and culture.
5. Identify barriers to diversity and inclusion.

### **BUS& 101 - Introduction to Business**

#### *5 Credits*

Students learn the foundations of the contemporary world of business. The free enterprise system, types of business ownership, marketing, financing, TQM and ethics and social responsibilities of business are some of the topics covered in this course.

### **BUS& 201 - Business Law**

#### *5 Credits*

This course provides an introduction to the fundamental principles of law and the American legal system including its social, political, and philosophical roots. It examines the origin, evolution, and concepts of the law and judicial system, including torts, contracts, agency, Uniform Commercial Code, Constitutional law, forms of business organizations, consumer protection and governmental regulation of business. The emphasis is on gaining a practical understanding of these topics.

#### **Course Outcomes**

1. Apply legal rules, principles and critical thinking processes to analyze a variety case studies.
2. Communicate legal conclusions in writing using clear and succinct language with proper spelling and grammar.
3. Conduct basic legal research.
4. Reason clearly and succinctly when faced with a variety of legal questions.

### **Carpenter Apprentice**

Renton Technical College

### **CARP 111 - Basics of Carpentry**

#### *3 Credits*

Safety on the worksite is the emphasis for this class - designed to be the first of 16 courses necessary for completion of the carpentry apprenticeship program. This course offers a certification in First Aid/CPR/AED and OSHA 10. There is training with basic hand & power tool usage, basic knot tying and the usage of the Construction Master Pro calculator. The apprentice will be introduced to many of the basic skills and knowledge necessary for success in today's construction industry. Expectations, challenges, and opportunities encountered by today's carpenter are anticipated and discussed. The introduction and development of safe and efficient work habits and positive character traits for the workplace also will be emphasized.

#### **Course Outcomes**

1. Identify and describe the roles and responsibilities of a carpenter apprentice.
2. Successfully complete the American Safety & Health Institute (ASHI) CPR, AED and First Aid for the Community and the Workplace certification.
3. Successfully complete OSHA 10 training program.
4. Demonstrate the ability to follow all safety protocols when using hand & power tools in the shop or on the jobsite.
5. Demonstrate the ability to tie basic knots used on the jobsite.
6. Demonstrate the ability to use the Construction Master Pro calculator to solve basic construction math equations.

### **CARP 112 - Scaffold Erector Apprentice Qualification**

#### *3 Credits*

The focus of this course is to familiarize the student with the current state and federal safety regulations for temporary work platforms - also known as scaffolding. This course will provide the student with the opportunity to demonstrate the practices & procedures for the safe and efficient construction, alteration, and/or dismantling of welded frame, mobile tower, system, and tube & clamp scaffolds. In addition to introducing the student to the requirements & regulations for fall protection and falling object protection, the course will cover scaffold planks & platforms, allowable loads for scaffolding, and

calculating contributory leg loads. At the successful conclusion of this course, the student will receive the Scaffold Erector certificate and qualification card from the UBC.

#### **Course Outcomes**

1. Identify and describe the practices & procedures for the safe use of scaffolds and materials.
2. List the criteria for supported and suspended scaffolds, and describe the differences between frame, tube & clamp, and system scaffolds.
3. State the role and responsibilities of the scaffold competent person.
4. Identify and describe the allowable loads for various types of scaffolds, and demonstrate the ability to calculate contributory leg loads.
5. Describe and demonstrate the requirements for safe access and egress to scaffolds.
6. Identify the scaffold-grade rating system and the requirements for scaffold planks & platform construction.
7. Demonstrate the ability to properly and accurately use the methods and techniques shown for planning, assembling, and dismantling the various types of scaffolds covered in this course.

#### **CARP 113 - Exterior Finish**

##### *3 Credits*

The course will familiarize students with the tools, materials, practices and procedures for the layout and installation of exterior finish materials including air and moisture barriers, window and door flashings, exterior trims, siding, soffits, fascias and installation of doors and windows.

#### **Course Outcomes**

1. Fiber Cement or wood products sidings.
2. Soffits, fascias, and exterior trim.
3. Exterior doors and windows.

#### **CARP 114 - Welding & Cutting**

##### *3 Credits*

This course will familiarize the student with the practices and procedures necessary for shielded metal arc (SMAW) and flux core arc welding (FCAW) processes being used in today's industry. Safety - both on the job

and at the training facility - is emphasized and strictly enforced in this course. Also, this course will include the basic instruction welding theory, metallurgy, and weld drawings and symbols. In addition, the safe handling, setup, operation, and maintenance of oxyacetylene cutting equipment will be presented and demonstrated. The successful completion of this course, and subsequent progression in the program, will be achieved through the student's participation and mastery of all classroom activities & written assignments, and the competency-based performance tasks completed in the welding lab.

#### **Course Outcomes**

1. Correctly assemble and adjust equipment for a given weld process.
2. Properly perform the duties of a welder in a safe and healthful manner.
3. Properly identify & describe various welding processes.
4. Select the proper process and electrode for a given task.
5. Safely assemble, use and disassemble oxy-acetylene cutting equipment.
6. Properly use a plasma-arc cutting torch.
7. Know proper handling and storage of welding equipment and consumables.

#### **CARP 121 - Equipment Orientation**

##### *3 Credits*

This course is designed to qualify the student in the operation of common types of lifts trucks and mobile, elevated work platforms used in the construction industry today. The student will learn the correct practices in fall protection and procedures for maintaining safety and productivity for such equipment. Students will achieve the objectives for this course through classroom lecture, discussion and activities, as well as hands-on inspection, maintenance and operation of this equipment.

#### **Course Outcomes**

1. Identify and document the causes and possible preventions to accidents and fatalities particular to lift trucks and mobile, elevated work platforms and falls.

2. Describe the differences of the various lift trucks and mobile, elevated work platforms based on application and design.
3. Demonstrate the ability to:
  - Safely and properly operate an industrial lift truck and rough terrain forklift.
  - Safely and properly use and inspect fall protection gear.
  - Safely and properly operate a scissor lift.
  - Safely and properly operate an aerial boom lift.

### **CARP 122 - Metal Stud Framing Basics**

#### *3 Credits*

This course is designed to familiarize the carpenter apprentice the standard practices and procedures for the procurement and installation of light-gauge metal-stud framing, standard gypsum wallboard, and basic suspended acoustical ceilings. The student will achieve the objectives for this course through active participation in class lecture and discussions, and successful demonstrations of competency-based performance tasks.

#### **Course Outcomes**

1. Correctly identify the material, tools, and fasteners used for the installation of metal framing, drywall, and acoustical ceilings.
2. Understand and describe proper techniques and methods for delivery, handling & storage of materials.
3. Demonstrate the ability to properly layout, measure, cut, and install metal framing, drywall, and acoustical ceilings.
4. Demonstrate proper layout & measuring techniques to cut & install a radius wall.
5. Demonstrate the correct industry-approved methods used for the application of drywall for radius walls, angled cuts, and multiple penetrations.

### **CARP 123 - Doors & Hardware**

#### *3 Credits*

This course will familiarize the student to the identification and installation of wood and metal doors and frames and their related hardware. Specifically,

door hinges, closers, stops, and holders shall be emphasized. The preparation and setup of exit (panic) hardware installation methods and current practices and procedures will be covered.

#### **Course Outcomes**

1. Understand prints relevant to door & hardware installation.
2. Identify door hand configurations, and door & hardware schedules.
3. Understand various finishes applied to door hardware.
4. Demonstrate proper door storage & handling techniques.
5. Install a wood door frame w/trim.
6. Install & anchor a masonry door frame and a knockdown door frame.
7. Identify various hinge types and uses.
8. Install hinges, and hang & adjust a door.
9. Identify types & uses of locksets and install same.
10. Identify & install door closers, door holders, and door stops.
11. Identify & install fire exit hardware and panic hardware.

### **CARP 124 - Introduction to Lifting & Hoisting**

#### *3 Credits*

Safety and PPE (personal protective equipment) will be one of the various topics emphasized in this course - a course designed to introduce the student to the basic systems, devices and machinery used for lifting, hoisting and rigging for the construction industry. In addition to an overview of the principles and concepts of basic machines and mechanical laws, the student will begin the process of identifying ropes, slings, hitches and knots. Sheaves, blocks, winches and drums will also be reviewed. The course will conclude with an overview of personnel & material hoists, such as boom trucks, derricks and cranes. The objectives for this course will be met through the use of instructor presentations and lecture, written assignments and tests, and hands-on tasks, activities, and projects completed in the lab.

#### **Course Outcomes**

1. Identify and list the standard safe rigging regulations and practices.

2. Identify and list standard designs, working loads, and safe practices for wire rope.
3. Identify, describe, and/or demonstrate the proper inspection, selection and application for various slings materials and designs.
4. Identify and inspect the variety of rigging hardware.
5. Understand the importance of determining the correct weight & center of gravity of an object to be lifted.
6. Identify and describe standard crane types, limitations, and applications.
7. Demonstrate the ability to safely operate a boom truck, lifting and setting a load from voice and hand signals.

### **CARP 131 - Concrete I**

#### *3 Credits*

This course is a detailed study of the many uses of concrete in the construction of buildings. Main focus of instruction will be footing forms, single-waler wall forms, patented wall form systems, column forms, beam forms, and deck forms. Projects in each area are completed in the lab.

#### **Course Outcomes**

1. Describe the properties and uses of concrete in construction.
2. Perform necessary mathematical calculations related to concrete foundations.
3. Describe how a wall footing form is constructed and complete a related team lab exercise.
4. Describe various column forms and construct a project using various types of column forms.
5. Describe how a single-waler or double-waler wall form is constructed and complete a related lab exercise.

### **CARP 132 - Printreading & Layout**

#### *3 Credits*

In addition to the introduction and familiarization of the basic components of construction working drawings, effective techniques for reading and comprehending those drawings will be introduced in this course. Basic sketching & drafting principles, applications of related math skills, and the use of elementary survey and layout tools will be demonstrated, discussed and applied in both classroom and lab settings.

#### **Course Outcomes**

1. Identify and understand the nomenclature and components of working drawings used for carpentry in construction.
2. Identify and describe the "language of blueprints", including:
  - Basic symbols and abbreviations lines used for drawings
  - Lines used for dimensioning orthographic and isometric drawings
3. Demonstrate the ability to accurately interpret plot plans, foundation plans, floor plans, elevation drawings, detail drawings, section drawings and schedules for residential and commercial structures.
4. Demonstrate the ability to properly set-up and operate elementary survey and layout equipment.
5. Perform related math computations for residential and commercial plans.

### **CARP 133 - Interior Trim & Cabinets**

#### *3 Credits*

This course will familiarize the student with the tools, materials, practices and procedures for the fabrication and installation of basic cabinets and countertops. Carpentry finish work also includes shelving, paneling and the installation of interior standing and running trim. Course content will include these topics, and several lab projects, which will be completed in these area of study.

#### **Course Outcomes**

1. Properly use the following tools and equipment in a safe and productive manner:
  - Table saw
  - Miter saw
  - Router
  - Sanding machines
  - Portable planer
  - Plate joiner
  - Pocket screws
  - Other hand-held tools
2. Identify the components of a basic cabinet.



3. Assemble and install upper and lower cabinet units and counter-tops to industry-based standards.
4. Install interior standing and running trim.
5. Cut, fit, and install plastic laminates.
6. Cut, fit and install wall panels to industry standard.
7. Become familiar with the techniques involved in wall panel installation.

### **CARP 134 - Anatomy of a Bridge**

#### *3 Credits*

This course will familiarize the student with the different types of bridges & their purpose. The student will construct a box girder bridge & a concrete girder bridge. Students work together as a team.

#### **Course Outcomes**

1. Explain pre-stressing and post-tensioning concrete.
2. Identify the major types of concrete bridges and their major design features and components.
3. List and describe the major types of concrete bridges and their major design features and components.
4. Identify safe practices for working both on land and over water.

### **CARP 141 - Wood Framing**

#### *3 Credits*

This course will familiarize the student with the basic skills and knowledge required for wood framing - specifically for residential floors, walls, and rough stair building. Topics will include, but are not limited to, the installation of: foundation posts, beams and girders; floor mudsills and joists; layout, plating, detailing, and constructing & bracing for wall framing; and finally, basic rough framing for interior wooden stairs. Projects for competencies will be completed in the lab.

#### **Course Outcomes**

1. Demonstrate the ability to properly and safely layout & frame residential:
  - Walls
  - Beams
  - Floor & ceiling joists

- Floor & wall sheathing
- Basic L-shaped stairs

2. Apply a basic working knowledge of mathematics to residential framing tasks, including stair math that can be taught and practiced without the use of calculators.

### **CARP 142 - Concrete II**

#### *3 Credits*

This course is the second of two courses covering topics in the field of concrete construction. Concrete II will emphasize: tilt-up construction, gang forms for concrete structures and form setting for concrete stairs. The objectives for this course will be achieved through classroom assignments and evaluations via lecture and class activities, and through proficiency-based projects to be completed in the lab.

#### **Course Outcomes**

1. Identify and describe the safety protocols and practices while working with tilt-up walls and concrete stairs.
2. List the common tools, materials, and equipment required for the installation of tilt-up walls and concrete stairs.
3. Demonstrate the ability to accurately layout and install basic tilt-up walls and concrete stairs.

### **CARP 143 - Advanced Printreading/Leveling Layout**

#### *3 Credits*

The objectives for this course will require the student to accurately interpret construction working drawings and to properly use common leveling instruments for the work site. Advanced drawings, specifications, addendums, material take-offs, and project schedules will be discussed. In addition, the theodolite and/or Total Station will be introduced for establishing points & grids, control lines, and the layout of angles. The objectives for this course will be attained through classroom lecture, demonstration, & activities, and through competency-based proficiency tasks completed in the lab.

#### **Course Outcomes**

1. Re-address the tools necessary to accurately convert standard and metric measurements, degrees, minutes and seconds, and architect and engineer's measurement.

2. Identify and describe the parts and functions of:
  - Builder's Level
  - Transit
  - Automatic Level
  - Laser Level
  - Theodolite
  - Total Station
3. Demonstrate the ability to accurately keep field notes on benchmarks, elevations, height of instrument, backsight, and foresight.
4. Identify and describe the correct procedures for setup, use, and maintenance for the instruments listed above (#2).
5. Identify and describe the advantages of using the Total Station over traditional layout instruments.
6. Demonstrate the ability to accurately layout angles and coordinates from given dimensions.

#### **CARP 144 - Introduction to Foreman/Supervisor Training**

##### *3 Credits*

The design of this course is to increase the awareness and understanding of the duties and responsibilities of a construction carpenter foreman. In addition to assisting the student with the transition to journeyman status and the expectations and requirements of a construction foreman, this course's objectives will be achieved through classroom lecture & discussion, group activities both in the classroom and in the lab, and by presentations from subject matter experts. Successful completion of this course will be achieved through each student's participation and the instruction's evaluation.

##### **Course Outcomes**

1. Describe and identify motives, and the power behind them.
2. Understand that poor communication results in bad performance.
3. Know the basic process and elements involved in communication.
4. Identify potential problems in the planning stage.
5. Understand the key differences between craftsmen and supervisor.

6. Know the importance of listening.
7. Understand and develop skills to overcome barriers to communication.
8. Understand cost control and the relationship between estimates and budget.

#### **CARP 369 - Mobile Elevating Work Platforms**

##### *1 Credits*

This course conforms to ANSI Standards A92.20, A92.22, A92.24. This comprehensive course is designed for both the new and experienced operators of Mobile Elevating Work Platforms (MEWP). In-depth coverage of safety issues and guidelines includes an overview of the various styles and types of MEWPs. Per ANSI Standards, the practical portion will be specific to equipment Group and Type (e.g., Group A, Type 3). Operator requirements, inspection procedures and specific limitations and capabilities of the MEWP are also discussed.

##### **Course Outcomes**

1. Demonstrate an understanding of current OSHA standards (1926.453) that apply to aerial lifts (boom lifts).
2. Demonstrate an understanding of current OSHA standards (1926.451) that apply to aerial lift platforms (scissor lifts).
3. Correctly identify the hazards associated with operating aerial equipment.
4. Operate basic maneuvers on the aerial equipment safely.
5. Demonstrate an understanding of the load limitations in all positions of the aerial equipment.

#### **INSU 111 - Basics of Carpentry**

##### *3 Credits*

Safety on the worksite is the emphasis for this class - designed to be the first of 8 courses necessary for completion of the insulation application apprenticeship program. This course offers a certification for Fall Protection. There is training with basic hand & power tool usage, basic knot tying and the usage of the Construction Master Pro calculator. The apprentice will be introduced to many of the basic skills and knowledge necessary for success in today's construction industry. Expectations, challenges, and opportunities encountered by today's carpenter are anticipated and discussed. The introduction and development of safe

and efficient work habits and positive character traits for the workplace also will be emphasized.

#### **Course Outcomes**

1. Identify and describe the roles and responsibilities of a carpenter apprentice.
2. Understand and identify the correct safety practices & procedures for working at heights.
3. Demonstrate the ability to follow all safety protocols when using hand & power tools in the shop or on the jobsite.
4. Demonstrate the ability to tie basic knots used on the jobsite.
5. Demonstrate the ability to use the Construction Master Pro calculator to solve basic construction math equations.

#### **INSU 112 - Printreading & Layout**

##### *3 Credits*

In addition to the introduction and familiarization of the basic components of construction working drawings, effective techniques for reading and comprehending those drawings will be introduced in this course. Basic sketching & drafting principles, applications of related math skills, and the use of elementary survey and layout tools will be demonstrated, discussed and applied in both classroom and lab settings.

#### **Course Outcomes**

1. Identify and understand the nomenclature and components of working drawings used for carpentry in construction.
2. Identify and describe the "language of blueprints", including:
  - o Basic symbols and abbreviations lines used for drawings.
  - o Lines used for dimensioning orthographic and isometric drawings.
3. Demonstrate the ability to accurately interpret plot plans, foundation plans, floor plans, elevation drawings, detail drawings, section drawings and schedules for residential and commercial structures.
4. Demonstrate the ability to properly set-up and operate elementary survey and layout equipment.

5. Perform related math computations for residential and commercial plans.

#### **INSU 121 - Equipment Orientation**

##### *3 Credits*

This course is designed to qualify the student in the operation of common types of lifts trucks and mobile, elevated work platforms used in the construction industry today. The student will learn the correct practices and procedures for maintaining safety and productivity for such equipment. Students will achieve the objectives for this course through classroom lecture, discussion and activities, as well as hands-on inspection, maintenance and operation of this equipment.

#### **Course Outcomes**

1. Identify and document the causes and possible preventions to accidents and fatalities particular to lift trucks and mobile, elevated work platforms.
2. Describe the differences of the various lift trucks and mobile, elevated work platforms based on application and design.
3. Demonstrate the ability to:
  - o Safely and properly operate a industrial lift truck (forklift).
  - o Safely and properly operate a rough terrain forklift.
  - o Safely and properly operate a scissor lift.
  - o Safely and properly operate an aerial boom lift.

#### **INSU 122 - Scaffold Erector Apprentice Qualification**

##### *3 Credits*

The focus of this course is to familiarize the student with the current state and federal safety regulations for temporary work platforms - also known as scaffolding. This course will provide the student with the opportunity to demonstrate the practices & procedures for the safe and efficient construction, alteration, and/or dismantling of welded frame, mobile tower, system, and tube & clamp scaffolds. In addition to introducing the student to the requirements & regulations for fall protection and falling object protection, the course will cover scaffold planks & platforms, allowable loads for scaffolding, and calculating contributory leg loads. At the successful

conclusion of this course, the student will receive the Scaffold Erector certificate and qualification card from the UBC.

### **Course Outcomes**

1. Identify and describe the practices & procedures for the safe use of scaffolds and materials.
2. List the criteria for supported and suspended scaffolds, and describe the differences between frame, tube & clamp, and system scaffolds.
3. State the role and responsibilities of the scaffold competent person.
4. Identify and describe the allowable loads for various types of scaffolds, and demonstrate the ability to calculate contributory leg loads.
5. Describe and demonstrate the requirements for safe access and egress to scaffolds.
6. Identify the scaffold-grade rating system and the requirements for scaffold planks & platform construction.
7. Demonstrate the ability to properly and accurately use the methods and techniques shown for planning, assembling, and dismantling the various types of scaffolds covered in this course.

### **INSU 131 - Drywall Basics - TI, Top-out & Fireproofing**

#### *3 Credits*

This course is designed to introduce the student to the basics of metal framing and drywall construction. In this course, the student will be familiarized with the ergonomics of handling and installing metal framing components and gypsum wallboard. Also, the student will learn safe and proper tool maintenance and usage, along with some of the techniques used to maximize productivity for tenant improvement and fire-rated assemblies. This course will also cover basic printreading and layout techniques culminating with the student completing the layout and assembly necessary for the construction of basic wall types. Course objectives will be achieved through classroom lecture, demonstration and discussion, and performance-based competency tasks conducted in the lab (shop).

### **Course Outcomes**

1. Identify and describe the various metal framing components and specify their uses and applications.

2. Identify the types of fasteners used for the installation of metal framing & drywall.
3. List various advantages and applications of light-gauge metal framing.
4. Properly use personal protective equipment (PPE) designed for metal framing & drywall installation.
5. Demonstrate the ability to accurately interpret working drawings, and to utilize these drawings to layout & prepare for the construction of basic wall types.
6. Demonstrate the ability to properly measure, cut, and assemble metal framing components with gypsum wallboard (drywall) for basic wall types.

### **INSU 132 - Advanced Printreading/Leveling Layout**

#### *3 Credits*

The objectives for this course will require the student to accurately interpret construction working drawings and to properly use common leveling instruments for the work site. Advanced drawings, specifications, addendums, material take-offs, and project schedules will be discussed. In addition, the theodolite and/or Total Station will be introduced for establishing points & grids, control lines, and the layout of angles. The objectives for this course will be attained through classroom lecture, demonstration, & activities, and through competency-based proficiency tasks completed in the lab.

### **Course Outcomes**

1. Re-address the tools necessary to accurately convert standard and metric measurements, degrees, minutes and seconds, and architect and engineer's measurement.
2. Identify and describe the parts and functions of:
  - Water Level
  - Builder's Level
  - Transit
  - Automatic Level
  - Laser Level
  - Theodolite
  - Total Station

3. Demonstrate the ability to accurately keep field notes on benchmarks, elevations, height of instrument, backsight, and foresight.
4. Identify and describe the correct procedures for setup, use, and maintenance for the instruments listed above (#2).
5. Identify and describe the advantages of using the Total Station over traditional layout instruments.
6. Demonstrate the ability to accurately layout angles and coordinates from given dimensions.

### **INSU 141 - Metal Stud Framing Basics**

#### *3 Credits*

In this course, the student will continue to build on the knowledge & skills acquired in Drywall / Framing #1 by continuing the safe and proper processes and techniques used for the construction of light-gauge metal-framed walls & ceilings - including the installation of hollow-metal door jambs, windows & relights. In addition to constructing a shaft wall, soffits, beams, columns, arches, and pilasters will be introduced utilizing lab projects to assist the student in acquiring more skills and knowledge. The course objectives will be achieved through classroom lecture, demonstration and discussion, and performance-based competency tasks conducted in the lab (shop).

#### **Course Outcomes**

1. Identify and describe the various types, handling methods, and storage requirements necessary for common drywall products used in today's industry.
2. Identify and describe the safety hazards and precautions when measuring, cutting, and installing metal framing and drywall.
3. Demonstrate the understanding & ability to correctly interpret drawings, and to plan a framing & drywall project.
4. Demonstrate the ability to properly measure & cut metal framing components and gypsum wallboard for:
  - A shaft wall
  - Soffits
  - Beams
  - Columns
  - Arches

- Pilasters

### **INSU 142 - Introduction to Foreman/Supervisor Training**

#### *3 Credits*

The design of this course is to increase the awareness and understanding of the duties and responsibilities of a construction carpenter foreman. In addition to assisting the student with the transition to journeyman status and the expectations and requirements of a construction foreman, this course's objectives will be achieved through: classroom lecture & discussion; group activities both in the classroom and in the lab; and by presentations from subject matter experts. Successful completion of this course will be achieved through each student's participation and the instruction's evaluation.

#### **Course Outcomes**

1. Describe and identify motives, and the power behind them.
2. Understand that poor communication results in bad performance.
3. Know the basic process and elements involved in communication.
4. Identify potential problems in the planning stage.
5. Understand the key differences between craftsmen and supervisor.
6. Know the importance of listening.
7. Understand and develop skills to overcome barriers to communication.
8. Understand cost control and the relationship between estimates and budget.

### **LADS 100 - Interior Systems Pre-Apprenticeship**

#### *10 Credits*

This is a three-week Interior Systems Skills Enhancement class for pre-apprentices. The curriculum is designed to give students knowledge about the Interior Systems work processes for commercial construction. Successful graduates will be granted preferred entry into the Interior Systems apprenticeship program in Kent.

#### **Course Outcomes**

1. Identify the roles and responsibilities of the interior systems apprentice.

2. Learn safe and ergonomically correct processes for material handling.
3. Layout of interior systems walls and other building components, doors, windows.
4. Identify common materials for the interior systems industry.
5. Learn how to safely erect and work on scaffolding systems and ladders.
6. Erect metal stud walls and ceilings.
7. Learn terminology for interior systems processes.
8. Apply drywall and other products to project.
9. Demonstrate the ability to follow all safety protocols for use of hand and power tools used in the interior systems industry.
10. Learn the math skills needed to perform interior systems tasks.
11. Become proficient in using the Construction Master Pro calculator.
12. Complete a course on sexual harassment and positive jobsite culture.
13. Learn construction employability skills for survival in the industry.
14. Complete a module on financial literacy for the trades.

### **LADS 111 - Interior Systems Orientation**

#### *3 Credits*

Safety on the worksite is the emphasis for this class - designed to be the first of 16 courses necessary for completion of the LADS (Lathing, Acoustical, & Drywall Systems) Apprenticeship Program. This course offers certifications & qualifications for: OSHA 10, UBC Scaffold User; First Aid/CPR/AED; and powder-actuated tool usage. In addition to basic hand & power tool usage and safety, the apprentice will be introduced to some of the basic skills and knowledge necessary for today's industry. The expectations, challenges, and opportunities encountered by today's craft apprentice are profiled and discussed. Careful attention is given to the development of efficient work habits and positive character traits leading to a successful completion of the program and career in the trade.

#### **Course Outcomes**

1. Identify and describe the roles and responsibilities of an interior systems apprentice.
2. Understand and identify the correct safety practices & procedures for working in the shop or on a construction site.
3. Demonstrate the ability to follow all safety protocols when using hand & power tools in the shop or on the jobsite.
4. Successfully complete the American Safety & Health Institute (ASHI) CPR, AED and First Aid for the Community and the Workplace certification.
5. Successfully complete UBC Scaffold User training program intended for only those that perform work on scaffolds and do not erect scaffolds, nor are considered "competent inspectors".
6. Successfully complete the Powder Actuated Tool Manufacturers' Institute, Inc. (PATMI) training, certification, and safety awareness.
7. Successfully complete OSHA 10 training program.

### **LADS 112 - Suspended GWB Ceiling with CRC-DWC**

#### *3 Credits*

This course provides instruction in the construction of suspended drywall ceiling systems framed with cold-rolled channel (CRC) and drywall channel (DWC). The student will demonstrate the correct leveling, tying and connecting methods specific to this type of ceiling, and will frame for the installation of electrical and mechanical ceiling fixtures. The proper use of PPE, and the safe & proper use of stilts and scissor-lifts will be emphasized.

#### **Course Outcomes**

1. Correctly identify and describe the various components and functions for suspended drywall ceilings framed with cold-rolled and drywall channel.
2. Identify and demonstrate proper leveling, tying and connecting methods for cold-rolled and drywall channel suspended ceilings.
3. Correctly frame the ceiling for the installation of flush mount light fixtures, HVAC and other fixtures.



4. Demonstrate the proper use of PPE, tools and equipment associated with the fabrication and installation of suspended drywall ceilings framed with cold-rolled and drywall channel.

### **LADS 113 - Soffit Framing**

#### *3 Credits*

This course is designed to familiarize the student with the application and installation of metal framed/drywall interior soffits. Information introduced in this course includes, but is not limited to: printreading for soffits; braced and unbraced soffits; eyebrow and beam soffits; light pocket and curtain wall soffits; construction of a soffit template; and curved and serpentine soffits.

Course objectives will be achieved through classroom lecture, demonstration and discussion, and competency-based tasks and projects performed in the lab.

#### **Course Outcomes**

1. Explain what an interior soffit is, and where to find the information needed to build one.
2. Identify the difference between a braced soffit and an unbraced soffit.
3. Use the information found on a print to build an unbraced soffit.
4. Construct various forms of braced soffits using information from a print.
5. Demonstrate knowledge of the important characteristics of a good template.
6. Demonstrate how to build curved and serpentine soffits.
7. Demonstrate the ability to safely and properly construct various types of soffits.

### **LADS 114 - Lathing II - Building Envelope**

#### *3 Credits*

In this course, information and demonstrations are presented on how to properly install flashing, paper & synthetic weather barriers, and plaster stops, screeds & grounds at openings and door jambs. Following these presentations and demonstrations, the student will demonstrate a satisfactory proficiency for the installation of flashings, weather barriers, stops, screeds and grounds. In addition, the student will properly apply woven wire lath (chicken wire) to the structure.

Objectives for this course will be met through classroom lecture, demonstration and discussion, and performance-based competency tasks conducted in the

lab (shop).

#### **Course Outcomes**

1. Identify and describe the different types of lath with the corresponding applications.
2. Identify lathing components and accessories and describe their uses.
3. Demonstrate an awareness of the safety hazards associated with lathing.
4. Demonstrate the ability to accurately interpret project drawings related to lathing details and specifications.
5. Demonstrate the proper use of PPE, tools, and equipment associated with the installation of flashings, weather barriers, stops, screeds, grounds, and woven wire lath.
6. Demonstrate the ability to properly install flashings, weather barriers, stops, screeds and grounds.
7. Demonstrate the ability to properly install woven wire lath to a structure.

### **LADS 121 - Equipment Orientation**

#### *3 Credits*

This course is designed to qualify the student in the operation of common types of lifts trucks and mobile, elevated work platforms used in the construction industry today. The student will learn the correct practices in fall protection and procedures for maintaining safety and productivity for such equipment. Students will achieve the objectives for this course through classroom lecture, discussion and activities, as well as hands-on inspection, maintenance and operation of this equipment.

#### **Course Outcomes**

1. Identify and document the causes and possible preventions to accidents and fatalities particular to lift trucks and mobile, elevated work platforms and falls.
2. Describe the differences of the various lift trucks and mobile, elevated work platforms based on application and design.
3. Demonstrate the ability to:
  - o Safely and properly operate an industrial lift truck and rough terrain forklift.

- Safely and properly use and inspect fall protection equipment.
- Safely and properly operate a scissor lift.
- Safely and properly operate an aerial boom lift.

### **LADS 122 - Drywall Grid Ceilings I**

#### *3 Credits*

Continuing to build on the knowledge & skills acquired earlier in the program, this course will focus on the construction of drywall ceiling grid systems. In the lab, the student will begin by constructing a large, flat ceiling from which he/she will install various soffits, drops and arched ceiling sections. In addition to demonstrating proper leveling, tying and connecting techniques, the student will frame for the installation of electrical and mechanical ceiling fixtures. The safe & proper use of stilts and scissor-lifts will be emphasized. The objectives for this course will be achieved through classroom lecture, demonstration and discussion, and performance-based competency tasks conducted in the lab (shop).

#### **Course Outcomes**

1. Correctly identify and describe the various components and functions for common drywall ceiling grid systems.
2. Identify and demonstrate proper leveling, tying and connecting methods used for drywall ceiling grid systems.
3. Accurately install several ceiling layouts and frame and hang a project that includes a draft stop, light tent, and hang a sheetrock ceiling.
4. Correctly frame the ceiling for the installation of flush mount light fixtures, HVAC and other fixtures.
5. Demonstrate the proper use of PPE, tools and equipment associated with the fabrication and installation of drywall ceiling grid systems.

### **LADS 123 - Structural Steel Stud Framing**

#### *3 Credits*

In this course, the focus will be on heavy-gauge steel framing components, and the differences between steel framing and the more familiar wood framing for residential construction. All aspects of residential load-bearing wall, floor, and roof construction are discussed. An emphasis is made on structural methods, codes &

standards, and the similarities & differences with the more familiar wood framed construction. Objectives for this course will be met through classroom lecture, demonstration and discussion, and performance-based competency tasks conducted in the lab.

#### **Course Outcomes**

1. List the jobsite hazards related to the construction of residential steel framing.
2. Demonstrate proper material handling and storage methods for residential steel framing.
3. Describe and show the safe and proper practices for the usage and maintenance of tools & equipment used for residential steel framing.
4. Identify the various fasteners & components, along with their applications, used for residential steel framing.
5. Demonstrate the ability to accurately interpret working drawings, specs and schedules to prepare and install steel framing for residential construction.
6. Demonstrate the ability to properly frame for walls, floors, and roof using steel framing.

### **LADS 124 - LADS Welding I**

#### *3 Credits*

This course covers the welding of steel studs, with the FCAW (Flux Cored Arc Welding) process. Also covered is the Oxy-Acetylene cutting process. Industry standard, videos covering safety, and equipment care, supplement the hands on shop time with the instructor.

#### **Course Outcomes**

1. Identify common welding power sources, and type of wire common to the welding of coated sheet steel.
2. Identify condition of machine.
3. Adjust machine, according to thickness of steel to be welded.
4. Use different techniques for welding various joint designs, all out of position.
5. Set up, and disassemble, oxy-fuel cutting equipment, and safely make cuts on steel plate.
6. Understand safety issues involved in the welding and cutting processes explained in this class.

## **LADS 131 - Drywall Basics - TI, Top-Out & Fireproofing**

### *3 Credits*

This course is designed to introduce the student to the basics of metal framing and drywall construction. In this course, the student will be familiarized with the ergonomics of handling and installing metal framing components and gypsum wallboard. Also, the student will learn safe and proper tool maintenance and usage, along with some of the techniques used to maximize productivity for tenant improvement and fire-rated assemblies. This course will also cover basic printreading and layout techniques culminating with the student completing the layout and assembly necessary for the construction of basic wall types. Course objectives will be achieved through classroom lecture, demonstration and discussion, and performance-based competency tasks conducted in the lab (shop).

### **Course Outcomes**

1. Identify and describe the various metal framing components and specify their uses and applications.
2. Identify the types of fasteners used for the installation of metal framing & drywall.
3. List various advantages and applications of light-gauge metal framing.
4. Properly use personal protective equipment (PPE) designed for metal framing & drywall installation.
5. Demonstrate the ability to accurately interpret working drawings, and to utilize these drawings to layout & prepare for the construction of basic wall types.
6. Demonstrate the ability to properly measure, cut, and assemble metal framing components with gypsum wallboard (drywall) for basic wall types.

## **LADS 132 - Basic Acoustical Ceilings**

### *3 Credits*

The purpose of this course is to introduce the student to the proper installation methods of suspended acoustical ceilings. Course topics will include: ceiling grid layout; stilt safety; sequence and installation methods for suspended ceiling grid; and dropping (installing) ceiling tile. In addition to the class discussions, lectures and/or demonstrations, lab projects and activities will be conducted to maximize the learning experience. The student is required to

bring the basic acoustical tools (outlined in the LADS Acoustical Apprenticeship Program Tools List). Successful completion of this course, and subsequent progression in the Program, will be attained through the student's participation and mastery of all classroom activities & written exams and competency-based performance evaluations in the lab (shop projects).

### **Course Outcomes**

1. Correctly identify common acoustical grid ceiling components and materials.
2. Demonstrate the ability to properly & safely handle and store acoustical ceiling materials.
3. Display the ability to accurately read & interpret working drawings and specifications to determine:
  - Ceiling type
  - Ceiling height
  - Location of soffits
  - Location of windows
  - Curtain pockets
  - Electrical & mechanical features in the ceiling
4. Correctly identify many of the building codes & standards related to acoustical ceilings.
5. Properly identify the names & functions of tools needed to install an acoustical ceiling.
6. Demonstrate the knowledge & skill necessary to layout a grid ceiling with equal borders.
7. Show the proper method for the layout and installation of a diagonal grid with equal borders.

## **LADS 133 - LADS Blueprint & Layout**

### *3 Credits*

This course will introduce and familiarize the student with the basic components of construction working drawings. The effective techniques for reading and comprehending drawings will be introduced in this course. Basic sketching & drafting principles, applications of related math skills, and the use of layout tools and equipment will be demonstrated, discussed and applied in both the classroom and lab settings. Course objectives will be attained through classroom lecture, demonstration and discussion, and performance-based competency tasks conducted in the

lab.

### Course Outcomes

1. Identify and understand the nomenclature and components of working drawings used for interior systems construction.
2. Identify and describe the "language of blueprints", including:
  - The basic symbols, abbreviations and lines used for drawings.
  - Lines used for dimensioning orthographic and isometric drawings.
3. Demonstrate the ability to accurately interpret plan views, elevation drawings, detail drawings, section drawings and schedules related to interior systems for residential and commercial structures.
4. Demonstrate the ability to properly set-up and utilize layout tools and equipment.
5. Demonstrate the ability to perform related math computations for layout based on residential and/or commercial drawings.

### LADS 134 - LADS Welding II

#### 3 Credits

This course covers the welding of steel studs, with the FCAW (Flux Cored Arc Welding) and SMAW (Shielded Metal Arc Welding) processes. As well as an explanation of "Light Gage steel Certification" requirements, according to the Washington Association of Building Officials. Also covered is the Oxy-Acetylene cutting process. Industry standard, videos covering safety, and equipment care, supplement the hands on shop time with the instructor.

### Course Outcomes

1. Identify common welding power sources, and type of wire and stick electrodes, common to the welding of coated sheet steel.
2. Identify condition of machine.
3. Adjust machine, according to thickness of steel to be welded.
4. Use different techniques for welding various joint designs, all out of position.
5. Set up, and disassemble, oxy-fuel cutting equipment, and safely make cuts on steel plate.

6. Understand safety issues involved in the welding and cutting processes explained in this class.

### LADS 141 - Metal Stud Framing Basics

#### 3 Credits

In this course, the student will continue to build on the knowledge & skills acquired in Drywall / Framing #1 by continuing the safe and proper processes and techniques used for the construction of light-gauge metal-framed walls & ceilings - including the installation of hollow-metal door jambs, windows & relights. In addition to constructing a shaft wall, soffits, beams, columns, arches, and pilasters will be introduced utilizing lab projects to assist the student in acquiring more skills and knowledge. The course objectives will be achieved through classroom lecture, demonstration and discussion, and performance-based competency tasks conducted in the lab (shop).

### Course Outcomes

1. Identify and describe the various types, handling methods, and storage requirements necessary for common drywall products used in today's industry.
2. Identify and describe the safety hazards and precautions when measuring, cutting, and installing metal framing and drywall.
3. Demonstrate the understanding & ability to correctly interpret drawings, and to plan a framing & drywall project.
4. Demonstrate the ability to properly measure & cut metal framing components and gypsum wallboard for:
  - A shaft wall
  - Soffits
  - Beams
  - Columns
  - Arches
  - Pilasters

### LADS 142 - Acoustical Soffits & Diagonal Ceilings

#### 3 Credits

This course is the second in the Acoustical Ceilings series, and is designed to continue on the practices and principles acquired in the first course (Basic Acoustical Ceilings). By reviewing and expanding on the topics & methods previously discussed, the student will be

offered the opportunity for better clarification and retention of the basic practices & procedures, safety awareness, and tools & materials associated with the planning and installation of common acoustical ceilings. The layout and installation of acoustical soffits and diagonal ceiling grid will be emphasized in this class. Successful course completion will be achieved through participation and accuracy in all classroom activities, written assignments & tests, and by the knowledge and skills demonstrated by the student in the lab activities.

### **Course Outcomes**

1. Correctly identify and store common acoustical grid ceiling components and materials, and demonstrate the ability to properly & safely handle and store acoustical ceiling materials.
2. Display the ability to accurately read & interpret working drawings and specifications related to acoustical ceilings.
3. Identify the basic uses of soffits, and explain how soffits are created using standard grid components.
4. Properly layout and install a symmetrical soffit using standard grid ceiling methods and materials.
5. Layout and install a diagonal grid ceiling.

### **LADS 143 - Lathing I - CBET**

#### *3 Credits*

This course is designed to introduce the student to the basic nomenclature, practices and procedures for the craft of lathing. The student will focus on the materials and methods for tying expanded metal lath to flat ceilings framed with cold-rolled channel (CRC). The student will practice properly tying hanger wire to carriers, and tying carrier channel to furring ties using 18 gauge tie wire. In addition to creating free form objects from drawings and/or pictures, the student will demonstrate the ability to mold and install various steel reinforcement components along with expanded metal lath to attain a desired form - ready for the application of cement plaster. The skills and knowledge for this course will be mastered through classroom lecture, demonstration and discussion, and performance-based competency tasks conducted in the lab (shop).

### **Course Outcomes**

1. Identify and describe the different types of lath with the corresponding applications.

2. Identify lathing components and accessories and describe their uses.
3. Describe the safety hazards associated with lathing. List solutions and precautions for each.
4. Demonstrate the ability to accurately interpret project drawings related to lathing details and specifications.
5. Demonstrate the proper use of PPE, tools, and equipment associated with the layout, fabrication, and installation of cold-rolled channel suspended ceilings.
6. Demonstrate the ability to properly tie hanger wires, connecting wires, and expanded wire lath for CRC suspended ceilings.

### **LADS 144 - Introduction to Foreman/Supervisor Training**

#### *3 Credits*

The design of this course is to increase the awareness and understanding of the duties and responsibilities of a construction carpenter foreman. In addition to assisting the student with the transition to journeyman status and the expectations and requirements of a construction foreman, this course's objectives will be achieved through: classroom lecture & discussion; group activities both in the classroom and in the lab; and by presentations from subject matter experts. Successful completion of this course will be achieved through each student's participation and the instruction's evaluation.

### **Course Outcomes**

1. Describe and identify motives, and the power behind them.
2. Understand that poor communication results in bad performance.
3. Know the basic process and elements involved in communication.
4. Identify potential problems in the planning stage.
5. Understand the key differences between craftsmen and supervisor.
6. Know the importance of listening.
7. Understand and develop skills to overcome barriers to communication.
8. Understand cost control and the relationship between estimates and budget.

## **MILL 111 - Introduction to Millwright Trade**

### *3 Credits*

Safety and an overview of the trade are the emphasis for this course - designed to be the first of 16 courses necessary to complete the millwright apprenticeship program. This course will offer an explanation of the job duties and employability skills expected of UBC millwrights and the industries in which millwrights work. Describe the personal habits, behaviors, and practices that improve safety and identify the precautions taken to help avoid accidents and injuries on the job site. Demonstrate an understanding of math calculations and formulas millwrights commonly use on the job. Explain Lockout and Tagging procedures and responsibilities. Identify and describe the hand and power tools used by millwrights and describe the safety precautions that should be taken when handling these tools. Identify the various precision tools used by millwrights and explain their proper maintenance. Name and describe various types of fasteners and other materials and describe their characteristics. Careful attention is paid to efficient work habits and positive character traits leading to a successful completion of this program and a career in the trade.

### **Course Outcomes**

1. Identify and describe the roles and responsibilities of the millwright apprentice.
2. Investigate the past, present and future of the millwright trade, discuss both union and open-shop construction and the general construction industry.
3. Understand and identify the correct safety practices & procedures for working in a shop, mill, or on a construction site as prescribed by OSHA and the UBC.
4. Demonstrate the ability of proper tool usage.
5. Identify and describe the materials used on millwright job sites.
6. Demonstrate math skills needed to perform millwright tasks.

## **MILL 112 - Mechanical Print Reading**

### *3 Credits*

This course discusses how to read a mechanical print correctly to help ensure that the projects are completed properly. It introduces the types of prints that may be encountered by a millwright. It also describes the information provided on a print and how to use the

information effectively. The course will begin with a brief overview of prints. It includes standards for preparing prints and the methods for drawing and reproducing them. A detailed explanation of the lines, symbols, and abbreviations used on mechanical prints will be covered. Including the dimensions, measurements and tolerances, the methods of expressing these measurements, and the different units of measurements found on a mechanical print. The course will also cover basic sketching techniques and procedures for using those techniques. Welding symbols will be discussed and how these symbols provide a complete description of each weld. This course will assist the millwright in the understanding of how various prints are used to ensure that an object is properly fabricated, assembled, installed, rigged, and welded together to form the finished product or structure.

### **Course Outcomes**

1. Recognize methods, basic layout, and standards used in the production of prints.
2. List and explain the information that appears on prints.
3. Understand print reading terminology, the alphabet of lines, dimensioning types and methods, symbols, views and other characteristics used on prints.
4. Demonstrate an ability to interpret information and dimensions on several print types.
5. Identify and sketch various items and use orthographic projection methods in sketching different views and surface features.

## **MILL 113 - Fabrication**

### *3 Credits*

This course will introduce the student to the skills, practices and procedures necessary for fabrication - with special emphasis on math and layout. Tools, techniques and math used for layout and fabrication are the main topics of this course. Various layout techniques and procedures will be described in detail. The proper tools for making specific layouts will be illustrated and their uses described. Identification and application for various tools such as dividers, trammels, squares, center-heads, and V-blocks will be presented. The student will be required to fabricate a welded product from given information found on UBC print # 95MW01



## Course Outcomes

1. Interpret basic shop drawing.
2. Demonstrate the ability to layout common geometric shapes and patterns.
3. Perform math calculations necessary to perform proper layout used in fabrication.
4. Layout perpendicular, parallel and intersecting lines.
5. Layout angles, triangles, circles (chords arcs) and parts.
6. Students should be familiar with common layout tools used by millwrights in the industry.
7. The student should understand that it is of utmost importance that the craftsman takes pride in accurate layout, because accuracy of assembly and alignment depends upon the accuracy of the initial layout.

## MILL 114 - Hydraulics/Pneumatics

### 3 Credits

This course is designed to prepare the millwright in understanding the fundamentals, installation and troubleshooting of hydraulic and pneumatic systems. The math skills necessary to calculate pressure, flow, area, torque and power will be covered. Safety concerns associated with high pressure systems, linear and circular motion are discussed throughout this course. Starting with a simple circuit and continuing in detail of the working components within a system will help the millwright in the skills of inspection, maintenance, repair and installation of positive displacement pumps, valves, actuators, fittings and tubing. Hydraulic fluid properties will be covered with discussions regarding fluid contamination, source contamination, filters, system flushing, fluid sampling and testing. Students will disassemble, inspect and re assemble various hydraulic pumps and compressors gaining the knowledge of following procedures and cleanliness. Hands on projects of tube bending and fitting installation will help the millwright calculate tubing runs time saving tricks and quality in craftsmanship.

## Course Outcomes

1. Understand the safety issues associated with hydraulic and pneumatic systems.
2. Explain the components in a system and there function.

3. Perform mathematical calculations related to pressure, flow and area.
4. Demonstrate the ability to disassemble inspect an repair positive displacement pumps.
5. Perform calculations for tubing runs, bend and install tubing and fitting.
6. Have an understanding of troubleshooting and reading schematics.

## MILL 121 - Machinery Installation

### 3 Credits

This course is designed to introduce the student to the general practices and procedures related to basic machinery installation common to most jobsites. Along with site management & project planning, machinery receiving, storage, and movement & placement are the main topics for this course. Competency-based performance tasks will include (but are not limited to): proper setup and use of tools; establishing & utilizing benchmarks; establishing & layout of angles; and the installation of anchors, fixators, and sub-sole plates & sole plates. Preparation, installation, preventative maintenance and machinery start-up will also be covered.

## Course Outcomes

1. Explain the purpose and tasks involved in site planning management.
2. List the requirements for receiving and inspecting machinery and materials.
3. Identify the types of tools and equipment used to layout machinery.
4. Identify sources of reference points, such as columns, piers, and plugs.
5. Locate and transfer reference points and benchmarks and layout centerlines, offset centerlines, and control lines.
6. Establish anchor placement patterns and determine the anchor hardware required for specific site installations.
7. Identify the steps for machinery installation, including pre and post job tasks.
8. Explain the steps involved in machinery pre-startup and startup.
9. Describe preventive maintenance procedures for various machine components.

## **MILL 122 - Machinery Alignment Procedures I**

### *3 Credits*

The objective of this course is to present the information required to identify, select, and perform the standard machinery alignment procedures used by Millwrights. This course (the first of three in the program) is designed to cover the safety and importance of locking and tagging out equipment, definition of alignment, effects of uncorrected alignment, coupling types and selections, pre-alignment checks, types of misalignment, alignment procedures including the elimination of soft foot, straight edge feeler gage methods and rim-face dial indicator alignment. Detailed techniques for calculating and graphing shim changes will be presented.

### **Course Outcomes**

1. Provide the correct definition of alignment and the methods of correcting the different types of misalignment.
2. Perform pre-alignment checks including safety lock out and tagging, bearing base and coupling conditions.
3. Demonstrate the ability to diagnose soft foot conditions and eliminate them.
4. Use the straight edge and feeler gage method of correcting misalignment using the mathematical formulas provided.
5. Demonstrate the ability to perform rim and face dial indicating procedures and calculate shim changes necessary to correct misalignment.
6. Use mathematical and graphical procedures to correct misalignment.

## **MILL 123 - Machine Shop**

### *3 Credits*

This course is designed to prepare the Millwright in the fundamentals of machine shop safety, tooling and setup. Tool setup and operation of engine lathes, milling machines, grinders and drill presses will be covered. Students will build a set of adjustable jack screws from a supplied drawing. The jack screw project will cover many machining operations turning, milling, drilling, reaming, tapping and threading. This course will cover machine shop mathematics for feeds, speeds, keyways, bolt hole layout and threading. Students will learn correct ways of shaping and sharpening tools and tempering and hardening steels. Print adherence, measuring and tolerances will be discussed in detail.

### **Course Outcomes**

1. Understand safety issues involved in machine shop setup and operations.
2. Perform mathematical calculations related to speeds and feeds.
3. Operate an engine lathe and milling machine.
4. Shape and sharpen tools.
5. Machine internal and external threads and correctly measure them.
6. Have an understanding of types of steels hardness and hardenability.
7. Calculate bolt patterns and keyway depths.

## **MILL 124 - Pump Repair**

### *3 Credits*

This course is designed to prepare the millwright to remove, disassemble, and reassemble centrifugal pumps. The course will start with an introduction of centrifugal pump history and part nomenclature. Compression packing and mechanical seals will be discussed, including how to remove, inspect and install them. The course will cover precision tool usage and set-up during the pump disassembly, inspection and reassembly processes. Pump performance will be covered focusing on the relationship between flow and pressure, and the causes and effects of pump cavitation. Students will learn conduct as-found checks and follow safety, removal, disassembly, and reassembly procedures.

### **Course Outcomes**

1. Explain how a centrifugal pump works and identify its components.
2. Demonstrate how to remove, inspect and install compression packing.
3. Describe how a mechanical seal and seal flushing plans work.
4. Identify different types of precision tools and their correct usage.
5. Explain how flow and pressure affect pump performance.
6. Demonstrate an ability to read and understand pump curve data sheets.
7. Understand all safety concerns involved in pump repair.

8. Perform all as-found checks, visual inspections, pump disassembly and reassembly.
9. Adhere to procedures for specific tasks.

### **MILL 131 - Introduction to Lifting & Hoisting**

#### *3 Credits*

Safety and PPE (personal protective equipment) will be one of the various topics emphasized in this course - a course designed to introduce the student to the basic systems, devices and machinery used for lifting, hoisting and rigging for the construction industry. In addition to an overview of the principles and concepts of basic machines and mechanical laws, the student will begin the process of identifying ropes, slings, hitches and knots. Sheaves, blocks, winches and drums will also be reviewed. The course will conclude with an overview of personnel & material hoists - such as boom trucks, derricks and cranes. The objectives for this course will be met through the use of instructor presentations and lecture, written assignments and tests, and hands-on tasks, activities, and projects completed in the lab.

#### **Course Outcomes**

1. Identify common rigging slings, hardware, tools, machinery and equipment used in construction lifting.
2. Identify lifting capacity and state the proper care and maintenance of boom trucks and rigging equipment.
3. Calculate weight and safely rig a load with proper equipment.
4. Direct an operator in lifting and setting a load using voice and hand signals.
5. Safely operate a boom truck, lifting and setting a load from voice and hand signals.
6. Recognize common dangers in rigging operations, state remedies and demonstrate familiarity with OSHA regulations related to rigging operations.

### **MILL 132 - Machinery Alignment Procedures II**

#### *3 Credits*

The objective of this course is to present the information required to identify, select and perform the standard machinery alignment procedures used by the Millwrights. This course will review pre-alignment inspections, soft foot analysis, rim and face dial indicating and graphical solutions discussed in Machinery Alignment Procedures I. Machinery

Alignment Procedures II will cover in detail the reverse dial alignment processes and techniques for calculating and graphing shim corrections. Thermal expansion and growth calculations and graphing will also be covered.

#### **Course Outcomes**

1. Set up and perform reverse dial alignment procedures and calculations.
2. Calculate and correct bracket sag.
3. Calculate vertical and horizontal angularity and offset shim corrections using graphical and mathematical solutions.
4. Diagnose thermal expansion and growth on various machines and calculate necessary shimming offsets using mathematical formulas and graphs.

### **MILL 133 - Power Transmission Systems**

#### *3 Credits*

This course will provide an overview of mechanical power transmission systems and identifies the industries that use them. It also explains several safety issues associated with working on, repairing, and maintaining mechanical power transmission systems. The course will define types of shafts and how there components are attached using keys and keyways. Friction and anti-friction bearings their components, characteristics, and applications are explained, as are the factors that affect bearing life. It also includes step-by-step instructions for how to safely remove, inspect, and install bearings and bushings. Various types of coupling, sprockets, chains, belts and pulleys will be discussed along with removal, installation, alignment and methods used to calculate and adjust system speeds. Gear and gearbox terminology is discussed as well as gear parts, dimensions, tests used to evaluate, inspect and rebuild gearboxes. Participants learn the installation, maintenance, removal, and lubrication requirements of all the components of mechanical power transmission systems.

#### **Course Outcomes**

1. List applications and safety precautions with regards to power transmission systems.
2. Explain the functions of shafts and identify factors affecting shaft life and performance, including class of fits.
3. Identify different types of keys and keyways.

4. Describe the types of friction and anti-friction bearings and demonstrate how to inspect, install and remove them.
5. Identify different types of couplings and the applications.
6. Identify the size and identification numbers of chain and sprockets, calculate sprocket speed, remove, install, adjust and align them using industry standard practices.
7. Explain how to select, install, and adjust pulleys and belts.
8. Describe different parts for a gear and their dimensions.
9. Demonstrate how to inspect gears, check gear clearance, remove and install gears in different types of gear boxes.

#### **MILL 134 - Advanced Welding**

##### *3 Credits*

This course is a continuation from week four, welding burning and cutting. It will start with an introduction to metallurgy studying the qualities of metals and there alloying elements, this will help welders understand how heat will effect different materials. The course will also discuss the properties of metals including hardness, ductility, brittleness, and toughness, as well as how these qualities affect the weld performance. The course will cover fabrication the process of creating a welded product from information found on drawings and procedures. Various arc welding processes and process specific safety concerns will be covered in detail, including but not limited to GTAW, GMAW, SAW, CAC, FCAW-S and FCAW-G. Certifications are required in the field so this course is designed to resemble, as closely as possible, actual weld testing, procedures and drawings that will be encountered in the field.

##### **Course Outcomes**

1. Describe metal properties and their effects on welding.
2. Describe the safety requirements and equipment set up involved with welding.
3. Interpret weld and welding symbols found on field drawings and procedures.
4. Explain different methods used to control or correct distortion encountered in fabrication.
5. Perform the correct and efficient welding techniques in various welding positions.

6. Demonstrate how to set up and weld a test coupon for a weld test.
7. Describe the components of various weld test forms WPS PQR and code specifications.

#### **MILL 141 - Welding, Cutting & Burning**

##### *3 Credits*

This workshop will provide a basic introduction to welding and cutting. The history and development of welding is presented, from the working of copper through many of the modern industrial advances of the 20th century. The hazards of welding from electricity, fumes, radiation, etc. and their appropriate safety precautions are discussed in detail. A general and very basic introduction to the science of metallurgy is also included. The major kinds of cutting processes are covered oxyfuel cutting, plasma arc cutting, and carbon arc gouging. The major kinds of welding processes are covered SMAW, FCAW, GTAW, and GMAW. The power source, equipment, electrodes, filler metals, are introduced and covered. Welder safety is emphasized thought out every chapter. Participants learn how to recognize weld symbols and how to read drawings and procedures.

##### **Course Outcomes**

1. Show a very basic understanding of the history and development of welding.
2. Demonstrate an understanding of welding hazards and the safety measures required to guard against them.
3. Discuss various power sources used with the different kinds of welding and cutting and explain why, where, and how the different power sources are used.
4. Demonstrate an understanding of the electrode classification system.
5. Properly use and set up the various power sources, electrode holders, guns, and torches appropriate to the different kinds of welding and cutting.
6. Recognize required and optional weld symbols and understand the instructions they give.

#### **MILL 142 - Machinery Alignment Procedures III**

##### *3 Credits*

The objective of this course is to present the information required to identify, select, and perform the standard machinery alignment procedures used by

Millwrights. This, the third of three courses on machinery alignment, will review Machinery Alignment Procedures I and II. Course III will cover vertical alignment, laser alignment, optical alignment, and music wire alignments. The use of electronic static micrometers, precision tilt levels, and Rotalign lasers will be incorporated. The final machinery alignment procedures test will be administered covering all three courses.

#### **Course Outcomes**

1. Perform vertical alignment using dial indicators and mathematical solutions including bolt pattern chord layout.
2. Perform precision optical instrument set up, two-peg testing, calculate HI, and calibrations.
3. Use and understand the capabilities of the current laser alignment systems being used by Millwrights in the industries.
4. Demonstrate the ability to correctly set up horizontal and vertical music wire alignment systems. Including plumb bob weight requirements, wire tying skills, electronic micrometer set up, wire sag calculation and static micrometer measurement.

#### **MILL 143 - MW Precision Optical Alignment**

##### *3 Credits*

In this course the student will learn to use precision levels and transit squares to align machinery. Standard optical alignment procedures will be presented and participants will learn how to solve specific alignment problems such as flat, straight, plumb, and square. Skill and knowledge proficiency demonstrated through completion of this course. At the end of this course the students should be familiar with the proper care and uses of precision optical instruments as well as the versatility and accuracy of this type of instrument. Students will start with the basic functions of a precision level and transit then advance to collimating, collineating, and planizing or turning a plane perpendicular to a line of sight. This course will also cover methods of calibration of the instruments.

#### **Course Outcomes**

1. Be familiar with proper terminology used when working with a Brunson Model 545 Precision Level and a Brunson Model 76 RH Transit Square.

2. Set up and level a precision 545 Level and the 76 Transit Square.
3. Use an optical micrometer to read an optical tooling scale.
4. Set equipment and machinery to proper elevation within .001.
5. Buck an instrument in between two points.
6. Perform a two peg test.
7. Demonstrate Autoreflexion. Autocollimation, Collimation, Collineation, and Planizing.
8. Have an awareness of the usefulness of using the proper optical instrument to align Machinery in an accurate and efficient manner.

#### **MILL 144 - Introduction to Foreman/Supervisor Training**

##### *3 Credits*

The goal for this course is to educate and empower the student for success in the roles of journeyman, supervisor, and apprentice mentor. Materials from the UBC's "Stepping up to Foreman" and Mark Breslin's "Survival of the Fittest" are used in conjunction with other training material to prepare apprentices for a leadership role on the jobsite.

#### **Course Outcomes**

1. Describe and identify motives, and the power behind them.
2. Understand that poor communication results in bad performance.
3. Know the basic process and elements involved in communication.
4. Identify potential problems in the planning stage.
5. Understand the key differences between craftsmen and supervisor.
6. Know the importance of listening.
7. Understand and develop skills to overcome barriers to communication.
8. Understand cost control and the relationship between estimates and budget.

#### **PILE 100 - Pile Driver Pre-Apprenticeship**

##### *10 Credits*

This is a three week Pile Driver Skills Enhancement class for pre-apprentices. The curriculum is designed to give

students knowledge about the Pile Driver work processes for commercial construction. Successful graduates will be granted preferred entry into the Pile Driver apprenticeship program in Kent.

#### **Course Outcomes**

1. Identify the roles and responsibilities of the pile driver apprentice.
2. Learn safe erection and dismantling processes for forms, framing and piles.
3. Layout of building perimeter.
4. Erect batter boards.
5. Construct footings that conform to layout.
6. Layout form walls and erect form walls.
7. Learn how to safely use a cutting torch.
8. Learn terminology for pile driving processes.
9. Construct bulkheads and block outs in proper location of walls.
10. Demonstrate the ability to follow all safety protocols for use of hand and power tools used in the pile driving industry.
11. Identify and describe the materials used on pile driver jobsites.
12. Learn the math skills needed to perform pile driver tasks.
13. Become proficient in using the Construction Master Pro calculator.
14. Complete a course on sexual harassment and positive jobsite culture.
15. Learn construction employability skills for survival in the industry.
16. Complete a module on financial literacy for the trades.

#### **PILE 111 - Introduction to the Piledriver Trade**

##### *3 Credits*

Safety and an overview of the trade are the emphasis for this course - designed to be the first of 16 necessary for the completion of the Pile Driver Apprenticeship program. The Class begins with the role each member plays in the pile driving crew. This course goes on to address those skills most valued by the employers as well as what the apprentice pile driver needs to know to function effectively as part of the crew. The tools and equipment used in pile driving are identified and

defined along with their usage and safety. The crane and rig are thoroughly described along with their workings, maintenance, and assembly. Safe working practices are emphasized along with general labor history and the history of the Pile Driver trade. This class will address all the types of pile installed either into the ground or used to create marine structures, the voice and hand signals used on the Job site are presented. The safe use and maintenance of tools and equipment are emphasized throughout.

#### **Course Outcomes**

1. Identify and describe the roles and responsibilities of the piledriver apprentice.
2. Understand the past, present and future of the piledriver trade, discuss both union and open-shop construction and the general construction industry.
3. Understand and identify the correct safety practices & procedures for working in a shop, or on a construction site as prescribed by OSHA and the UBC.
4. Demonstrate the ability to follow all safety protocols when using hand and power tools in the shop or on the job sites.
5. Identify and describe the materials used on piledriver jobsites.
6. Demonstrate math skills needed to perform piledriver tasks.

#### **PILE 112 - Introduction to Lifting & Hoisting**

##### *3 Credits*

Safety and PPE (personal protective equipment) will be one of the various topics emphasized in this course - a course designed to introduce the student to the basic systems, devices and machinery used for lifting, hoisting and rigging for the construction industry. In addition to an overview of the principles and concepts of basic machines and mechanical laws, the student will begin the process of identifying ropes, slings, hitches and knots. Sheaves, blocks, winches and drums will also be reviewed. The course will conclude with an overview of personnel & material hoists - such as boom trucks, derricks and cranes. The objectives for this course will be met through the use of instructor presentations and lecture, written assignments and tests, and hands on tasks, activities, and projects completed in the lab.

#### **Course Outcomes**



1. Identify common rigging signals, hardware, tools, machinery and equipment used in construction lifting.
2. Identify lifting capacities and state the proper care and maintenance of boom trucks, cranes and lifting equipment.
3. Calculate weight and safely rig a load with proper equipment.
4. Direct an operator in lifting and placing a load using voice and hand signals.
5. Safely operate a boom truck, lifting and placing a load using voice and hand signals.
6. Recognize common dangers in rigging operations, state remedies and demonstrate familiarity with OSHA regulations related to rigging operations.

### **PILE 113 - Post & Pre-Stressed Concrete Bridge**

#### *3 Credits*

This course will involve safety, bridge and trestle building equipment, techniques and tools used. Also in this course working on elevated structures and working over water will be covered.

#### **Course Outcomes**

1. Know safety precautions and systems necessary for bridge and trestle construction.
2. Apply construction safety concepts when working on elevated structures on construction sites.
3. Describe the different types of bridges and trestles, and the materials used to construct them.
4. Identify and describe the different parts and components of bridges and trestles and how they are constructed.
5. Demonstrate the ability to follow all safety protocols when working above water.
6. Demonstrate the ability to perform these tasks in the classroom and on the lab projects.

### **PILE 114 - Piledrivers/Operators H-Pile**

#### *3 Credits*

This class will instruct students to erect and dismantle the equipment used for driving pile. Students will also drive and extract H Pile.

#### **Course Outcomes**

1. Identify the attachments for box leads aka U leads.
2. Safely erect and break down 80' of extended fixed leads.
3. Identify attachments and working parts of the ICE I-19 Diesel hammer.
4. Identify the perform maintenance on the ICE I-19: Every 30 minutes, daily, weekly & monthly.
5. Understand the load chart for the Manitowoc 222 HD.
6. Perform load calculations and proper rigging practices.
7. Safely drive multiple H pile both plumb and batter.
8. Identify the working parts and ready the ICE 416 vibratory driver / extractor.
9. Extract and stack multiple H pile.

### **PILE 121 - Hot Work**

#### *3 Credits*

This course includes safety instruction, metallurgy, beginning welding, welding symbols, welding machines, torches, fuels vessels, and their applications. Basic welding theory and lab exercises designed to prepare students for an AWS 3-G and 4-G 3/8 inch and/or light gauge welding certification test. Also covered are arc welding, oxyacetylene cutting, plasma arc cutting, welding procedures and electrode selection. Safety on the job and in the lab will be discussed in depth.

#### **Course Outcomes**

1. List welding safety requirements in the lab and jobsite.
2. Describe the welding process including oxyacetylene work and plasma arc cutting.
3. Select the proper welding machine and electrodes for any given job.
4. Weld with an improved skill level and attention to safety regulations.
5. Perform safe and correct methods of assembly and disassembly of oxyacetylene equipment.

### **PILE 122 - Print Reading**

### *3 Credits*

This course is designed to teach the student the basics of blue print reading, basics of drafting, specifications, lines, abbreviations and interpretation of symbols used in today's prints. Also covered is the use of math skills as they relate to solving problems that may arise in the print reading process.

#### **Course Outcomes**

1. Identify types of drawings used in construction.
2. Define print terminology as applied to various plan types.
3. Understand the language of blueprints, including basic symbols, abbreviations, types of lines used on prints and dimensioning.
4. Read plot plans, foundation plans, floor plans, elevation drawings, detail drawings, section drawings and schedules.
5. Perform related math computations as they relate to the construction industry.

#### **PILE 123 - Dock Systems**

### *3 Credits*

This course is designed to familiarize the student with the equipment, materials, techniques, designs and basic engineering for the installation of caissons, coffer dams, fender systems, mooring systems, docks, wharfs, piers and off shore structures.

#### **Course Outcomes**

1. Perform the proper pre-shift inspection of the equipment and job site.
2. Identify the many different types and styles of marine systems used in the industry today.
3. Describe the fundamental differences in coffer dams, caissons and cells.
4. Identify and describe various components which may or may not be standard equipment for a given piece of machinery.
5. Describe the safety dos and don'ts when working with suspended loads in close proximity.
6. Identify and describe the safety and added precautions when working with divers, remote sites and off shore structures.

#### **PILE 124 - Piledrivers/Operators Sheet Pile**

### *3 Credits*

Students will work as a crew to drive a full sheet cell (cofferdam), around a 2 level I beam ring. Apprentices will perform the work at ground level and from heights. As well as performing hot work and cutting and welding, all within a controlled and safe environment.

#### **Course Outcomes**

1. Thread sheets.
2. Perform layout for specific size sheets.
3. Close a cell.

#### **PILE 131 - Mathematics & Beginning Layout**

### *3 Credits*

This course is designed to assist the student to increase their awareness of the importance of correct and efficient use of mathematics for the pile driving trade. The course will begin by practicing various mathematical computations using basic non-calculator methods, and will cumulate with the introduction of the Construction Master Calculator.

#### **Course Outcomes**

1. Add, Subtract, Multiply, Divide fractions, whole numbers and decimal numbers with and without the use of a calculator.
2. Figure areas volumes for square, rectangular, round and various polygons.
3. Figure angles and sides for right triangles and other polygons.
4. Layout various shapes and sizes of projects: (bracings, stairs, arcs, buildings, footings).
5. Perform related math computations as they relate to the construction industry.
6. Use the Construction Master Calculator.

#### **PILE 132 - Concrete I**

### *3 Credits*

This course is a detailed study of the many uses of concrete in the construction of buildings. Main focus of instruction will be footing forms, single-waler wall forms, patented wall form systems, column forms, beam forms, and deck forms. Projects in each area are completed in the lab.

#### **Course Outcomes**

1. Describe the properties and uses of concrete in construction.

2. Perform necessary mathematical calculations related to concrete foundations.
3. Describe how a wall footing form is constructed and complete a related team lab exercise.
4. Describe various column forms and construct a project using various types of column forms.
5. Describe how a single-waler or double-waler wall form is constructed and complete a related lab exercise.

### **PILE 133 - Piledrivers Equipment**

#### *3 Credits*

This course is designed to provide the information necessary to ensure a basic working knowledge of equipment used by pile drivers that are critical to working on many construction projects. This course begins with a thorough description of the various types of cranes their modes of travel, advantages and disadvantages. All major components of the different cranes will be discussed along with safety care and maintenance. This is followed by Cranes that are outfitted with pile driving accessories and their uses. Pile Driving rigs will be discussed along with different types of pile driving hammers their uses, advantages and disadvantages. Throughout this course the safety procedures required while working around pile driving equipment will be emphasized.

#### **Course Outcomes**

1. Identify the types and parts of cranes and their uses.
2. Understand the function of each crane part and section.
3. Identify the types and uses of pile driving rigs.
4. Understand safety procedures related to crane parts and travel.
5. Understand how accessories are used to make a crane into a pile driving rig.
6. Read and understand load charts as they pertain to the capability and limitations of the equipment covered and job site set-up safety.

### **PILE 134 - Advanced Welding**

#### *3 Credits*

This course builds from basic welding skills already mastered. The material included covers welding hazards, PPE, and safety, welding symbols, welding processes, and assembly procedures. Electrodes, fluxes,

shielding gases and their uses are also discussed. Various welding certifications are required in the field, so this Manual is designed to resemble actual field welding tests. Discussions on various forms used to indicate welding specifications, procedures and standards are included. Cutting with oxyfuel, plasma arc and air arc gouging are also covered.

#### **Course Outcomes**

1. Describe metal properties and their effects on welding.
2. Describe the safety requirements and equipment set up involved with welding.
3. Interpret weld and welding symbols found on field drawings and procedures.
4. Explain different methods used to control or correct distortion encountered in fabrication.
5. Perform the correct and efficient welding techniques in various welding positions.
6. Demonstrate how to set up and weld a test coupon for a weld test.
7. Describe the components of various weld test forms WPS PQR and code specifications.

### **PILE 141 - Marine Safety**

#### *3 Credits*

This course focuses on water borne Derrick cranes; safety is emphasized throughout this course. The course will cover the most common types of derricks used in the industry today. Major components and characteristics of each piece: inspection and safety operations of individual equipment, current rules and regulations governing derricks and equipment. Also included in this course is Seamanship.

#### **Course Outcomes**

1. Have an understanding of the most current rules and regulations pertaining to the equipment.
2. Know safety involving fuel systems, electrical, hydraulic, power and drive systems.
3. Perform the proper pre-shift inspection of the equipment and job site.
4. Read and understand load charts as they pertain to the capacity and limitations of the equipment covered and job site set-up safety.

5. Identify and describe various components which may or may not be standard equipment for a given piece of machinery.

#### **PILE 142 - Equipment Orientation**

##### *3 Credits*

This course is designed to qualify the student in the operation of common types of lifts trucks and mobile, elevated work platforms used in the construction industry today. The student will learn the correct practices and procedures for maintaining safety and productivity for such equipment. Students will achieve the objectives for this course through classroom lecture, discussion and activities, as well as hands-on inspection, maintenance and operation of this equipment.

#### **Course Outcomes**

1. Identify and document the causes and possible preventions to accidents and fatalities particular to lift trucks and mobile, elevated work platforms.
2. Describe the differences of the various lift trucks and mobile, elevated work platforms based on application and design.
3. Demonstrate the ability to:
  - o Safely and properly operate a industrial lift truck (forklift).
  - o Safely and properly operate a rough terrain forklift.
  - o Safely and properly operate a scissor lift.
  - o Safely and properly operate an aerial boom lift.

#### **PILE 143 - Layout**

##### *3 Credits*

This course builds on week six with a continuation on interpreting the blueprint and transferring them on to the project site. It covers the use of elementary survey and layout tools including the auto-level, laser, transit-level and total station.

#### **Course Outcomes**

1. Identify and care of basic survey equipment.
2. Proper set up and verification procedures.
3. Use and perform related math computations essential for residential and commercial plots

and plans as they relate to the construction industry.

4. Identify the use and importance of bench marks and datum points.
5. Demonstrate the ability to follow all safety protocols when using laser pointers and related equipment.
6. Perform written and lab assignments on layout of predetermined shapes and sizes using various types of survey equipment.

#### **PILE 144 - Introduction to Foreman/Supervisor Training**

##### *3 Credits*

The design of this course is to increase the awareness and understanding of the duties and responsibilities of a construction carpenter foreman. In addition to assisting the student with the transition to journeyman status and the expectations and requirements of a construction foreman, this course's objectives will be achieved through: classroom lecture & discussion; group activities both in the classroom and in the lab; and by presentations from subject matter experts. Successful completion of this course will be achieved through each student's participation and the instruction's evaluation.

#### **Course Outcomes**

1. Describe and identify motives, and the power behind them.
2. Understand that poor communication results in bad performance.
3. Know the basic process and elements involved in communication.
4. Identify potential problems in the planning stage.
5. Understand the key differences between craftsmen and supervisor.
6. Know the importance of listening.
7. Understand and develop skills to overcome barriers to communication.
8. Understand cost control and the relationship between estimates and budget.

#### **SHIP 111 - Basics of Carpentry**

##### *3 Credits*

Safety on the worksite is the emphasis for this class - designed to be the first of 16 courses necessary for

completion of the carpentry apprenticeship program. This course offers a certification for Fall Protection. There is training with basic hand & power tool usage, basic knot tying and the usage of the Construction Master Pro calculator. The apprentice will be introduced to many of the basic skills and knowledge necessary for success in today's construction industry. Expectations, challenges, and opportunities encountered by today's carpenter are anticipated and discussed. The introduction and development of safe and efficient work habits and positive character traits for the workplace also will be emphasized.

### **Course Outcomes**

1. Identify and describe the roles and responsibilities of a carpenter apprentice.
2. Understand and identify the correct safety practices & procedures for working at heights.
3. Demonstrate the ability to follow all safety protocols when using hand & power tools in the shop or on the jobsite.
4. Demonstrate the ability to tie basic knots used on the jobsite.
5. Demonstrate the ability to use the Construction Master Pro calculator to solve basic construction math equations.

### **SHIP 112 - Scaffold Erector Apprentice Qualification**

#### *3 Credits*

The focus of this course is to familiarize the student with the current state and federal safety regulations for temporary work platforms - also known as scaffolding. This course will provide the student with the opportunity to demonstrate the practices & procedures for the safe and efficient construction, alteration, and/or dismantling of welded frame, mobile tower, system, and tube & clamp scaffolds. In addition to introducing the student to the requirements & regulations for fall protection and falling object protection, the course will cover scaffold planks & platforms, allowable loads for scaffolding, and calculating contributory leg loads. At the successful conclusion of this course, the student will receive the Scaffold Erector certificate and qualification card from the UBC.

### **Course Outcomes**

1. Identify and describe the practices & procedures for the safe use of scaffolds and materials.
2. List the criteria for supported and suspended scaffolds, and describe the differences between frame, tube & clamp, and system scaffolds.
3. State the role and responsibilities of the scaffold competent person.
4. Identify and describe the allowable loads for various types of scaffolds, and demonstrate the ability to calculate contributory leg loads.
5. Describe and demonstrate the requirements for safe access and egress to scaffolds.
6. Identify the scaffold-grade rating system and the requirements for scaffold planks & platform construction.
7. Demonstrate the ability to properly and accurately use the methods and techniques shown for planning, assembling, and dismantling the various types of scaffolds covered in this course.

### **SHIP 113 - Exterior Finish**

#### *3 Credits*

This course will familiarize the student with the tools and materials, and practices and procedures for the installation of exterior finish materials such as: exterior trim; wall siding; exterior soffits and eaves; roof fascias and trim; roofing and decks; and exterior doors and windows. When feasible, lab projects will be completed in each area of study.

### **Course Outcomes**

1. Be able to properly and safely install:
  - Fiberglass roof shingles, shakes and hand splits
  - Vinyl or wood products sidings
  - Soffits, fascias, and exterior trim
  - Exterior doors and windows
  - Exterior wood decks

### **SHIP 114 - Welding & Cutting**

#### *3 Credits*

This course will familiarize the student with the practices and procedures necessary for shielded metal arc (SMAW) and flux core arc welding (FCAW) processes being used in today's industry. Safety - both on the job

and at the training facility - is emphasized and strictly enforced in this course. Also, this course will include the basic instruction welding theory, metallurgy, and weld drawings and symbols. In addition, the safe handling, setup, operation, and maintenance of oxyacetylene cutting equipment will be presented and demonstrated. As usual, the successful completion of this course, and subsequent progression in the Program, will be achieved through the student's participation and mastery of all classroom activities & written assignments, and the competency-based performance tasks completed in the welding lab.

### **Course Outcomes**

1. Correctly assemble and adjust equipment for a given weld process.
2. Properly perform the duties of a welder in a safe and healthful manor.
3. Properly identify & describe various welding processes.
4. Select the proper process and electrode for a given task.
5. Safely assemble, use and disassemble oxy-acetylene cutting equipment.
6. Properly use a plasma-arc cutting torch.
7. Know proper handling and storage of welding equipment and consumables.

### **SHIP 121 - Equipment Orientation**

#### *3 Credits*

This course is designed to qualify the student in the operation of common types of lift trucks and mobile, elevated work platforms used in the construction industry today. The student will learn the correct practices and procedures for maintaining safety and productivity for such equipment. Students will achieve the objectives for this course through classroom lecture, discussion and activities, as well as hands-on inspection, maintenance and operation of this equipment.

### **Course Outcomes**

1. Identify and document the causes and possible preventions to accidents and fatalities particular to lift trucks and mobile, elevated work platforms.

2. Describe the differences of the various lift trucks and mobile, elevated work platforms based on application and design.
3. Demonstrate the ability to:
  - o Safely and properly operate a industrial lift truck (forklift).
  - o Safely and properly operate a rough terrain forklift.
  - o Safely and properly operate a scissor lift.
  - o Safely and properly operate an aerial boom lift.

### **SHIP 122 - Metal Stud Framing Basics**

#### *3 Credits*

This course is designed to familiarize the carpenter apprentice the standard practices and procedures for the procurement and installation of light-gauge metal-stud framing, standard gypsum wallboard, and basic suspended acoustical ceilings. The student will achieve the objectives for this course through active participation in class lecture and discussions, and successful demonstrations of competency-based performance tasks.

### **Course Outcomes**

1. Correctly identify the material, tools, and fasteners used for the installation of metal framing, drywall, and acoustical ceilings.
2. Understand and describe proper techniques and methods for delivery, handling & storage of materials.
3. Demonstrate the ability to properly layout, measure, cut, and install metal framing, drywall, and acoustical ceilings.
4. Demonstrate proper layout & measuring techniques to cut & install a radius wall.
5. Demonstrate the correct industry-approved methods used for the application of drywall for radius walls, angled cuts, and multiple penetrations.

### **SHIP 123 - Doors & Hardware**

#### *3 Credits*

This course will familiarize the student to the identification and installation of wood and metal doors and frames and their related hardware. Specifically, door hinges, closers, stops, and holders shall be



emphasized. The preparation and setup of exit (panic) hardware Installation methods and current practices and procedures will be covered. All projects for this course shall be completed in the lab.

#### **Course Outcomes**

1. Understand prints relevant to door & hardware installation.
2. Identify door hand configurations, and door & hardware schedules.
3. Understand various finishes applied to door hardware.
4. Demonstrate proper door storage & handling techniques.
5. Install a wood door frame w/trim.
6. Install & anchor a masonry door frame and a knockdown door frame.
7. Identify various hinge types and uses.
8. Install hinges, and hang & adjust a door.
9. Identify types & uses of locksets and install same.
10. Identify & install door closers, door holders, and door stops.
11. Identify & install fire exit hardware and panic hardware.

#### **SHIP 124 - Introduction to Lifting & Hoisting**

##### *3 Credits*

Safety and PPE (personal protective equipment) will be one of the various topics emphasized in this course - a course designed to introduce the student to the basic systems, devices and machinery used for lifting, hoisting and rigging for the construction industry. In addition to an overview of the principles and concepts of basic machines and mechanical laws, the student will begin the process of identifying ropes, slings, hitches and knots. Sheaves, blocks, winches and drums will also be reviewed. The course will conclude with an overview of personnel & material hoists - such as boom trucks, derricks and cranes. The objectives for this course will be met through the use of instructor presentations and lecture, written assignments and tests, and hands-on tasks, activities, and projects completed in the lab.

#### **Course Outcomes**

1. Identify and list the standard safe rigging regulations and practices.

2. Identify and list standard designs, working loads, and safe practices for wire rope.
3. Identify, describe, and/or demonstrate the proper inspection, selection and application for various slings materials and designs.
4. Identify and inspect the variety of rigging hardware.
5. Understand the importance of determining the correct weight & center of gravity of an object to be lifted.
6. Identify and describe standard crane types, limitations, and applications.
7. Demonstrate the ability to safely operate a boom truck, lifting and setting a load from voice and hand signals.

#### **SHIP 131 - Concrete I**

##### *3 Credits*

This course is a detailed study of the many uses of concrete in the construction of buildings. Main focus of instruction will be footing forms, single-waler wall forms, patented wall form systems, column forms, beam forms, and deck forms. Projects in each area are completed in the lab.

#### **Course Outcomes**

1. Describe the properties and uses of concrete in construction.
2. Perform necessary mathematical calculations related to concrete foundations.
3. Describe how a wall footing form is constructed and complete a related team lab exercise.
4. Describe various column forms and construct a project using various types of column forms.
5. Describe how a single-waler or double-waler wall form is constructed and complete a related lab exercise.

#### **SHIP 132 - Printreading & Layout**

##### *3 Credits*

In addition to the introduction and familiarization of the basic components of construction working drawings, effective techniques for reading and comprehending those drawings will be introduced in this course. Basic sketching & drafting principles, applications of related math skills, and the use of elementary survey and layout tools will be demonstrated, discussed and applied in both classroom and lab settings.

### Course Outcomes

1. Identify and understand the nomenclature and components of working drawings used for carpentry in construction.
2. Identify and describe the "language of blueprints", including:
  - Basic symbols and abbreviations lines used for drawings.
  - Lines used for dimensioning orthographic and isometric drawings.
3. Demonstrate the ability to accurately interpret plot plans, foundation plans, floor plans, elevation drawings, detail drawings, section drawings and schedules for residential and commercial structures.
4. Demonstrate the ability to properly set-up and operate elementary survey and layout equipment.
5. Perform related math computations for residential and commercial plans.

### SHIP 133 - Interior Trim & Cabinets

#### 3 Credits

This course will familiarize the student with the tools and materials, and practices and procedures for the fabrication and installation of basic cabinets and countertops. Carpentry finish work also includes shelving and paneling, in addition to interior standing and running trim. Course content will include these topics, and several lab projects will be completed in this area of study.

### Course Outcomes

1. Properly use the following tools and equipment in a safe and productive manner:
  - Table saw
  - Miter saw
  - Band saw
  - Jointer
  - Router
  - Sanding machines
  - Thickness planer
  - Portable planer
  - Plate joiner

- Dowel jigs
- Pocket screws
- Other hand-held tools

2. Identify the components of a basic cabinet.
3. Assemble and install upper and lower cabinet units and counter-tops to industry-based standards. Install and adjust various drawer guides, door hardware, and shelving associated with cabinet installation
4. Install interior standing and running trim.
5. Cut, fit, and install plastic laminates.
6. Cut, fit and install both adjustable and permanent shelves.
7. Become familiar with the techniques involved in wall panel installation.

### SHIP 134 - Anatomy of a Bridge

#### 3 Credits

This course will familiarize the student with the different types of bridges & their purpose. The student will construct a box girder bridge & a concrete girder bridge. Students work together as a team.

### Course Outcomes

1. Explain pre-stressing and post-tensioning concrete.
2. Identify the major types of concrete bridges and their major design features and components.
3. List and describe the major types of concrete bridges and their major design features and components.
4. Identify safe practices for working both on land and over water.

### SHIP 141 - Wood Framing

#### 3 Credits

This course will familiarize the student with the basic skills and knowledge required for wood framing - specifically for residential floors, walls, and rough stair building. Topics will include, but are not limited to, the installation of: foundation posts, beams and girders; floor mudsills and joists; layout, plating, detailing, and constructing & bracing for wall framing; and finally, basic rough framing for interior wooden stairs. Projects for competencies will be completed in the lab.

### Course Outcomes

1. Demonstrate the ability to properly and safely layout & frame residential:
  - Walls
  - Beams
  - Floor & ceiling joists
  - Floor & wall sheathing
  - Basic L-shaped stairs
2. Apply a basic working knowledge of mathematics to residential framing tasks, including stair math that can be taught and practiced without the use of calculators.

### **SHIP 142 - Concrete II**

#### *3 Credits*

This course is the second of two courses covering topics in the field of concrete construction. Concrete II will emphasize: tilt-up construction; gang forms for concrete structures and formsetting for concrete stairs. The objectives for this course will be achieved through classroom assignments and evaluations via lecture and class activities, and through proficiency-based projects to be completed in the lab.

#### **Course Outcomes**

1. Identify and describe the safety protocols and practices while working with tilt-up walls and concrete stairs.
2. List the common tools, materials, and equipment required for the installation of tilt-up walls and concrete stairs.
3. Demonstrate the ability to accurately layout and install basic tilt-up walls and concrete stairs.

### **SHIP 143 - Advanced Printreading/Leveling Layout**

#### *3 Credits*

The objectives for this course will require the student to accurately interpret construction working drawings and to properly use common leveling instruments for the work site. Advanced drawings, specifications, addendums, material take-offs, and project schedules will be discussed. In addition, the theodolite and/or Total Station will be introduced for establishing points & grids, control lines, and the layout of angles. The objectives for this course will be attained through classroom lecture, demonstration, & activities, and through competency-based proficiency tasks completed in the lab.

#### **Course Outcomes**

1. Re-address the tools necessary to accurately convert standard and metric measurements, degrees, minutes and seconds, and architect and engineer's measurement.
2. Identify and describe the parts and functions of:
  - Water Level
  - Builder's Level
  - Transit
  - Automatic Level
  - Laser Level
  - Theodolite
  - Total Station
3. Demonstrate the ability to accurately keep field notes on benchmarks, elevations, height of instrument, backsight, and foresight.
4. Identify and describe the correct procedures for setup, use, and maintenance for the instruments listed above (#2).
5. Identify and describe the advantages of using the Total Station over traditional layout instruments.
6. Demonstrate the ability to accurately layout angles and coordinates from given dimensions.

### **SHIP 144 - Introduction to Foreman/Supervisor Training**

#### *3 Credits*

The design of this course is to increase the awareness and understanding of the duties and responsibilities of a construction carpenter foreman. In addition to assisting the student with the transition to journeyman status and the expectations and requirements of a construction foreman, this course's objectives will be achieved through: classroom lecture & discussion; group activities both in the classroom and in the lab; and by presentations from subject matter experts. Successful completion of this course will be achieved through each student's participation and the instruction's evaluation.

#### **Course Outcomes**

1. Describe and identify motives, and the power behind them.

2. Understand that poor communication results in bad performance.
3. Know the basic process and elements involved in communication.
4. Identify potential problems in the planning stage.
5. Understand the key differences between craftsmen and supervisor.
6. Know the importance of listening.
7. Understand and develop skills to overcome barriers to communication.
8. Understand cost control and the relationship between estimates and budget.

### **TAPE 111 - Interior Systems Orientation**

#### *3 Credits*

Safety on the worksite is the emphasis for this class - designed to be the first of 12 courses necessary for completion of the tapers apprenticeship program. This course offers certifications & qualifications for: UBC Scaffold User; First Aid/CPR/AED; and powder-actuated tool usage. In addition to basic hand & power tool usage and safety, the apprentice will be introduced to some of the basic skills and knowledge necessary for today's industry. The expectations, challenges, and opportunities encountered by today's craft apprentice are profiled and discussed. Careful attention is given to the development of efficient work habits and positive character traits leading to a successful completion of the program and career in the trade.

#### **Course Outcomes**

1. Identify and describe the roles and responsibilities of an interior systems apprentice.
2. Understand and identify the correct safety practices & procedures for working in the shop or on a construction site.
3. Demonstrate the ability to follow all safety protocols when using hand & power tools in the shop or on the jobsite.
4. Successfully complete the American Safety & Health Institute (ASHI) CPR, AED and First Aid for the Community and the Workplace certification.
5. Successfully complete UBC Scaffold User training program intended for only those that

perform work on scaffolds and do not erect scaffolds, nor are considered "competent inspectors".

6. Successfully complete the Powder Actuated Tool Manufacturers' Institute, Inc. (PATMI) training, certification, and safety awareness.

### **TAPE 112 - Equipment Orientation**

#### *3 Credits*

This course is designed to qualify the student in the operation of common types of lifts trucks and mobile, elevated work platforms used in the construction industry today. The student will learn the correct practices and procedures for maintaining safety and productivity for such equipment. Students will achieve the objectives for this course through classroom lecture, discussion and activities, as well as hands-on inspection, maintenance and operation of this equipment.

#### **Course Outcomes**

1. Identify and document the causes and possible preventions to accidents and fatalities particular to lift trucks and mobile, elevated work platforms.
2. Describe the differences of the various lift trucks and mobile, elevated work platforms based on application and design.
3. Demonstrate the ability to:
  - Safely and properly operate a industrial lift truck (forklift).
  - Safely and properly operate a rough terrain forklift.
  - Safely and properly operate a scissor lift.
  - Safely and properly operate an aerial boom lift.

### **TAPE 113 - Drywall Basics - TI, Top-out & Fireproofing**

#### *3 Credits*

This course is designed to introduce the student to the basics of metal framing and drywall construction. In this course, the student will be familiarized with the ergonomics of handling and installing metal framing components and gypsum wallboard. Also, the student will learn safe and proper tool maintenance and usage, along with some of the techniques used to maximize productivity for tenant improvement and fire-rated assemblies. This course will also cover basic

printreading and layout techniques culminating with the student completing the layout and assembly necessary for the construction of basic wall types. Course objectives will be achieved through classroom lecture, demonstration and discussion, and performance-based competency tasks conducted in the lab (shop).

### **Course Outcomes**

1. Identify and describe the various metal framing components and specify their uses and applications.
2. Identify the types of fasteners used for the installation of metal framing & drywall.
3. List various advantages and applications of light-gauge metal framing.
4. Properly use personal protective equipment (PPE) designed for metal framing & drywall installation.
5. Demonstrate the ability to accurately interpret working drawings, and to utilize these drawings to layout & prepare for the construction of basic wall types.
6. Demonstrate the ability to properly measure, cut, and assemble metal framing components with gypsum wallboard (drywall) for basic wall types.

### **TAPE 121 - Basic Tools & Materials**

#### *3 Credits*

This course provides an introduction to the basic tools and materials for drywall finishing. Apprentices will learn terminology, materials, application, finish levels and tools needed for hand and mechanical taping, joint compound, and sanding. The course is also designed to familiarize apprentices with various materials used in the interior finishing industry. Industry best practices for storage, handling, masking, tenting and protection of surrounding areas, preparation for joints, corners and trims will also be covered.

### **Course Outcomes**

1. Identify drywall finishing hand tools and mechanical tools and their uses.
2. Identify industry safety standards, precautions and personal protective equipment used when working with drywall finishing tools and materials.

3. Identify the materials used in drywall finishing and state the purpose and use of each type of material, including:
  - Compounds
  - Joint reinforcing tapes
  - Trim material
  - Textures and coatings
4. Explain the various types of compounds and their uses in drywall finishing applications. Compounds include but are not limited to:
  - Regular (Type R)
  - Fire Rated (Type X)
  - Fiber Board
5. Demonstrate knowledge and understanding of drywall finishing techniques, including pre-filling, spotting, coating and patching.
6. Recognize the different levels of finish and describe the characteristics of each.
7. List the advantages and disadvantages of hand and mechanical tools.
8. Properly assess wall conditions prior the application process.
9. "Walk the Walls"- Systematically review work through a sequence of operation.
10. Demonstrate safe work ergonomics.
11. Successfully pass a hands-on evaluation at the end of the course.

### **TAPE 122 - Advanced Hand Finishing**

#### *3 Credits*

This course focuses on advanced methods and applications using hand tools for drywall. The proper sequence of operation, phases and materials to be used in order to produce a higher level finishes to industry standards will be emphasized. Curved and radius wall characteristics for finish levels will be discussed as well as advanced wall frame components, materials, surface preparation and application methods.

### **Course Outcomes**

1. Demonstrate the use and knowledge of advanced hand tool techniques.
2. Demonstrate the use of advanced worksite preparation.

3. Demonstrate proper use of hand tools.
4. Demonstrate the use and knowledge of different taping compounds and when to use them.
5. List and describe the six recommended levels of drywall finish and explain circumstances when each level should be used.
6. Properly assess wall conditions prior to the application process.
7. "Walk the Walls"- Systematically review work through a sequence of operation.
8. Produce quality of work to a Level 4 Finish as described by the Northwest Wall and Ceiling Bureau.
9. Demonstrate safe work ergonomics.
10. Successfully pass a hands-on examination with machine tools at the end of the course.

#### **TAPE 123 - Metal Stud Framing Basics**

##### *3 Credits*

In this course, the student will continue to build on the knowledge & skills acquired in Drywall / Framing #1 by continuing the safe and proper processes and techniques used for the construction of light-gauge metal-framed walls & ceilings - including the installation of hollow-metal door jambs, windows & relights. In addition to constructing a shaft wall, soffits, beams, columns, arches, and pilasters will be introduced utilizing lab projects to assist the student in acquiring more skills and knowledge. The course objectives will be achieved through classroom lecture, demonstration and discussion, and performance-based competency tasks conducted in the lab (shop).

##### **Course Outcomes**

1. Identify and describe the various types, handling methods, and storage requirements necessary for common drywall products used in today's industry.
2. Identify and describe the safety hazards and precautions when measuring, cutting, and installing metal framing and drywall.
3. Demonstrate the understanding & ability to correctly interpret drawings, and to plan a framing & drywall project.

4. Demonstrate the ability to properly measure & cut metal framing components and gypsum wallboard for:
  - A shaft wall
  - Soffits
  - Beams
  - Columns
  - Arches
  - Pilasters

#### **TAPE 131 - Basic Hand Finishing & Patchwork**

##### *3 Credits*

This course develops basic hand finishing skills using the correct tools and materials. Training will include a description of finishing levels, hand tool manipulation, reinforce material identification, selection, mixture preparation and a variety of patchwork techniques. Key processes and application techniques will be presented and apprentices will have chance to practice skills.

##### **Course Outcomes**

1. Identify appropriate drywall hand finishing tools (i.e.,)
  - Knives and mud pans
  - Trowels and hawks
  - Joint tape dispensers
  - Joint compound mixing tools
  - Joint compound rollers
2. Demonstrate the knowledge and use of proper hand finishing tools.
3. Properly assess wall conditions prior the application process.
4. "Walk the Walls"- Systematically review work through a sequence of operation.
5. Set up appropriate mixing area.
6. Demonstrate proper consistency of taping compound mixture.
7. Demonstrate the knowledge and use of the basic steps of wall preparation, hand taping and wiping procedures.
8. Demonstrate common patchwork procedures.



9. Identify proper trim and bead installation procedures when using joint compound, spray, adhesive and fasteners.
10. Recognize various types of problems that occur in drywall finishes; identify the causes and correct methods for problem solving each method.
11. Demonstrate safe work ergonomics.
12. Successfully pass a hands-on evaluation at the end of the course.

### **TAPE 132 - Advanced Machine Finishing**

#### *3 Credits*

This course will advance the methods, applications and sequences of the bazooka, skim boxes, nail spotters, angle boxes and ergonomics. Apprentices will be required to demonstrate the ability to tape in different situations and the ability to coat all field and butt joints. The levels of finishing and the various finish trims will be reviewed and the work production of the apprentices will be a higher level of standard compared to the Basic Machine and Patchwork course taken earlier on in the apprenticeship. The operation of automatic taping and finishing machine tools including those newly introduced to the industry will also be covered.

#### **Course Outcomes**

1. Demonstrate the use and knowledge of advanced machine tool techniques.
2. Demonstrate the use of advanced worksite preparation.
3. Demonstrate ability to tape in a variety of situations and the ability to coat all field and butt joints.
4. Demonstrate ability to advance at a faster pace.
5. Properly assess wall conditions prior the application process.
6. "Walk the Walls"- Systematically review work through a sequence of operation.
7. Produce quality of work to a Level 4 Finish as described by the Northwest Wall and Ceiling Bureau.
8. Demonstrate safe work ergonomics.
9. Successfully pass a hands-on examination with machine tools at the end of the course.

#### *3 Credits*

This course provides advanced hand and automatic tool techniques used to apply special surface textures and Level 5 Finishing. A Level 5 Finish is the highest degree of quality in drywall finishing. It requires all the operations of a Level 4 Finish with the addition of a skim coat of joint compound applied to cover the entire wall or ceiling area to provide a uniformly smooth surface. This level requires highly skilled labor. Apprentices will have the opportunity to learn and perform Level 5 Finishing during this course.

#### **Course Outcomes**

1. Identify and describe the different types of texture (i.e.):
  - Soft
  - Hard
  - Self-priming
2. Identify protective covering such as polyethylene sheeting, stapled or taped and masked machine.
3. Demonstrate general texture spraying techniques.
4. Demonstrate how to apply different types of texture (i.e.):
  - Knockdown
  - Splatter
  - Skip
  - Troweling
  - Spanish Style
  - Brick and Stone Imitations
  - Orange Peel
5. Identify and properly use the different types of texturing machines.
6. Demonstrate the cleaning procedures for texturing machines.
7. Describe techniques of repairing damaged texture.
8. Describe various types of hand texturing such as one-coat stipple patterns.
9. Identify the materials and tools needed for a Level 5 Finish.

### **TAPE 133 - Texturing & Level 5 Finishing**

10. Properly assess wall conditions prior the application process.
11. "Walk the Walls"- Systematically review work through a sequence of operation.
12. Produce quality of work to a Level 4 Finish as described by the Northwest Wall and Ceiling Bureau.
13. Demonstrate safe work ergonomics.
14. Successfully pass a hands-on examination with machine tools at the end of the course.

#### **TAPE 141 - Basic Machine Finishing**

##### *3 Credits*

This course will present basic automatic tool techniques and introduce finish schedule interpretation. Hands on instruction with machine tools and the proper use, assembly and breakdown will be included. Basic maintenance and repair will also be demonstrated.

##### **Course Outcomes**

1. Identify appropriate drywall machine finishing tools and their uses. Tools include: (i.e.,)
  - Bazooka
  - Banjo
  - Box finisher
  - Corner flusher
  - Other tools
2. Demonstrate the knowledge and use of proper machine finishing tools.
3. Explain inspection and maintenance procedures for keeping tools in proper working condition.
4. Properly assess wall conditions prior the application process.
5. Demonstrate the knowledge and use of the basic steps of wall preparation, hand taping and wiping procedures.
6. "Walk the Walls"- Systematically review work through a sequence of operation.
7. Demonstrate safe work ergonomics.
8. Successfully pass a hands-on examination with machine tools at the end of the course.

#### **TAPE 142 - LADS Blueprint & Layout**

##### *3 Credits*

This course will introduce and familiarize the student  
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with the basic components of construction working drawings. The effective techniques for reading and comprehending drawings will be introduced in this course. Basic sketching & drafting principles, applications of related math skills, and the use of layout tools and equipment will be demonstrated, discussed and applied in both the classroom and lab settings. Course objectives will be attained through classroom lecture, demonstration and discussion, and performance-based competency tasks conducted in the lab.

##### **Course Outcomes**

1. Identify and understand the nomenclature and components of working drawings used for interior systems construction.
2. Identify and describe the "language of blueprints", including: a) the basic symbols, abbreviations and lines used for drawings; and b) lines used for dimensioning orthographic and isometric drawings.
3. Demonstrate the ability to accurately interpret plan views, elevation drawings, detail drawings, section drawings and schedules related to interior systems for residential and commercial structures.
4. Demonstrate the ability to properly set-up and utilize layout tools and equipment.
5. Demonstrate the ability to perform related math computations for layout based on residential and/or commercial drawings.

#### **TAPE 143 - Introduction to Foreman/Supervisor Training**

##### *3 Credits*

The design of this course is to increase the awareness and understanding of the duties and responsibilities of a construction carpenter foreman. In addition to assisting the student with the transition to journeyman status and the expectations and requirements of a construction foreman, this course's objectives will be achieved through: classroom lecture & discussion; group activities both in the classroom and in the lab; and by presentations from subject matter experts. Successful completion of this course will be achieved through each student's participation and the instruction's evaluation.

##### **Course Outcomes**

1. Describe and identify motives, and the power behind them.
2. Understand that poor communication results in bad performance.
3. Know the basic process and elements involved in communication.
4. Identify potential problems in the planning stage.
5. Understand the key differences between craftsmen and supervisor.
6. Know the importance of listening.
7. Understand and develop skills to overcome barriers to communication.
8. Understand cost control and the relationship between estimates and budget.
6. Apply principals of surgical instrumentation assembly.
7. Apply learned techniques for sterile packaging and storage.
8. List the total quality management, safety, and risk management principles.
9. Demonstrate knowledgeable of the central services regulatory agencies.
10. Describe the functions of purchasing, inventory management, and distribution.
11. Describe how computers and information technology apply to the field of central service.
12. Demonstrate basic human relation skills.

### **CST 102 - Healthcare Provider First Aid/CPR, AED and Bloodborne Pathogens**

#### *2 Credits*

This course covers one and two person, adult, child and infant CPR. Students practice caring for a person with foreign body airway obstruction (FBAO), personal barriers techniques and use of Automated External Defibrillator (AED). The course teaches to effectively recognize and treat in critical minutes until Emergency Medical Services (EMS) arrive. Topics include: general first aid principles, medical, injury and environmental emergencies, and blood borne pathogens. This course is approved by OSHA, WISHA (Labor and Industries) for healthcare providers. An AHA card will be issued upon the successful completion of a written exam and skills evaluation. In addition, the mandatory seven hours of HIV/AIDS education for healthcare providers is included.

### **CST 104 - Central Service Basic Sciences**

#### *3 Credits*

Course covers the basic principles of microbiology, human anatomy and medical terminology and how it pertains to infection control and communications in sterile processing.

#### **Course Outcomes**

1. Describe the basic functions and anatomy of the systems of the human body.
2. Demonstrate knowledge of the medical terminology for each specialty.
3. Identify the basic surgeries that correlate with each system of the body.
4. Identify the instrumentation that would be used for specific surgeries.

### **Central Service Technician**

#### **CST 100 - Central Service Technician Fundamentals**

##### *8 Credits*

The student learns the role and responsibilities of a Central Service Technician including regulations and standards, surgical instrumentation, cleaning and decontaminations, disinfection, sterilization, packaging and storing. Students demonstrate knowledge of legal issues, HIPAA, safety precautions/preventions. Student must model professional appearance, value diversity in the workplace and possess the ability to communicate effectively and professionally with patients and staff. Students demonstrate knowledge of quality assurance and quality control and adhere to policies and procedures used in the clinical setting.

#### **Course Outcomes**

1. Describe the functions of central services and reprocessing areas.
2. Discuss the principals of infection control and describe or demonstrate the application of these principals as they relate to the field of central services.
3. Distinguish between "decontamination" and "disinfection". Demonstrate verbally or in writing the procedures involved in both.
4. Understand various methods of equipment management.
5. Describe all current sterilization technologies.

5. Articulate the principles of microbiology and how it pertains to the Central Service Department.
6. Apply the knowledge of how to break the chain of infection to protect themselves and patients.

### **CST 105 - Central Service Technician Skills Laboratory**

#### *3 Credits*

Students are introduced to and perform some of the basic hands-on tasks required of a Central Service Technician. This includes the wrapping of items for sterilization, learning both envelope and sequential folding styles, and proper methods for heat sealing sterilization techniques. Students are expected to identify a minimum of 100 instruments and assemble into surgical trays. Students are given an overview of the proper handling and processing of endoscopes.

#### **Course Outcomes**

1. Articulate the names and categories of over 150 surgical instruments.
2. Explain the concept and use of an instrument set list.
3. Assemble a minimum of 2 instrument sets from a set list with no errors.
4. Prepare instrumentation in a peel pack correctly.
5. Wrap items correctly for sterilization.
6. Demonstrate effective communication skills with the customer (OR personnel/hospital departments).
7. Assemble Aesculap and Genesis pans for sterilization.

### **CST 191 - Central Service Clinical Practicum I**

#### *4 Credits*

Students apply their knowledge and skills in the clinical setting. Students learn job search skills as well as develop a resume for an entry-level position as a Central Service Technician.

### **CST 192 - Central Service Clinical Practicum II**

#### *10 Credits*

Students apply their knowledge and skills in the clinical setting. Student complete documentation of the 400 hours experience required by IAHCMM certification.

## **Chemistry**

### **CHEM& 121 - Introduction to Chemistry**

#### *5 Credits*

This introductory course discusses the basic concepts in general and inorganic chemistry. It is designed to prepare students for coursework in health sciences or more advanced scientific coursework by laying the foundation of the most 'elemental' science - chemistry. Topics covered range from the nature of atoms to chemical reactions and include homework, laboratories, exams, and group exercises.

**General education distribution area: Natural Science, with lab.**

**Prerequisite(s):** Placement into MATH 095; or completion of MATH 085, MATH 092, AMATH 185, or AMATH 190 with a 2.0 or higher; or completion of AMATH 175 with a 3.0 or higher.

#### **Course Outcomes**

1. Demonstrate accurate measurement techniques and solve density-related problems.
2. Explain the composition of atoms, concept of atomic number, mass number and isotopes.
3. Describe the arrangement of elements in the periodic table and relate the arrangement to electronic configuration, bonding, and properties.
4. Explain how ionic and covalent bonds are formed between atoms.
5. Recognize and predict the type of chemical reaction and identify the products of precipitation, acid-base reactions. Write balanced chemical equations and net ionic equations.
6. Discuss the properties of solutions and calculate solution concentration in various units and perform stoichiometric calculations.
7. Identify acids and bases, demonstrate an understanding of pH by relating it to hydrogen ion concentration and hydroxide ion concentration, and explain how a buffer works.
8. Create Lewis structures and identify the shapes of covalent compounds. Explain difference between polar and nonpolar compounds.
9. Perform laboratory experiments related to the above course learning objectives, and with a diverse team use common laboratory equipment appropriately.

10. Apply precision, accuracy, and safe lab practices in taking measurements, and record observations, evaluate gather and analyze data.
11. Communicate the results of laboratory work, including calculations and graphs if required.

### **CHEM& 131 - Introduction to Organic and Biological Chemistry**

#### *5 Credits*

Introduction to organic chemistry and biochemistry includes study of the nomenclature, structure, reactions and synthesis of organic compounds and biochemistry applications in nursing field. Structure and properties of the major classes of organic compounds with particular reference to organic molecules and their relationship to polymers, such as carbohydrates, lipids, proteins, and nucleic acids. Course is primarily intended for those who are interested in the application of the principles of organic chemistry and biochemistry to related areas of science such as genetics, microbiology, physiology, and nutrition. Course learning involves lectures and labs.

**General education distribution area: Natural Science, with lab.**

**Prerequisite(s):** Completion of CHEM& 121, with a 2.0 or higher, or instructor permission.

#### **Course Outcomes**

1. Describe organic chemistry in terms of the role of carbon in organic compounds and biomolecules.
2. Identify and classify different types of hydrocarbon e.g. alkanes, alkenes, alkynes and cycloalkanes.
3. Classify and predict names and draw structures of different types of aromatic compounds.
4. Identify and classify major organic functional groups and recognize their presence in biological molecules.
5. Name and draw structures of the major classes of organic compounds with understanding of nomenclature and terminology of various organic structures such as hydrocarbons, alcohols, carboxylic acids, ethers, esters, amines and amides.
6. Predict the outcome of common organic and biochemical reactions like combustion and addition reaction for hydrocarbons and

electrophilic substitution reaction of aromatic compounds.

7. Identify, classify, and explain the properties and chemical reactions of different types of alcohols, carboxylic acids and carbonyl compounds.
8. Define and recognize the different types of isomerism, including geometric, stereo, and constitutional.
9. Identify and classify biologically important organic compounds and understand their function in the body.
10. Recognize structural differences between various types of biomolecules, such as lipids, carbohydrates, nucleic acids, and proteins, and identify their basic building blocks.
11. Explain carbohydrate metabolic pathways and protein synthesis processes.
12. Identify the properties and functions of enzymes and various factors that can affect enzyme activity.
13. Perform basic organic chemistry and biochemistry laboratory experiments and techniques with a diverse team, using common laboratory equipment appropriately according to standard laboratory safety precautions.
14. Communicate the results of laboratory work, including reasoning effectively, both orally and through formal and informal writings and reports.

### **Commercial Building Engineering**

#### **CBE 101 - Fundamentals of Electricity and Lab**

#### *6 Credits*

This course covers basic electrical theory, testing, troubleshooting, schematics and symbols, circuit construction plus other related items used in the industrial and commercial maintenance fields. Lock-out/tag-out regulations are also included. Part of this course is a hands-on lab featuring components, wiring and application of basic electrical systems.

#### **Course Outcomes**

1. Explain electrical theory and electron movement theory.
2. Identify series, parallel and series-parallel circuits.

3. Use electrical test equipment accurately and measure voltage and current flow.

### **CBE 102 - Advanced Electrical and Lab**

#### *5 Credits*

This course includes single phase and multiple phase installation, repair, and maintenance including branch and feeder circuits as found in the industrial and commercial applications. Part of this course is a hands-on lab featuring the components, wiring and applications of single phase and three phase systems.

**Prerequisite(s):** CBE 101 or instructor permission

#### **Course Outcomes**

1. Create, read, and interpret intermediate to advanced electrical line diagrams to current commercial building and industrial standards.
2. Troubleshoot intermediate to advanced electrical control faults to acceptable commercial building and industrial standards.
3. Use electrical test equipment accurately and measure voltage and current flow to acceptable commercial building and industrial standards.

### **CBE 103 - National Electrical Code**

#### *4 Credits*

This course is designed to help students understand the National Electrical Code, focusing on sections of the Code that relate to maintenance work done by individuals working in the industrial and commercial maintenance fields. It includes interpreting the National Electrical Code in preparation for the State Maintenance electrical exam.

#### **Course Outcomes**

1. Accurately use the National Electrical Code to current acceptable industry standards.
2. Analyze and interpret the National Electrical Code to identify safe electrical installations to current industry standards.

### **CBE 104 - Computer Fundamentals and Lab**

#### *2 Credits*

This course provides an introduction to the hardware, operating systems and application programs used by individuals working in the industrial and commercial maintenance fields.

#### **Course Outcomes**

1. Demonstrate the ability to setup and use word processing, data base, and spreadsheet programs.
2. Articulate the benefits of using word processing, data base and spreadsheet programs.

### **CBE 105 - Boiler Operators**

#### *8 Credits*

This course consists of the care and operation of boilers in preparation for the City of Seattle's boiler operator exams. Electrical interlocks and schematics along with confined space entry regulations as used in the industrial and commercial maintenance fields are also covered.

#### **Course Outcomes**

1. Apply thermodynamic laws and steam table data to the everyday operation of boilers per current industry standards.
2. Apply the City of Seattle's "Boiler Fireman and Engineer License Law" to boiler plant operations per current commercial building standards.
3. Demonstrate an understanding of the function of boilers, controls, fittings and accessories to current industry standards.

### **CBE 106 - Boiler Lab**

#### *4 Credits*

This is a hands-on lab for the beginning boiler operator to develop and practice good operating and maintenance procedures on boilers. System layout, components and electrical interlocks found in the industrial and commercial maintenance fields are also covered.

**Prerequisite(s):** CBE 105 or instructor permission

#### **Course Outcomes**

1. Acquire a boiler operator's license with the City of Seattle or the City of Tacoma.
2. Collect boiler flue gas samples and interpret the readings.
3. Collect boiler water samples and interpret the readings.
4. Observe boiler room equipment layout and analyze how it works as a complete system.



## **CBE 107 - Refrigeration and A/C Fundamentals & Lab**

### *6 Credits*

This course covers refrigeration cycle and theory, components and interlocks, and electrical and refrigeration safety for industrial and commercial refrigeration and air conditioning applications. This course includes a hands-on lab for individuals working in the industrial and commercial maintenance fields to develop and practice good operating and maintenance procedures on refrigeration equipment. Refrigeration recovery, reclaim, and charging are covered along with electrical controls, schematics and troubleshooting.

### **Course Outcomes**

1. Demonstrate the ability to troubleshoot the operational problems in commercial building refrigeration systems to industry standards.
2. Explain the refrigeration cycle to commercial building industry practices.
3. Identify the components of commercial refrigeration equipment per current industry practice.

## **CBE 111 - Control Fundamentals**

### *7 Credits*

This course provides a study of the various control fundamentals, terms, interlocks and electrical safety as related to commercial and industrial applications.

## **CBE 112 - Pneumatic Controls and Lab**

### *5 Credits*

This course offers a study of pneumatic control theory related to HVAC systems. Part of this course is a hands-on lab featuring components, system construction and interlocks to other types of control systems.

## **CBE 113 - Preventive Maintenance and Lab**

### *4 Credits*

This course covers developing, implementing, and using manual and computerized preventive maintenance programs for electrical, plumbing and HVAC systems found in the industrial and commercial maintenance fields.

## **CBE 115 - Refrigeration and A/C Systems**

### *5 Credits*

Applications for refrigeration and air conditioning systems, including package unit and split system air conditioners and heat pumps, reciprocating, centrifugal, and absorption chillers, and reach-in and walk-in coolers and freezers as used in the industrial and

commercial fields are covered. Refrigeration and air conditioning electrical schematics and CFC certification is part of this curriculum.

**Prerequisite(s):** CBE 107 or instructor permission

### **Course Outcomes**

1. Demonstrate the ability to identify various commercial building and industrial refrigeration systems to industry standards.
2. Demonstrate the ability to identify various system components in commercial building and industrial refrigeration systems to industry standards.

## **CBE 116 - HVAC/Plumbing Distribution**

### *4 Credits*

This course is a study of components, construction and application of HVAC and plumbing systems as found in commercial and industrial sites.

## **CBE 117 - Safety and Health**

### *1 Credits*

This course covers the required basic American Heart Association course which includes the study and practice of Cardio-Pulmonary Resuscitation (CPR) and other skills needed in providing first aid to the injured for an individual working in the industrial and commercial maintenance fields.

## **CBE 118 - Critical Systems**

### *4 Credits*

This course is the study of the fundamentals of mission critical systems designed to maintain reliability, availability and resiliency of electrical, mechanical, and digital systems. Students in the industrial and commercial building maintenance fields learn the skills needed to operate and maintain mission critical equipment and systems.

## **CBE 150 - Hazardous Waste Management**

### *3 Credits*

This course provides a study of handler's duties and responsibilities, record keeping requirements and proper handling, storage and disposal procedures of hazardous waste found in the typical commercial and industrial fields. Interpretation of the regulations, employer responsibility, and contractor surveillance for the most common hazardous waste encountered by building and plant maintenance workers is covered.

## **CBE 170 - Communications for the Stationary Engineer**

### *2 Credits*

This course helps students develop the general communication skills required in the industrial and commercial maintenance environments. The course includes written, oral, and interpersonal communications as used by maintenance, electrical, and plumbing workers.

### **CBE 180 - Human Relations and Leadership Skills**

### *2 Credits*

This course helps students increase their self-awareness and leadership skills to get along with co-workers, employers, and clients in the industrial and commercial maintenance fields.

### **CBE 190 - LEED® Green Building**

### *4 Credits*

This course is an overview of the Leadership in Energy and Environmental Design (LEED) Green Building system for the design, construction and operation of high performance green buildings. Specifically, it addresses exterior building site maintenance program; water and energy use; environmentally preferred products for cleaning and alterations; waste stream management; and ongoing indoor environmental quality.

### **CBE 201 - Direct Digital Controls and Lab**

### *5 Credits*

This course covers direct digital control theory related to HVAC systems as used in the commercial and maintenance fields. Part of this course is a hands-on lab featuring components, wiring and system construction at the terminal equipment level.

### **CBE 202 - Advanced Direct Digital Controls and Lab**

### *4 Credits*

This course provides a more advanced study of direct digital controls related to HVAC systems used in the commercial and maintenance fields. Part of this course is a hands-on lab featuring components, system construction, wiring and programming at the field panel equipment level.

**Prerequisite(s):** CBE 201 or instructor permission

### **CBE 203 - Energy Conservation**

### *4 Credits*

This course explores the utility companies' rebate programs, power factor considerations, and water conservation techniques in commercial buildings. This course also covers basic energy calculations, metering and monitoring, lighting, automation systems, combustion devices, steam and condensate systems, Renton Technical College

HVAC systems, project management, energy audits, and energy bills.

### **CBE 204 - Architectural Prints and Lab**

### *5 Credits*

This course helps students learn how to read and interpret commercial building's architectural, mechanical and electrical blueprints and understand their relationship to actual building systems.

### **Course Outcomes**

1. Read and interpret building architectural, mechanical and electrical blue-prints to acceptable commercial building industry standards.
2. Draw to scale the architectural, mechanical and electrical sections for small, in-house projects to current industry practice.

### **CBE 205 - Fire and Life Safety Systems**

### *6 Credits*

This course is designed to acquaint the individual working in the commercial environment with various types, construction and application of fire and life safety systems, and what their response should be in an emergency situation.

### **Course Outcomes**

1. Explain fire chemistry and identify the appropriate extinguishing agents and the firefighting tactics.
2. Demonstrate the importance of earthquake and emergency preparedness to current industry practice.
3. Recognize and identify systems components in fire alarm systems used in commercial building industry.

### **CBE 206 - Air and Water Balancing and Lab**

### *6 Credits*

This course covers air and water balancing theory for HVAC systems as found in commercial buildings. The interaction of the electrical, control, and HVAC systems are included along with the interpretation of air and water balance reports related to mechanical blueprints.

### **CBE 207 - Indoor Air Quality**

### *6 Credits*

This course will help students interpret indoor air quality regulations, how to comply with them, and how

to determine if new/remodeled buildings meet these regulations in commercial buildings. It includes how to handle everyday IAQ problems and how to prevent and solve problems effectively.

#### **Course Outcomes**

1. Analyze the scope and seriousness of indoor air quality problems as related to health and revenue loss.
2. Recognize and identify other considerations for indoor air quality problems such as chemical emissions, renovation problems, sink effect and custodial operations to industry standards.
3. Demonstrate the ability to troubleshoot indoor air quality problems.

#### **CBE 208 - Instrumentation for Stationary Engineers**

##### *3 Credits*

This course is an overview of measuring devices and instrumentation used for testing the electrical, plumbing and HVAC systems in the commercial building maintenance field. It covers the theory, application and operating principles of instrumentation in the industry.

#### **Course Outcomes**

1. Accurately use test instruments used in the commercial and industrial field.
2. Analyze and interpret test instrument readings.
3. Identify the test instruments used in the industry.

#### **CBE 210 - Programmable Logic Controls - Allen-Bradley**

##### *3 Credits*

Introduction to programmable logic controllers for industrial control and direct digital controls for industrial automation. Participants will gain an understanding of terminology, components, programming, interfacing and operation of PLC controls, and be introduced to DDC components, functions, and operation in building automation and energy management. Students will learn the Allen-Bradley PLC system to study software programming, architectures, ladder logic, I/O modules, basic numbering systems, computer terminology, and industrial communication.

#### **CBE 211 - Programmable Logic Controls - Siemens**

##### *3 Credits*

Introduction to programmable logic controllers for industrial control and direct digital controls for industrial automation. Participants will gain an

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understanding of terminology, components, programming, interfacing and operation of PLC controls, and be introduced to DDC components, functions, and operation in building automation and energy management. Students will learn the Siemens PLC system to study software programming, architectures, ladder logic, I/O modules, basic numbering systems, computer terminology, and industrial communication.

#### **CBE 212 - Programmable Logic Controls I**

##### *4 Credits*

Introduction to programmable logic controllers for industrial control and direct digital controls for industrial automation. Participants will gain an understanding of terminology, components, programming, interfacing and operation of PLC controls, and be introduced to DDC components, functions, and operation in building automation and energy management. Students will learn systems to study software programming, architectures, ladder logic, I/O modules, basic numbering systems, computer terminology, and industrial communication.

#### **CBE 213 - Motor Control Principles and Lab**

##### *5 Credits*

This course includes single phase and multiple phase installation, and repair and maintenance of motor controls as used in industrial applications and hands-on lab featuring the components, wiring and applications of motor control systems as used in industrial applications. Students will learn to troubleshoot/replace/install circuit boards, sensors, and become proficient in troubleshooting motors and variable speed drives, interpreting relay logic and sizing of components for various applications.

#### **Course Outcomes**

1. Discuss basic electrical theory and ohms law.
2. Analyze and interpret electric motor control systems diagrams.
3. Set up and terminate electric motor control equipment.
4. Troubleshoot electric motor control systems.

#### **CBE 214 - Mechanical Prints and Lab**

##### *6 Credits*

This course helps students learn how to interpret industrial prints and understand their relationship to actual parts, equipment and systems as it applies to industrial applications.

## **CBE 215 - Mechanical Maintenance and Lab**

### *4 Credits*

This course is designed to acquaint individuals with maintenance techniques for belts, pulleys, sprockets, gears, and other mechanical parts found in industrial settings.

### **Course Outcomes**

1. Demonstrate techniques in troubleshooting and maintaining refrigeration systems, boiler systems, mechanical systems and fluid power systems.

## **CBE 216 - Welding Fundamentals and Lab**

### *4 Credits*

This course covers gas cutting, brazing, and soldering and electrical welding (stick, MIG and TIG) used by individuals working in an industrial maintenance environment. Most of this course is a hands-on lab featuring various types of welders and applications.

### **Course Outcomes**

1. Identify the various types of welding equipment, welding procedures and practice of welding processes: gas, SMAW, GMAW, and TIG.

## **CBE 218 - Programmable Logic Controls II**

### *4 Credits*

Introduction to programmable logic controllers for industrial control and direct digital controls for industrial automation. Participants will gain an understanding of terminology, components, programming, interfacing and operation of PLC controls, and be introduced to DDC components, functions, and operation in building automation and energy management. Students will learn systems to study software programming, architectures, ladder logic, I/O modules, basic numbering systems, computer terminology, and industrial communication.

### **Communication**

## **CMST& 101 - Introduction to Communication**

### *5 Credits*

In this course students study the fundamentals of the communication process and apply them to personal and workplace relationships. Emphasis is on applying communication theory to interviewing, small group communications and public speaking. Students are required to prepare and give oral presentations.

## **General education distribution area: Humanities.**

### **Course Outcomes**

1. Explain the complex impact of communication on our daily lives.
2. Work effectively in groups.
3. Demonstrate effective presentation skills with a wide variety of speeches.
4. Analyze audiences to identify a choice of speaking style.
5. Apply the principles of conflict resolution and disagreement to communication scenarios.
6. Employ characteristics, skills, and behaviors of effective listening.
7. Articulate cultural influences and differences as well as similarities in communication.

## **CMST& 220 - Public Speaking**

### *5 Credits*

This course in public speaking helps students develop effective speaking skills through understanding the elements involved in effective speech. Students will prepare speeches designed for a variety of purposes.

## **General education distribution area: Humanities.**

### **Course Outcomes**

1. Demonstrate knowledge of the growth and development of public speaking throughout history.
2. Explore benefits of public speaking abilities and ability to enhance academic and career skills by enhancing this skill.
3. Demonstrate the use and effects of rhetorical devices in a publicly delivered speech.
4. Manage apprehension with the use of performance visualization techniques and positive self-perception.
5. Organize and focus topics for presentations with research, surveys, internet research, in-depth interviews and search directories.
6. Analyze the audiences to identify your choice of speaking style.
7. Demonstrate understanding of cultural influences and differences as well as similarities in communication.

8. Leverage the use of a variety of presentation aids that enhance credibility, confidence and improve overall success of presentation.
9. Evaluate the effectiveness of various speech principles.
10. Apply listening and speech critiquing skills to fellow classmates.
11. Develop audience assessment tools and techniques.
12. Develop proficiency in written, oral, visual and nonverbal forms of communication.

## **Composition**

### **COMP 080 - Writing Improvement I**

#### *5 Credits*

Learn to make your writing sizzle by improving your basic sentence structure. This course is designed to help you write a wide variety of strong sentences as well as maximize your knowledge of grammar basics. Instruction includes daily writing and use of technology to assist writer in improving their writing skills.

#### **Course Outcomes**

1. Employ pre-writing techniques to generate and organize ideas.
2. Understand and apply standard grammar and punctuation.
3. Employ expression that is clear, concise, relevant, and detailed.
4. Demonstrate the obligations of crediting borrowed ideas when using the works of others.
5. Demonstrate an understanding of paragraph and essay structure.
6. Compose effective thesis and topic sentence statements in conventional essays and paragraphs.
7. Compose paragraphs and essays that demonstrate unity, development, and coherence.
8. Read to understand and explain an author's purpose and methods of persuasion.
9. Improve writing through practice, evaluation, and revision.

### **COMP 090 - Writing Improvement II**

#### *5 Credits*

This writing improvement courses helps students improve their composition skills by concentrating on paragraph construction. Paragraphs provide the foundation necessary for college level writing. The coursework assists students to move from sentences to paragraphs and prepares them for writing papers and reports.

#### **Course Outcomes**

1. Employ pre-writing techniques to generate and organize ideas.
2. Understand and apply standard grammar and punctuation.
3. Employ expression that is clear, concise, relevant, and detailed.
4. Understand and demonstrate the obligations of crediting borrowed ideas when using the works of others.
5. Demonstrate an understanding of paragraph and essay structure.
6. Compose effective thesis and topic sentence statements in conventional essays and paragraphs.
7. Compose paragraphs and essays that demonstrate unity, development, and coherence.
8. Read to understand and explain an author's purpose and methods of persuasion.
9. Improve writing through practice, evaluation, and revision.

### **COMP 100 - Applied Composition**

#### *5 Credits*

This practical writing course assists student with academic writing. The class incorporates journal summaries and basic essay formats to help students build on their sentence and paragraph strengths to be successful in college-level writing. This class assists students in moving their writing forward through practice.

#### **Course Outcomes**

1. Employ pre-writing techniques to generate and organize ideas.
2. Utilize standard grammar and punctuation.

3. Employ expression that is clear, concise, relevant, and detailed.
4. Demonstrate an understanding of the obligations of crediting borrowed ideas when using the works of others.
5. Demonstrate an understanding of paragraph and essay structure.
6. Compose effective thesis and topic sentence statements in conventional essays and paragraphs.
7. Compose paragraphs and essays that demonstrate unity, development, and coherence.
8. Read to understand and explain an author's purpose and methods of persuasion.
9. Improve writing through practice, evaluation, and revision.

### **Computer Network Architecture**

#### **CNA 330 - Network Databases and Structured Query Language (SQL)**

##### *5 Credits*

This course introduces students to database management using Structured Query Language (SQL). Students are introduced to table formats, data types, schemas, ACID, and relational elements. Students will create tables, construct queries, and manage database systems. Students will use Python to automate database actions. Students will use a LAMP stack to integrate databases into web projects.

**Prerequisite(s):** CNA 336 with a 2.0 or higher.

##### **Course Outcomes**

1. Use SQL to create tables and indexes.
2. Compose SQL queries.
3. Understand constraints, views, triggers, and indexes in databases.
4. Explain how queries are processed, optimized and evaluated in a DBMS.
5. Explain transaction processing.
6. Recognize common SQL server issues (log space, performance problems, job failures).

#### **CNA 335 - Programming and Scripting for Network Management**

##### *5 Credits*

Students master the modern command line terminal in this course. Students will learn to automate control of package managers, network configuration, compilation of programs, and communication between hardware components. Students will learn to remotely administrate systems through command line and remote desktop. Students will use Python to automate remote configuration, and build RESTful interfaces.

**Prerequisite(s):** CNA 336 with a 2.0 or higher.

##### **Course Outcomes**

1. Demonstrate advanced knowledge of command line interpreters (CLIs) on Windows and Unix.
2. Write scripts to automate common system administrator (Sysadmin) tasks such as updating, performance monitoring, user addition and control, and security sweeps.
3. Create RESTful interfaces to interface systems together.
4. Use Microsoft Azure to build a small cloud network.

#### **CNA 336 - Network Programming in Python**

##### *5 Credits*

This course introduces students to the Python programming language from a networking focus. Students will use variables, loops, conditionals, functions, and modules to build scripts. Students will build and demonstrate their knowledge through labs and course projects.

##### **Course Outcomes**

1. Recognize, select and use expressions with the Python Interactive Shell.
2. Understand flow control and apply operations to create program functions and statements.
3. Understand list data types, dictionaries and the structuring of data.
4. Explain and manipulate strings and search of text patterns with expressions.
5. Explain how programs read and write data to files.
6. Use copy, move, rename, and delete functions to organize data.
7. Use various Python debugging tools.



## **CNA 337 - Network Programming in Python II**

### *5 Credits*

This course introduces students to advanced topics in the Python programming language. Students will make use of object-oriented principles to write multi-file programs. Students will make use of modules to quickly build complex software and learn to write effective documentation.

**Prerequisite(s):** CNA 336 with a 2.0 or higher

### **Course Outcomes**

1. Use object oriented programming features in Python.
2. Create and use modules.
3. Discuss data structures and their advantages.
4. Use the Python package manager.
5. Distribute code between multiple files.
6. Follow PEP standards for syntax and documentation.
7. Understand, use, and explain inheritance.
8. Describe and use exception handling.
9. Understand and recognize using I/O.
10. Understand and apply multithreaded programming.

## **CNA 340 - IT Project Management**

### *5 Credits*

This course teaches students the principles and concepts involved with project management and positive team communication. Students collaborate to write statements of work, budgets, schedules, and modifications. Students make use of version control software to track revisions and avoid data loss. Scrum and Agile methodologies are introduced.

### **Course Outcomes**

1. Manage the selection and initiation of individual projects and of portfolios of projects in the enterprise.
2. Conduct project planning activities that accurately forecast project costs, timelines, and quality.
3. Implement processes for successful resource, communication, and risk and change management.

4. Demonstrate effective project execution and control techniques that result in successful projects.
5. Conduct project closure activities, including formal project acceptance.
6. Demonstrate a strong working knowledge of ethics and professional responsibility.
7. Demonstrate effective organizational leadership and change skills for managing team projects, diverse project teams, and stakeholders.

## **CNA 350 - Introduction to Virtualization**

### *5 Credits*

Students will transform virtual machines and containers into a variety of network components including web servers, databases, and load balancers. Students will combine components to build distributed architectures. Students should be familiar with Linux, TCP/IP, routing, and scripting languages such as Python.

**Prerequisite(s):** CNA 336 and CNA 337 with a 2.0 or higher.

### **Course Outcomes**

1. Understand virtual machines (VMs), hypervisors, and their relationship.
2. Launch and manage Linux VMs using Oracle VirtualBox and VMWare ESXi.
3. Use Linux instances as building blocks for modern infrastructure including servers and databases.
4. Build Linux containers using Docker.
5. Orchestrate containers using Kubernetes.
6. Articulate performance considerations, benchmarking, and process improvements.
7. Use load balancers and database distribution techniques to build scalable infrastructure.

## **CNA 421 - Cloud Architecture**

### *5 Credits*

This course provides the fundamentals of building an IT infrastructure in the public cloud, such as Amazon Web Services (AWS). Case studies and practice scenarios focus on best practices and optimal design patterns.

### **Course Outcomes**

1. Identify the value and benefits of cloud computing and Amazon Web Services (AWS).
2. Understand the methods and tools used to maintain and protect data.
3. Navigate the AWS Console.

### **CNA 440 - Network Infrastructure Planning and Deployment**

#### *5 Credits*

Students integrate virtual and physical components into robust, secure, redundant and resilient infrastructures. Students will use whiteboards, and other discussion techniques, to propose designs and make changes to meet requirements. Students will select a cloud provider and build a scalable infrastructure through a course project.

**Prerequisite(s):** CNA 340 and CNA 350 with a 2.0 or higher.

#### **Course Outcomes**

1. Identify networking issues in a real-world business IT case.
2. Evaluate networking technologies best suited to an organization.
3. Design a network infrastructure that solves a real-world problem.
4. Give an effective project presentation.

### **CNA 450 - Advanced Virtualization**

#### *5 Credits*

This course focuses on the installation, configuration, and management of VMware ESXi hosts and VMware vCenter Server for the IT network administrator. The student will be prepared as an IT professional to achieve the VMware Certified Professional on Data Center Virtualization (VCP5-DCV) certification.

**Prerequisite(s):** CNA 350 with a 2.0 or higher.

#### **Course Outcomes**

1. Explain the processes behind data center virtualization.
2. Install VMware hosts and servers.
3. Configure VMware hosts and servers.
4. Manage and troubleshoot VMware hosts and servers.

5. Prepare for a related professional certification exam.

### **CNA 480 - Virtual Infrastructure Security**

#### *5 Credits*

This course introduces students to modern security policies and their associated challenges. Students will design infrastructure solutions that meet common compliance requirements. Students will balance various security strategies including authentication, access control, encryption, and network segmentation. Students will participate in wargame exercises to practice common attacks and defense strategies.

**Prerequisite(s):** CNA 421 with a 2.0 or higher.

#### **Course Outcomes**

1. Understand security principles including authentication, access control, encryption, and network segmentation.
2. Understand common attack vectors, and execute them to demonstrate flaws.
3. Use VMWare ESXi to secure local infrastructure.
4. Use AWS and Google Cloud to investigate modern cloud security features.
5. Read and understand 0-days and whitepapers. Use both to inform security policy decisions.
6. Use forensic tools such as Wireshark and Test Disk.
7. Use modern pen testing suites such as Kali Linux.
8. Understand the ethics of cybersecurity and risk associated with actions.

### **CNA 481 - Troubleshooting Physical and Virtual Network Infrastructure**

#### *5 Credits*

In this course students will learn how to use monitoring and troubleshooting tools on physical and virtual network infrastructures. Hands-on lab scenarios cover the necessary troubleshooting skills needed to utilize both commercial and open source tools such as FCAPS, NAGIOS, NGS3, and LogZilla.

**Prerequisite(s):** CNA 480 with a 2.0 or higher.

#### **Course Outcomes**

1. Use network troubleshooting and monitoring tools such as FCAPS, NAGIOS, NGS3, Logzilla, etc.
2. Create various network topology simulations.
3. Monitor systems, networks, and infrastructures.
4. Identify, troubleshoot, and resolve network infrastructure issues.
5. Monitor alerting services for servers, switches, and applications.
6. Perform real-time monitoring of virtual and physical network infrastructures.

### **CNA 492 - Network Architecture Capstone Project**

#### *5 Credits*

Students are given various scenarios in computer networking design, security, infrastructure, servers, unified telephony, video and wireless in an enterprise model. After researching, planning, designing, implementing, and testing the scenario, students document and present their findings in a concise and professional manner consistent with current IT business practices.

**Prerequisite(s):** CNA 421, CNA 440, CNA 450, CNA 480, and CNA 481 with a 2.0 or higher.

#### **Course Outcomes**

1. Identify needs for augmenting, updating, or replacing a network infrastructure.
2. Research new networking technologies.
3. Use project management tools and techniques to plan a network infrastructure solution.
4. Design a hybrid-cloud network infrastructure as a solution to the business case study scenario.
5. Implement a hybrid-cloud network infrastructure and assess its effectiveness based on IT best practices.
6. Evaluate the network infrastructure deployment with a business representative.

### **CNA 493 - Cooperative Education/Internship (Optional)**

#### *10 Credits*

This course provides the option of cooperative education/internship training in the BAS in Computer Network Architecture program. Instructor approval is required. The experience may be paid or unpaid - up to 330 hours and 10-credits maximum.

**Prerequisite(s):** CNA 421, CNA 440, CNA 450, CNA 480, and CNA 481 with a 2.0 or higher.

#### **Course Outcomes**

1. Work effectively on the organizational team.
2. Complete assigned network architecture tasks to specifications.
3. Communicate clearly and appropriately with all organization members.

### **Computer Network Technology**

#### **CNT 156 - CompTIA A+ Core I**

#### *5 Credits*

Students with little or no IT background will learn computer technology and computer troubleshooting in this first preparation course for the CompTIA A+ 220-1001 industry certification exam. This certification, which is one of two exams that help you establish an IT career, includes PC maintenance, networking, mobile devices, laptops, operating systems, printers, security and troubleshooting techniques. Students will cover these topics in detail.

#### **Course Outcomes**

1. Install, upgrade, and troubleshoot desktop computer and laptop components.
2. Install, partition, and format hard disk storage.
3. Configure a small office/home office (SOHO) network.
4. Configure system security settings.
5. Troubleshoot system startup.
6. Back up and recover a computer and user data.
7. Use the Windows PowerShell environment to create diagnostic reports and create simple scripts.

#### **CNT 160 - CompTIA A+ Core II**

#### *5 Credits*

This class builds on the knowledge and skills content from CNT 156. Topics include PC maintenance, networking, mobile devices, laptops, operating systems, printers, security and troubleshooting techniques. This course will prepare students for CompTIA's A+ 220-1002 exam.

**Prerequisite(s):** CNT 156

## **CNT 240 - Routing and Switching I**

### *5 Credits*

The course provides the foundational knowledge of network layers 1-3 applicable to core routing and switching and introduces advanced technologies. Topics include the interactions and network functions of firewalls, wireless controllers and access points, along with additional focus on IPv6 and basic network security. This course prepares students for Cisco ICND1 (100-105), Cisco ICND2 (200-105), and the Cisco CCNA composite exam (200-125).

## **CNT 250 - Routing and Switching II**

### *5 Credits*

The course provides the knowledge and skills needed to install, configure, operate, and troubleshoot a small enterprise network. Key topics include QoS elements, virtualized and cloud services, along with controller types and tools that are available to support software defined network architectures. This course prepares student for the Cisco ICND1 (100-105), Cisco ICND2 (200-105), and the Cisco CCNA composite exam (200-125).

## **CNT 254 - Network Infrastructure**

### *5 Credits*

This course focuses on installation, storage, and OS features and functionality available in Windows Server 2016. Special emphasis is placed on deployment and configuration of physical network infrastructure and introduction to virtual networks with Hyper-V. Students prepare for TestOut's Server Pro 2016 exam and Microsoft's Installation, Storage, and Compute with Windows Server 2016 certification exam (70-740).

### **Course Outcomes**

1. Assess the hardware and software and your current environment to plan for migration to Windows Server 2012 or Windows server 2012 R2.
2. Build customize reference images of Windows Server 2012 and Windows Server 2012 R2 and deploy them using the Microsoft Deployment Toolkit.
3. Perform remote server management and role installation using Server Manager and Windows PowerShell.
4. Deploy domain controllers using Server Manager in Windows PowerShell.

5. Deploy active directory and enable advanced active directory features using the Active Directory Administrative Center and Windows PowerShell.
6. Deploy domain controllers using Server Manager in windows PowerShell.
7. Ensure DHCP availability, implement DNS S EC, and perform networking ministration task using Windows PowerShell.
8. Deploy, configured, and manage Hyper-V host and virtual machines using Highbury manager in Windows PowerShell.
9. Deploy storage spaces and provision and manage shared storage using Server Manager and Windows PowerShell.
10. Deploy and managed print servers using the print management consul in Windows PowerShell.
11. Plan, configure, and manage group policy using the Group Policy Management Console in Windows PowerShell.

## **CNT 256 - AWS Cloud Foundations**

### *5 Credits*

This course introduces cloud computing concepts and fundamentals. It is focused on AWS services so that you can make informed decisions about IT solutions based on business requirements. The course also prepares students for the AWS Certified Cloud Practitioner (CCP) exam.

### **Course Outcomes**

1. Identify the value and benefits of the AWS cloud.
2. Recognize the valuable ways that the AWS platform can be used.
3. Demonstrate knowledge of the robust security capabilities, controls, and assurances in place to maintain security and data protection.
4. Articulate the financial impact the AWS cloud can have on an organization's procurement cycle, cost management, and contracts, while minimizing risks associated with consumption-based pricing models.

## **CNT 259 - Secure Enterprise Networks**

### *5 Credits*

This course emphasizes planning, deployment and

maintenance of enterprise networks. Students work with Linux and Windows-based networks to appropriately scale networks to meet industry demands. The course has a heavy emphasis on security: firewall essentials and configuration steps for security, networking, threat prevention, logging, and reporting features. This course prepares students for the Palo Alto Networks® Installation, Configuration, and Management (PAN-EDU-201) exam.

#### **Course Outcomes**

1. Design and support a Windows based LAN/WAN environment that include multiple domains.
2. Design and support LAN/WAN environment that include multiple Linux, Windows, and or Cisco routers.
3. Design and support heterogeneous LAN/WAN environment that include Windows and Linux servers & workstations.

#### **CNT 262 - Introduction to Databases with SQL**

##### *5 Credits*

This is an introductory course on databases and SQL querying. Students will obtain hands-on experience from setting up the database environment to creating your first table to writing your first query. At the end of this course, students will be able to write simple queries related to topics such as dates, string manipulation, and aggregation.

#### **CNT 263 - CompTIA Linux+**

##### *5 Credits*

This course provides introductory and advanced coverage of Linux systems administration. It is designed to help students successfully pass CompTIA's Linux+ Certification exam. The course covers the Red Hat ES4 release and equips students with the information necessary to remain current with industry changes.

#### **Course Outcomes**

1. Install and configure a Linux workstation to connect it to a WAN or LAN.
2. Provide support via the Linux command line.
3. Perform administrative tasks including adding users & groups, modifying file & directory permissions.

4. Develop a maintenance schedule including system updates, backup & restore, shutdown & reboot.

#### **CNT 264 - CompTIA Security+**

##### *5 Credits*

This course covers the most important principles for securing a network and managing risk. Topics such as access control, identity management and cryptography are covered. Additionally, topics include appropriate mitigation and deterrent techniques to address network attacks and vulnerabilities, and security concerns associated with cloud computing, BYOD, and SCADA. The course content serves as initial preparation for CompTIA Security+ exam.

#### **Course Outcomes**

1. Assess risk and participate in risk mitigation activities.
2. Prepare infrastructure, application, information, and operational security standards.
3. Establish and manage security controls to maintain confidentiality, integrity, and availability, identify appropriate technologies and products.
4. Review and troubleshoot security events and incidents, and operate with an awareness of applicable policies, laws, and regulations.

#### **CNT 290 - Next Level Networking Topics**

##### *5 Credits*

This is a special topics class in computer networking. Students gain familiarity with topics such as additional network operating systems, VMware ESXi/Vsphere, software-designed networks, cloud computing, and co-location and network migration. Students complete assignments using both physical and virtual hands-on labs. The course serves as a familiarization experience for the BAS in Network Architecture.

#### **CNT 294 - Internship/Cooperative Education**

##### *5 Credits*

This course provides the option of cooperative/internship training in computer networks, within the prescribed hours of the student's program of study. Instructor approval is required, and the experience can be either paid or unpaid.

#### **Computer Network Technology - Supplemental**

#### **CNTS 256 - AWS Cloud Foundations**

### *5 Credits*

Amazon Web Services (AWS) Cloud Foundations (ACF) is an AWS Academy course designed to provide students with an overall understanding of the AWS Cloud, independent of specific technical roles. It provides a detailed overview of cloud concepts, AWS core services and their pricing, security, architecture, and support. This course prepares individuals for the AWS Certified Cloud Practitioner exam. This course is taught through instructor-led classes, hands-on labs, and assessments. A student kit is provided and includes course manuals, access to labs, assessments, and a discount voucher for the Certified Cloud Practitioner certification exam. This course serves as a prerequisite to the AWS Solutions Architect - Associate certification, which is offered in the RTC Computer Network Architecture, Bachelors of Applied Science Degree.

## **Computer Science**

### **CS 142 - Java Programming II**

#### *5 Credits*

The course builds on object-oriented Java skills covered in CS&141 with a focus on data structures. Topics include queues, stacks, trees, lists, sets, maps, inheritance, recursion, exceptions, I/O, and polymorphism. Students use appropriate algorithms such as search and sort to implement user-friendly interfaces.

**Prerequisite(s):** CS& 141 or equivalent.

#### **Course Outcomes**

1. Write clean and efficient Java code.
2. Implement different data structures in Java programs.
3. Use appropriate algorithms in working Java programs.
4. Explain reasoning behind solutions to programming problems.
5. Collaborate with peers in program and user interface design and testing.

### **CS& 141 - Java Programming I**

#### *5 Credits*

Students use the Java programming language for problem solving, algorithm development, and object-oriented design. Topics include syntax, classes, data types, objects, arrays, file processing, control structures, documentation, and debugging.

**Prerequisite(s):** MATH 095, AMATH 193, AMATH 195, or placement into MATH& 107, MATH& 141 or MATH& 146.

#### **Course Outcomes**

1. Apply object-oriented design principles to a working Java program.
2. Select and implement appropriate control structures to solve programming problems.
3. Create and execute efficient algorithms in Java.
4. Work effectively with peers.

### **CSI 120 - Computer Programming I**

#### *5 Credits*

This course introduces the basics of computer programming and problem solving. Students will develop skills in designing and writing simple computer programs in an integrated programming environment (IDE). Topics include flowchart concepts, language syntax, data types and operators, methods, control structures such as conditionals and loops, and arrays.

### **CSI 122 - Computer Programming II**

#### *5 Credits*

Students write creative programs demonstrating skill in structured design and code, using decision and iteration structures, as well as effective documentation. Students learn to write event-driven applications using forms, controls, properties and methods.

**Prerequisite(s):** CSI 120

### **CSI 124 - Computer Programming III**

#### *5 Credits*

Students are introduced to the concepts of object-oriented programming. Students learn to write applications using structures, classes, interfaces, inheritance and polymorphism. In addition, students learn to use and create delegates, events, collections, exceptions, dynamic link libraries and input/output streams to build real-world applications.

**Prerequisite(s):** CSI 122

### **CSI 130 - Database Design**

#### *5 Credits*

This is an introductory course for the student with little or no experience designing and building relational databases. The students learn the basics of relational database theory and rules of normalization, and how to incorporate business requirements into the design for a



database. They also learn to use a program or language such as Structured Query Language (SQL) to create basic database objects and to manipulate data.

### **CSI 140 - Front-End Web Development**

#### *5 Credits*

Students will learn the basic elements defined in the HTML language to initially build simple web pages and forms, then adding semantics, structures, and more sophisticated forms using HTML5 elements. In the second part of this course, students will add styles to their web pages and forms using Cascading Style Sheets (CSS). In the final project, students should be able to design quality web pages as rated by professionals.

### **CSI 226 - Computer Programming IV**

#### *5 Credits*

In this advanced programming course, students continue refining their coding skills in topics such as polymorphism, encapsulation, asynchronous programming, multi-threaded applications, and distributed applications.

**Prerequisite(s):** CSI 124

### **CSI 234 - Applied Database Development**

#### *5 Credits*

This course is designed for the student who is already familiar with basic relational database theory. The focus of this course is databases in the n-tier client/server development model. Students learn and utilize more advanced program or language topics, such as enterprise-level objects, views, stored procedures, functions, indexes, constraints, transaction handling, and triggers in event-driven database applications. Additionally, the class covers best practices in administration, user management and security, including effective planning for updates, backup, and disaster recovery.

**Prerequisite(s):** CSI 130

### **CSI 242 - Client-Side Scripting**

#### *5 Credits*

Students build their front-end web development skills by creating dynamic web pages with user-friendly structure, graphics, and animations. Emphasis is placed on event handlings, style properties, and content manipulation (filters, patterns, elements, detection or creation of events) using scripting tools such as Javascript and jQuery.

**Prerequisite(s):** CSI 140

### **CSI 250 - Rich Internet Applications**

#### *5 Credits*

This course introduces the technologies of a rich internet application. Topics may include JavaScript frameworks such as AngularJS, Node.js, AJAX, and the data-interchange format such as JSON, as well as the ASP.NET MVC framework.

**Prerequisite(s):** CSI 242

#### **Course Outcomes**

1. Explain the concept of a rich Internet user experience.
2. Use ASP.NET, JavaScript, JSON and the AJAX Control Toolkit to create asynchronous AJAX-enabled web interfaces.
3. Create an e-commerce web solution using PayPal sandbox user and business accounts.
4. Develop and test responsive Model View Controller (MVC) web applications using HTML5, CSS3 and the ADO.NET Entity Framework as the database model.
5. Add security to existing web applications using ASP.NET identity technologies.
6. Develop single-page web applications using AngularJS.

### **CSI 260 - Introduction to Data Structures and Algorithms**

#### *5 Credits*

This course provides an introduction to mathematical modeling of computational problems. It covers the common algorithms, algorithmic paradigms, and data structures used to solve these problems. The course emphasizes the relationship between algorithms and programming, and introduces basic performance measures and analysis techniques for these problems.

**Prerequisite(s):** CSI 124

### **CSI 293 - Capstone Design and Development Project**

#### *5 Credits*

A comprehensive project, conceived by the student and approved by instructors, demonstrates the capability to integrate the major academic areas of communications, systems analysis and program development. Students are required to conceptualize, design, code, and test a web-based programming project of their own creation.

The project must utilize a database, graphics, user-friendly interfaces, and full written internal and external documentation. Students work with instructors on all pre-approved phases of the project. This project is mandatory for all students not on full-time cooperative/internship education.

### **CSI 294 - Cooperative Education/Internship (Optional)**

#### *10 Credits*

This course provides the option of cooperative/internship training in Computer Science, within the prescribed hours of the student's program of study. Instructor approval is required, and the experience can be either paid or unpaid. (Hours to 330 and credits up to 10.)

### **CSI 330 - Software Engineering**

#### *5 Credits*

Students will learn in project teams how to implement industry best-practice methods and tools for the systems development life cycle (SDLC) to identify and confirm business requirements, propose solutions, develop technical specifications usable in the design process, and communicate effectively to management, customers, and software developers. Object-oriented analysis/design, Agile software development methodologies and DevOps will be emphasized.

### **CSI 335 - Discrete Math**

#### *5 Credits*

Students will learn traditional discrete mathematical concepts such as logic, sets, relations, functions, function growth rates, induction, permutations, combinatorics, probability, matrices, trees and graphs. In addition, practical programming on these concepts will be emphasized along with focus on how these concepts are useful in computer science.

### **CSI 340 - Software Application Development I**

#### *5 Credits*

Utilizing software development methodologies, students will gain experience in programming web applications using the Windows platform. Emphasis will be put on user experience, responsive web interfaces, testing, deployment and security.

**Prerequisite(s):** CSI 330

### **CSI 345 - Advanced Data Structures and Algorithms**

#### *5 Credits*

Students will learn to program data structures important for supporting application development, such as stacks, queues, hashtables, sets, maps, trees, heaps

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and graphs, in addition to various searching and sorting algorithms. Emphasis will be put on algorithmic efficiency and practical applications related to computer science.

**Prerequisite(s):** CSI 335

### **CSI 350 - Software Application Development II**

#### *5 Credits*

Utilizing concepts from Software Engineering I, students will gain experience beyond web programming with models such as Windows application programming, Windows services, communication services in the Windows platform and other related application programming models. Coverage will also be given to parallel programming. Emphasis will be put on testing, deployment and security.

**Prerequisite(s):** CSI 340

### **CSI 360 - Mobile Application Development I**

#### *5 Credits*

Students will learn how to create Android applications using Android Developer Tools and the Android studio. Android applications will be run on virtual as well as hardware devices. Emphasis will be put on designing the user interface through views and view groups; adding and applying resource files; saving preferences and data; and using databases as a repository.

**Prerequisite(s):** CSI 340

### **CSI 460 - Mobile Application Development II**

#### *5 Credits*

In Mobile Application Development II, focus will be on leveraging various Android tools for threading, services, networking, Web APIs, multimedia, telephony, multi-touch, and hardware sensors. This course also includes more on database and content providers.

**Prerequisite(s):** CSI 360

### **CSI 470 - Data Mining**

#### *5 Credits*

Searching for patterns in related data is essential for businesses to understand what data is relevant to their enterprise. Students will learn to extract patterns mining in business data by programming various algorithms in classification, clustering and association.

**Prerequisite(s):** CSI 345

### **CSI 475 - Advanced Database Intelligence**

### *5 Credits*

Students will use ETL to integrate, clean, and transform data from multiple sources into a resultant data set to be loaded into a data warehouse. Advanced SQL will be written against the warehouse to help extract business insights.

**Prerequisite(s):** CSI 345 and CSI 470

### **CSI 483 - IT Project Management**

#### *5 Credits*

In this course students will learn the concepts, methodologies, and tools to successfully plan, manage, develop and deploy an IT development project. Students will employ the discipline of procuring, organizing and managing resources in a way that the project is completed within defined scope, quality, time and cost constraints. Mastering project management with the application of Agile methodologies is a key to gaining a competitive advantage.

**Prerequisite(s):** CSI 350

#### **Course Outcomes**

1. Work on team projects and demonstrate critical thinking, teamwork, oral communications, inter-cultural appreciation, and technical and information literacy skills.
2. Demonstrate ability to obtain and confirm business requirements for an application, translate these into technical specifications, assess the resource requirements, and divide the overall project requirements into smaller steps, organized to conform to the System Development Life Cycle model.

### **CSI 492 - Senior Capstone Project**

#### *5 Credits*

The capstone course challenges students to complete an original software development project to demonstrate mastery of the skills and technologies central to the BAS course of study. Projects will be web or mobile applications that offer a product or service or seek to solve a business problem. With input from a faculty mentor and program peers, students will define project scope, create workable project plans, and manage their project with quality, budget (if applicable), and schedule in mind. Final projects are formally presented for evaluation.

**Prerequisite(s):** CSI 460, CSI 470, and CSI 475

### **CSI 494 - Cooperative Education/Internship (Optional)**

#### *Up to 10 Credits*

This course provides the option of cooperative education/internship training in the work place. Instructor approval is required. Students may take up to 10 credits in lieu of CSI 492 and/or CSI 499. Students must work a minimum of 20 hours per week if taking 5 credits and a minimum of 30 hours per week if taking 10 credits. The scope of experience/internship work must fall within the information technology field and be applicable to BAS program outcomes. Students are required to check in monthly with the RTC instructor and provide monthly timesheets documenting their work. Employers are expected to return a student evaluation form to the RTC instructor at the end of the quarter. The experience/internship may be paid or unpaid.

**Prerequisite(s):** CSI 460, CSI 470, and CSI 475

### **CSI 499 - Emerging Technologies**

#### *5 Credits*

Students will receive instruction and practical application in leading-edge technologies relevant to rounding out education in application development. Topics will change from year to year.

**Prerequisite(s):** CSI 460 and CSI 483

### **Computer Science - Supplemental**

#### **CSIS 101 - Programming Fundamentals**

##### *5 Credits*

This programming fundamentals course provides a fun, engaging way for students to learn basic computer science and programming concepts. Before students start learning to program with text-based programming languages, this course will develop the foundational concepts of programming using drag and drop blocks to concentrate on the concepts rather than all the nuances of a typical text language. Students will start their block-based programming on the online coding platform, code.org, and then continue to learn the programming logic with Flowgorithm.

### **Construction**

#### **CONST 101 - Introduction to Construction and Architecture**

##### *2 Credits*

An overview of construction markets, factors driving investment in building, role of design, and career pathways in construction. Includes terminology and

business practices: estimating, bidding, scheduling, and project management.

### **Course Outcomes**

1. Recognize, explain, and relate to the construction project management life cycle.
2. Define, point out, and give examples of construction industry roles & responsibilities.
3. Apply construction terminology and use at industry-level.
4. Describe construction management career paths and identify potential interests and value.

### **CONST 103 - Introduction to Computers**

#### *2 Credits*

This 2-credit module prepares students to utilize word & spreadsheet processing features to increase the functionality of their documents in a construction management environment. Students will learn to create electronic documents and format tables. Students will learn to utilize advanced features of the spreadsheet processing package, working with formulas and functions, creating macros, and preparing worksheets with a focus on construction math breakouts and calculations.

### **CONST 105 - Spanish for Construction Supervisors**

#### *3 Credits*

This course covers Spanish vocabulary relevant to the construction industry, and basic grammatical structures used in Spanish. The course is designed for supervisors in the construction industry who want to learn some simple Spanish in order to communicate more effectively with Spanish-speaking employees.

### **CONST 115 - Budgeting and Accounting for Construction Management**

#### *5 Credits*

Learn basic budgeting and accounting principles and how to utilize them for the construction industry. Review how to track costs and resources on construction accounting systems. Develop and create job forecasts. Manage reports on costs and profits at a project level.

**Prerequisite(s):** Completion of MATH 075 or AMATH 175 with a 2.0 or higher, or equivalent placement.

### **CONST 140 - Construction Plan Reading**

#### *3 Credits*

Learn to read and interpret a variety of construction  
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plan drawings. Overview includes schedules, views, symbols, and stylistic conventions for the construction industry.

**Prerequisite(s):** Completion of MATH 075 or AMATH 175 with a 2.0 or higher, or equivalent placement.

### **CONST 160 - Materials, Methods & Equipment**

#### *3 Credits*

Influence of design constraints, material choices, and options for methods of installation and construction. Includes commonly used building techniques for steel, wood, masonry, and concrete as well as an overview of construction tools and equipment. Includes introduction to sustainability practices.

### **CONST 171 - American Architecture History and Design**

#### *3 Credits*

A survey of American architecture designed to showcase period buildings, construction techniques and research materials through assessing major styles (both commercial and residential, exterior and interior) with particular emphasis on social/cultural factors. The course has classroom lectures/discussions and off-campus site visits and is designed to help both construction professionals and interested non-professionals understand basic styles both in their pure form and through alterations by non-appropriate remodeling. While the class covers national trends, special emphasis will be placed on regional examples and subtypes. Required field trips (to Seattle and Tacoma) will explore local examples of building styles, both commercial and residential.

### **CONST 183 - Mechanical and Electrical Systems**

#### *3 Credits*

Further develop skills and understanding on how to read and interpret mechanical and electrical drawings and specifications. Emphasis on integrating the scope of work and sustainable practices into the total project. Major areas covered are HVAC, plumbing, electrical and fire sprinklers.

**Prerequisite(s):** Completion of MATH 075 or AMATH 175 with a 2.0 or higher, or equivalent placement.

### **CONST 185 - Civil Construction**

#### *3 Credits*

Introduction to road, storm drainage, water and sewer system construction. WSDOT/APWA standard specifications plans and environmental impact review included.

### **Course Outcomes**

1. Demonstrate and discuss civil construction methods, materials, standards, and practices using interactive negotiation techniques.
2. Discuss and analyze the WSDOT/APWA Standard Specification code book as a reference.
3. Apply and interpret multiple code sections to determine resulting outcomes.
4. Determine quantity of materials from civil plans and specifications.
5. Demonstrate an understanding of the intent of specific codes requirements.

### **CONST 190 - Cooperative Work Experience, Trades**

#### *3 Credits*

A cooperative work experience option may be available to qualified, approved students, allowing them to receive credit for work experience appropriate to their training. Through cooperative work experience, students have the opportunity to apply learned skills and gain actual on-the-job experience while completing their course of study. This class covers work experience in the trades that a construction manager would typically supervise.

### **CONST 202 - Quantity Survey and Estimating**

#### *4 Credits*

Learn how to estimate material, labor, and other costs for construction projects.

**Prerequisite(s):** CONST 140, CONST 160, strongly recommend CONST 103

### **Course Outcomes**

1. Recognize the value of the cost estimating process phase in the construction project life-cycle; from the decision to bid a construction building project; to preparing a bid proposal; to being awarded the contract and justifying value to the owner.
2. Identify the importance of the cost estimate to devise the basis to create a plan for a construction project management implementation capability once awarded the project through the bidding and negotiation cycle.

3. State and identify various scopes of work among the differing construction trades and activities; to have the ability to survey 'blueprints' and calculate material quantities; to evaluate and estimate labor & equipment; and demonstrate a working knowledge of the Construction Specifications Index (CSI) MasterFormat coding system.
4. Define and explain the importance of working on an estimating team and model the value of teamwork in a bidding project.

### **CONST 225 - Contract Administration and Procurement**

#### *3 Credits*

Course covers the typical elements of a construction contract, as well as analysis, interpretation, and implementation of various types of construction contracts. A review of the procurement process, material acquisition and delivery to the jobsite is also studied.

### **Course Outcomes**

1. Recognize, explain and relate to contract types.
2. Define, point out, and question types of contracting methodologies used in different projects.
3. Indicate best choice and apply construction contracting methodologies used at industry-level.
4. Red-Flag and proactively identify construction contract conflicts.
5. Select best contract strategy.

### **CONST 230 - Project Management - Planning and Scheduling**

#### *5 Credits*

Understand how to plan a construction project using the CSI MasterFormat and use to build a work breakdown structure (WBS). Identify work packages, tasks, and activities established in the cost estimate, including effort and duration baselines. Create a network diagram and develop a critical path by allotting time for activities within a construction project. Identify risks and alternative strategies that impact schedules and meet project milestones and deadlines. Introduction to scheduling and project management resources and software.

**Prerequisite(s):** CONST 202

## Course Outcomes

1. Define, create, and diagram a Work Breakdown Structure (WBS); and shall point out how it formulates organizing a scope-of-work as justification for a construction project management plan required for project execution.
2. Identify with and recognize all 16 divisions that are part of the Construction Specifications Index, CSI MasterFormat.
3. Define, create, and prepare data activity sheets in support of examining scope-of-work and generating effort of duration for estimated construction activities.
4. List, show, and sequence construction project work activities into logical and coherent relationships. Prepare and diagram a network diagram.
5. Calculate and predict ES, EF, LS, LF dates explaining and executing the 'forward pass' and 'backward pass' technique.
6. Prepare initial construction project schedules and estimated durations.
7. Identify, relate to, and argue the importance and value of the critical path on a construction project. Explain accompanying float, or "slack" on a construction project and its impact.
8. Describe the importance working on a planning & scheduling team and model the value of teamwork in a planning environment.
9. Convert network diagram and critical path calculation exercise technique and translate into a project management scheduling software application, (i.e. MS Project or P6). Prepare and defend logic and critical path calculations.
10. Identify with and explain the importance of the use of the Gantt chart (bar chart) in a construction management environment.
11. Name, translate, and apply generally-accepted project management principles of planning in a construction environment.

## CONST 250 - Project Safety and Accident Prevention

### 4 Credits

Learn to implement company safety plans and procedures. Topics covered include identifying and

minimizing job hazards, complying with WISHA and OSHA requirements, and understanding and developing a safety communications plan in addressing the risk of unsafe conditions on a construction jobsite. Students have the option to earn the OSHA 30 card in this course.

## Course Outcomes

1. Identify hazards common to construction job sites.
2. Identify basic abatement techniques and procedures.
3. Explain the "Hierarchy of Controls" for hazard mitigation.
4. Complete the requirements to obtain an Occupational Safety and Health Administration (OSHA) 30 Hour (Construction) Certificate/Card.

## CONST 251 - Safety Planning and Administration

### 3 Credits

Learn to develop company and organizational safety plans and procedures. Topics covered include training, documenting, and creating a safety-conscious climate on the job site. Students have the option to earn the OSHA 10 card in this course.

**Prerequisite(s):** CONST 140 (or instructor approval) & CONST 250

## Course Outcomes

1. Describe the liability issues associated with injuries and citations on multi-employer job sites.
2. List the basic elements that must be addressed in a general contractor's safety plan in order to prepare for an affirmative defense against WISHA citations.
3. Describe techniques used to develop a site-specific focus in a safety plan.
4. Critique a safety plan with respect to the affirmative defense elements.
5. Evaluate insurance coverage and insurance certificates.

## CONST 260 - Project Management - Execution of Work

### 5 Credits

Students will apply construction schedules, work on quality assurance and control issues, and identify with safety and risk management situations. Students will



use the cost estimate as basis for scope of work and project administration, and role-play how decisions are evaluated, made, and implemented during construction. Includes review of submittal/shop drawing and change order processing. Course identifies project stakeholders like owners, architects, general contractors, subcontractors, and suppliers and how they coordinate, negotiate, and resolve change disputes.

**Prerequisite(s):** CONST 101, CONST 140, CONST 160, CONST 183, CONST 202, CONST 230, CONST 270, CONST 280

### **Course Outcomes**

1. Apply a construction schedule to the execution of project work in progress and appraise its value in meeting cost, schedule, and profitability performance.
2. Identify with and recognize quality performance issues in the process of executing construction work; arrange corrective actions.
3. Recognize and apply the concept of risk management in construction project management and the execution of work.
4. Use construction project schedules and construction budgets and apply management decision-making technique to construction case study scenarios in change and conflict.
5. Identify, relate to, and value the importance of recordkeeping and tracking construction documentation on a typical building construction project; to include managing important submittals like shop drawings, manufacturers' data, and material samples.
6. Describe the importance of recognizing change in a construction project, and formulating a workflow plan/process justifying change in the course of construction project execution.
7. Plan, prepare, and generate change management procedure(s) and policy. Recognize the value of change and addressing the need to adapt to and synthesize change in a prompt and organized manner.
8. Identify with and explain the importance of establishing a Communications Plan; illustrate and highlight the importance of stakeholders in a construction management community, and

realize the importance of all stakeholders in a project.

9. Name, select, understand, and apply generally-accepted construction project management principles, documents, tools, and techniques in executing work in a building construction project environment.in a construction environment.

### **CONST 261 - Human Relations for the Construction Industry**

#### *3 Credits*

Covers work and communication styles, team building techniques, and leadership development. Related topics include roles and responsibilities, task delegation, harassment prevention, racial and cultural awareness, problem solving skills, conflict resolution, time management, performance evaluation, and e-mail etiquette. Role-play and practice resolving peer-to-peer, peer-to-supervisor, and company-to-company scenarios.

### **Course Outcomes**

1. Identify different elements that distinguish personality styles, learning styles, conflict resolution behaviors and styles, leadership styles, situational supervisory styles, and communication styles.
2. Using a variety of information sources, compare and contrast intrinsic and extrinsic motivation theories, including the three factors affecting performance, and develop an action plan to increase personal motivation in a personal and/or workplace situation.
3. Identify different elements of organizational behavior and change, including organizational climate, culture, power, ethics, and organizational development techniques. Students will develop a change model for an aspect of their personal and/or professional life.
4. Identify the elements of Emotional Intelligence and their impact on the workplace.
5. Employ active listening skills, including paraphrasing, questioning, empathic listening, analytic listening, and responding and communicating non-verbally, while respecting individual differences. (Learning lab, self-evaluation, peer evaluation, instructor evaluation, simulation, role play)

6. Assess the elements of teamwork, such as team development stages, leadership skills, team dynamics, problem-solving and decision making approaches, and team building.

### **CONST 262 - Labor Agreements (optional)**

#### *1 Credits*

Course covers the development and implementation of project labor agreements on large commercial construction projects. Case studies are discussed.

### **CONST 265 - Customer Engagement for Construction Proposals**

#### *3 Credits*

Focus on customer needs by learning presentation techniques. Students learn to create and develop proposals for various types of construction sales, from negotiated to competitive bid environments. Project-types include, but are not limited to, tenant improvements, commercial building, and residential bids to private owners and public entities. Students learn to listen and identify with what is most important to the customer.

### **CONST 266 - Advanced Technology for Construction I**

#### *2 Credits*

A study of the use of construction management information tools and systems used in the construction industry. Topics include building and formatting project documentation tools in support of project costs control and job performance. Build spreadsheets for cost estimating and bar chart schedules. Develop pivot tables for productivity and resource analysis.

**Prerequisite(s):** Keyboarding skills, familiarity with MS Windows, and CONST 103.

#### **Course Outcomes**

1. Explain the value delivered by MS Excel in creating construction management spreadsheets.
2. Relate often-used construction math formulas and devise & apply into an MS Excel CM tool.
3. Format a given Excel template and reconstruct a simple estimating, pricing, or schedule tool.
4. Describe basic take-off/estimating techniques for wood framing, concrete, and steel.
5. Improve blueprint reading; perform with accuracy typical Div. 9 finishes takeoffs, (unit sqft).

### **CONST 267 - Advanced Technology for Construction II**

#### *2 Credits*

This class is an introduction to Microsoft Project. Create Gantt and PERT charts, resource sheets, and calendars. Learn to tailor your reports to the nature of the project. Develop a project plan that identifies tasks, organizes tasks into a schedule, assigns resources and manages budgets.

**Prerequisite(s):** Keyboarding skills, familiarity with MS Windows and CONST 266.

### **CONST 269 - LEED Green Associate Preparation**

#### *2 Credits*

This course provides an introduction to green building and sustainable design principles, specifically as they relate to USGBC's LEED Green building rating system, summarizing the critical points of green design, construction and operations. It prepares individuals pursuing GBCI LEED Green Associate credential. Green Associate is the introductory-level credential for LEED, and demonstrates a general understanding of all the LEED rating systems. Students in this course will have access to take the LEED GA Exam at no cost.

### **CONST 270 - Understanding Structural Design**

#### *2 Credits*

Learn how to recognize, interpret and understand the structural concerns of a building project. This includes review of structural design criteria for simple concrete, steel, and wood construction. Engineering concepts are reviewed including dead and live loads; trusses; and learning about forces, stress, shear, and moments in simple systems. Students learn to trace loads through a simple structure.

**Prerequisite(s):** Completion of MATH 075 or AMATH 175 with a 2.0 or higher, or equivalent placement.

### **CONST 280 - Building Codes**

#### *2 Credits*

Study of the International Building Code includes review of minimum fire and safety standards, introduction to the permit process and environmental regulations for design, construction of buildings, and use and occupancy classifications. Definitions and requirements for types of construction, egress width, exits access, and accessibility are also covered.

**Prerequisite(s):** Completion of MATH 075 or AMATH 175 with a 2.0 or higher, or equivalent placement.

## **CONST 290 - Cooperative Work Experience, Construction Management**

### *3 Credits*

A cooperative work experience option may be available to qualified, approved students, allowing them to receive credit for work experience appropriate to their training. Through cooperative work experience, students have the opportunity to apply learned skills and gain actual on-the-job experience while completing their course of study. This class covers work experience as a construction manager.

## **Construction Industry Training Council**

### **CITC 101 - Carpentry Level 101**

#### *6 Credits*

Students will thoroughly review construction site and shop safety, trade mathematics, safe use of basic hand and power tools, blueprint reading, rigging, and an overview of carpentry careers.

### **CITC 102 - Carpentry Level 102**

#### *4 Credits*

Students will learn to read plans and elevations, then safely use hand and power tools to practice building floor systems, and wall and ceiling framing.

**Prerequisite(s):** CITC 101

### **CITC 103 - Carpentry Level 103**

#### *4 Credits*

Students will learn to read plans and elevations, then safely use hand and power tools to practice building floor systems, and wall and ceiling framing.

**Prerequisite(s):** CITC 102

## **Culinary Arts**

### **CUL 103 - Knife Skills I**

#### *3 Credits*

Students learn how to maintain and sharpen a knife, and practice basic knife handling techniques for safety, accuracy and industry production. Also, different knife manufacturing methods, compositions and types used in the industry are reviewed. Students learn classic knife cuts based on ACF standards and learn chiffonade, bouquet garni, sachet d'epice, onion brulee and pique, tomato concassée, citrus peeling, zesting and segmenting, and various vegetable specific techniques. Students learn how to display proper knife skills and correct mise en place for setting up a prep station per industry standards with emphasis on useable/unusable

trim and proper food handling in production and storage.

### **Course Outcomes**

1. Demonstrate proper knife sharpening techniques.
2. Display proper hand tools and equipment operation per industry standards.
3. Display classical knife cuts based on American Culinary Federation standards.

### **CUL 104 - Boucher**

#### *3 Credits*

Students further hone their knife skills with the fabrication of proteins, identify and fabricate round and flat fish, poultry, pork, lamb, and beef based on USDA standards, grades and specifications. Students participate in primal and secondary meat fabrication in a lab environment while learning the anatomy, grades, butchering techniques, total product utilization with standards for yields and costing. Emphasis is on organization, and sanitation is observed.

### **Course Outcomes**

1. Correctly identify and fabricate cuts of beef, pork, lamb, and veal.
2. Correctly identify and usage of sub-primal cuts of beef, veal, lamb, and pork.
3. Fabricate a variety of seafood and various poultry.

### **CUL 105 - Foundations**

#### *3 Credits*

Beginning level fundamentals including industry professionalism, culinary history, culinary organizations and classification of food and flavor development. To develop an understanding of the basic principles of sanitation and safety and to be able to apply them in the foodservice operations. Environmental and sustainable practices will be reviewed. To reinforce personal hygiene habits and food handling practices as they relate to chemicals and safe food handling throughout the Flow of Food in a kitchen. ServSafe sanitation is reviewed and a National Restaurant Association ServSafe Exam is offered.

### **Course Outcomes**

1. Obtain NRAEF ServSafe© certificate.

2. Demonstrate proper use, maintenance and safety techniques for a variety of commercial equipment.
3. Use the correct chemicals in a kitchen and have the ability to utilize SDS sheets as a First Aid measure per OSHA standards, and meet environmental standards and sustainability goals.
4. Identify current professional organizations within the field and explain their purposes and benefits based on the standards of the American Culinary Federation.
5. Identify and demonstrate the basic cooking methodologies in a brigade kitchen.
6. Identify and explain the uses of the herbs, spices, produce and kitchen staples.
7. Describe the proper usage of a standardized recipe.

#### **CUL 106 - Nutrition**

##### *3 Credits*

The nutritional needs of the general public in commercial food service are covered with emphasis placed on valid nutritional information from the National Restaurant Association Education Foundation (NRAEF) program. Emphasis is on the Food Guides and 2011 USDA "My Plate" as it relates to consumers' diets as well as the importance of roles of carbohydrates, proteins, lipids, and vitamins and minerals in the body. The study of healthy menu choices, marketing, good nutrition, and weight control are completed. Healthy cooking techniques are observed. Students have the opportunity to receive a Nutrition Certification through the NRAEF in this course.

##### **Course Outcomes**

1. Define the characteristics, functions and food sources of each of the major nutrients, vitamins and minerals.
2. Discuss the ability to correctly execute sound nutritional cooking techniques per industry standards.
3. Properly read and understand a food guide and product food label.
4. Identify sources of common food allergens.
5. Identify current USDA My Plate principles and food groups.

#### **CUL 107 - Saucier I**

##### *3 Credits*

Techniques and fundamentals of the sauce kitchen are reviewed. The students have the opportunity to make; miripoix, roux, buerre manie, slurries, liaisons and egg emulsion. Prepare white and brown stocks. Prepare five classic mother sauces (béchamel, espagnole, veloute, tomato and hollandaise sauce and derivatives). Prepare coulis, infused oils and vinegars. Mise en place and organization, planning, portion control, recipe, and utilization of product. Food quality, sanitation, mise en place and teamwork will be evaluated.

##### **Course Outcomes**

1. Explain and prepare a standardized recipe that includes; Mother sauces, basic thickener, clear and thick soups from a stock/broth.
2. Prepare and participate in production of student lunch.

#### **CUL 108 - Saucier II**

##### *3 Credits*

Techniques and advanced techniques of the soup kitchen are reviewed. Preparation of clear and thick soup, consommés, purees, veloutes, cream soups, bisques and chowders will be offered. Prepare chilled, regional, national, and international soups, the garnishing of soups and proper serving temperatures. Food quality, sanitation, mis-en-place and teamwork are evaluated.

##### **Course Outcomes**

1. Explain and prepare emulsion sauces, gastriques, and essences by preparing infused oils and spice bases for contemporary sauces per instructor standards.
2. Develop and prepare a standardized recipe to include advanced sauces, soups and stocks.

#### **CUL 109 - Entremetier I**

##### *3 Credits*

Prepare potatoes, grains, legumes, pastas eggs, soups and a variety of vegetables. Preparation and cooking methods such as blanching, par boiling, steaming, simmering, grilling, frying, sautéing, roasting, stewing, braising and baking, cutting, peeling, and trimming. In addition, proper portion sizing, seasoning and presentation are practiced. Food quality, sanitation, mise en place, and teamwork are evaluated.

## **Course Outcomes**

1. Explain and prepare a standardized recipe to include a variety of vegetables and starch preparations based on Dry, Moist and Combination heat methodologies.
2. Prepare and participate in production of student lunch.

## **CUL 110 - Fundamentals I**

### *3 Credits*

Students prepare various proteins and side dishes using moist heat cooking methods; techniques of poaching, simmering, boiling, and steaming. Proteins and side dishes apply to cafeteria menu offerings. Seasoning, presentation and hot food holding are discussed. Food quality, sanitation, mise en place, and teamwork are evaluated.

## **Course Outcomes**

1. Kitchen production skills in basic mise en place and station set-up.
2. Display correct techniques and cooking methods; for Dry Heat, Moist heat, & Combination Heat. per recipe.

## **CUL 111 - Fundamentals II**

### *3 Credits*

Display the preparation of various proteins and side dishes using dry heat cooking methods; techniques of broiling, grilling, roasting, baking, sautéing, pan-frying and deep frying. Seasoning, presentation and hot food holding are discussed. Food quality, sanitation, mise en place, and teamwork are evaluated.

## **Course Outcomes**

1. Intermediate level production & Fabrication of proteins and apply proper Dry, Moist, & Combination cooking methodologies appropriate to meat, fish and poultry.
2. Organize and execute Small batch cookery in cafeteria or quantity production.

## **CUL 112 - Fundamentals III**

### *3 Credits*

Students will research and study the regions of the United States heritage "Melting Pot" and international cooking cuisines. The cooking methods of the foods indigenous to the specific regions will be discussed. The preparation and cooking should reflect on authenticity, Renton Technical College

texture, flavor, consistency and appearance. Seasoning, presentation and hot food holding will be discussed. Food quality, sanitation, mise-en-place and teamwork will be evaluated.

## **Course Outcomes**

1. Fabricate and apply appropriate methodologies in advanced production, American regional, and International cuisines.

## **CUL 113 - CAFÉ Lead**

### *3 Credits*

Students function as a direct Station supervisor, developing leadership and teamwork while being responsible for all CAFÉ production. Emphasis is on daily assignments, product requisitions, production sheets, following recipes product utilization and coordinating sanitation requirements. The student is accountable for the coordination of station production, and is directly responsible for overseeing the production of the CAFÉ.

## **Course Outcomes**

1. Organization, planning, timeline and task assignments.
2. Participate in CAFÉ and Student Lunch production.

## **CUL 114 - Delicatessen I**

### *3 Credits*

Preparation of deli salads categorized as: tossed, bound, composed, vegetable, gelatin and fruit salads will be reviewed. Prepare vinaigrettes and mayonnaise-based dressings. Prepare salad greens and proper handling with emphasis on correct temperatures storing and service of cold food. Proper mise en place and preparation of sandwich meats and cheeses, pizza and dough, prepare and set up of salad bar per recipes. Customer relations with direct daily customer service will be evaluated. Food quality, sanitation, mise en place and team work are evaluated.

## **Course Outcomes**

1. Demonstrate the proper sanitation and storage of Ready to Eat Foods.
2. Ability to portion control meat, cheese and a variety of deli items.
3. Prepare a standardized recipe that includes basic salad dressings.

4. Prepare a standardized recipe that includes; tossed, composed, and bound salads of good texture, color and flavor.

### **CUL 115 - Delicatessen II**

#### *3 Credits*

Prepare hot and cold delicatessen foods in deli prep kitchen to compose and create special salads and sandwiches. Students prepare closed and open-faced sandwiches, specialty sandwiches, advanced salads, aioli and chutneys. Customer service relations, food quality, food handling, sanitation, mise en place, and teamwork are evaluated.

#### **Course Outcomes**

1. Explain and prepare a standardized recipe a variety of specialty/advanced salads and accoutrements.
2. Prepare and participate in production of student lunch.

### **CUL 116 - Garde Manger I**

#### *3 Credits*

Students learn about the Chaud froid process and preparations of brined, rubbed, smoked and roasted meats. Preparation of compound butters, infused oils and vinegars, coulis and salsas. Curing, pickling, preparation of hors d'oeuvres canapés, tapas, hot and cold buffet platter will be reviewed. Prepared foods, coulis, salsas and accoutrements will be evaluated with an emphasis on taste, textures and colors, and proper food handling techniques. This course involves hands-on training in customer relations with direct daily customer service.

#### **Course Outcomes**

1. Prepare a variety of hors d'oeuvres to include tapas, canapés, chutneys and sauces.
2. Display proper pickling, curing and smoking procedures.
3. Demonstrate roasting of turkey and roast beef to be used in Pantry and Deli.
4. Prepare cold meats for deli and pantry per instructor standards.

### **CUL 117 - Garde Manger II**

#### *3 Credits*

Students will roast, cure, rub and brine a variety of meats for deli and pantry service. Basic charcuterie fundamentals of forcemeats for galantines, terrenes, sausages and aspic are prepared. Production of a composed cold platter for eight to include chemise, galantine, tureen and one solid protein smoked, poached, roasted, braised or grilled. Accoutrements of salad, two standing garnishes and one sauce to be presented and judged per ACF cold standards food quality, sanitation observed.

sausages and aspic are prepared. Production of a composed cold platter for eight to include chemise, galantine, tureen and one solid protein smoked, poached, roasted, braised or grilled. Accoutrements of salad, two standing garnishes and one sauce to be presented and judged per ACF cold standards food quality, sanitation observed.

#### **Course Outcomes**

1. Prepare a variety of cold salads, chutneys, sauces to accompany charcuterie platter illustrating and good nutritional balance, texture and flavor compatibility.
2. Prepare a variety of beef and poultry cured and smoked products utilizing correct curing salt amount, texture, taste, aroma, color and instructor standards.
3. Demonstrate the ability to prepare a variety of forcemeats based on classical formula. With correct mise en place and garnish assembly to illustrate smooth texture and even seasoning per instructor specifications.

### **CUL 118 - Breakfast Cookery**

#### *3 Credits*

Preparations of breakfast cookery, including egg styles, meats, batters, starches and garnishes will be reviewed. Students will be evaluated on their speed, efficiency, organization, hygiene, cleanliness, presentation and health consciousness. Students are trained to fulfill contemporary nutritional requirements including the ability to plan and execute nutritionally sound breakfasts. Customer relations service techniques are employed.

#### **Course Outcomes**

1. Prepare a variety of cold salads, chutneys, sauces to accompany charcuterie platter illustrating good nutritional balance, texture and flavor compatibility.
2. Prepare a variety of beef and poultry cured and smoked products utilized correct curing salt amount, texture, taste, aroma, color and instructor standards.
3. Demonstrate the ability to prepare a variety of forcemeats based on classical formula. With correct mis en place and garnish assembly to illustrate smooth texture and even seasoning per instructor specifications.



## **CUL 119 - Bakery Basics**

### *3 Credits*

Bakery production including equipment, operation and maintenance and scaling, American and European Skills in preparation of yeast, quick breads, puff pastry, creams, custards, pies, and cookies. Organization, mise en place, bakery bench skills, teamwork, time planning, cake decorating and display presentations.

### **Course Outcomes**

1. Prepare standardized recipe worksheet, production timeline and requisition form.
2. Display slicing, filling, and icing basic bakes with texture, smooth finish and attractive appearance.
3. Prepare a variety of pies.
4. Prepare puff pastry and pate-a-choux and finished make up.
5. Prepare yeast dough and quick breads of quality texture, even browning and good flavor.
6. Prepare a variety of desserts for Friday Buffet.

## **CUL 120 - Purchasing and Receiving**

### *3 Credits*

Students are involved with invoicing, pricing, costing, and weekly inventories. Review and participation in product identification, storage procedures, inter-department transfers, and inventory control, stocking procedures, FIFO system, and quality control are completed.

### **Course Outcomes**

1. Proper grading and identification of meats, poultry, seafood, eggs, dairy products, fruits and vegetables.
2. Evaluate received goods to determine conformity with user specifications.
3. Practice proper receiving and storing of meat, fish, poultry, produce, staples and cleaning supplies.
4. Explain and practice FIFO system to include the walk-in, freezer and store room areas.
5. Practice proper cleaning and organization of storage areas.

## **CUL 121 - Dining Room Service**

### *3 Credits*

Students actively learn the importance of teamwork among kitchen personnel and techniques of service, menu preparation, suggestive selling, and point-of sale procedures, organizing and placing orders, techniques for bus station and dining room setup. Emphasis is on personal appearance, customer relations, attitude, hygiene and safety.

### **Course Outcomes**

1. Perform dining room service functions using a variety of types of service.
2. Performance, preparation, and presentation of designated menu item for tableside.

## **CUL 122 - Wine Appreciation**

### *2 Credits*

Wine, Beer and Spirits; this course reviews the growing regions, history, soil, climate and geography reaction to the grape varieties, hops and grains. Distillation and fermentation processes to include the bottling process of the wine, beer and spirits industry. Skill enhancement on pairing wine, beer and spirits with food is covered. Handling procedures, storage, presentation of beverages and WSLCB liquor laws are addressed.

### **Course Outcomes**

1. Evaluate the relationship of beverages to food.
2. New and Old world grape varieties, growing regions (Appellations), production process, growing and crushing of grapes.
3. Explain Federal and WSLCB alcohol laws.

## **CUL 123 - Entremetier II**

### *3 Credits*

Prepare a variety of vegetable, starch, pastas, soups, egg and farinaceous dishes. Knife skills to include; tourne, batonnette, allumette, rondelle, paysanne, julienne, and chiffonade will be used in this course. Utilizing methodologies such as; grilling, steaming, poaching, sautéing, and broiling will be used in this course. Attention to; appearance, texture, seasoning, quality, consistency and ability to produce under time constraints will be reviewed. Mise en place, organization, coordination and ergonomics in the kitchen will be monitored and reviewed.

### **Course Outcomes**

1. Explain and prepare standardized recipes that includes a variety of vegetable and starch dishes for Culinaire al la carte menu.
2. Demonstrate appropriate knife techniques and cooking methodologies.
3. Demonstrate plating of vegetables and starches per industry standards.

#### **CUL 124 - Fry Station**

##### *3 Credits*

Prepare crispy, golden brown and flavorful fried foods with appropriate ingredient selection, mise en place, costing and presentation of à la carte menu items. Ensure quality, timeliness, correct cooking procedures, attractive, appetizing garnishes and presentation. Prepare sauces that are appropriate to fried dishes, consistency, ability to produce under time constraints, organization, coordination and ergonomics in the kitchen.

##### **Course Outcomes**

1. Apply appropriate knife techniques and cooking methodologies.
2. Prepare a variety of pan fried, deep fried and battered foods.
3. Demonstrate proper filtering and cleaning of the fryer.
4. Prepare and participate in production of student lunch.

#### **CUL 125 - Sauté Station**

##### *3 Credits*

Prepare a variety of sautéed foods with appropriate ingredient selection, mise en place. Ensure quality, timeliness, correct cooking procedures, presentation and garnishing. Prepare classical and contemporary sauces compatible with sautéed dishes. Emphasis is on consistency and ability to produce under time constraints, organization, coordination, and ergonomics in the kitchen.

##### **Course Outcomes**

1. Prepare a variety of sautéed à la carte dishes.
2. Prepare a la carte sauce that illustrate nappe consistency and compatibility to menu items.
3. Identify and use utensils, pots and pans appropriate to various cooking methodologies.

#### **CUL 126 - Broiler Station**

##### *3 Credits*

Prepare attractive and appetizing grilled/broiled foods with appropriate ingredient selection, mise en place, costing and presentation of à la carte menu items. Ensure quality, timeliness, correct cooking procedures, and presentation. Prepare à la carte classical and contemporary sauces of consistency and compatibility with grilled dishes. Emphasize consistency, ability to produce under time restraints, organization, coordination, and ergonomics in the kitchen.

##### **Course Outcomes**

1. Demonstrate the ability to prepare a variety of grilled/broiled items.
2. Identify and use utensils to various cooking methodologies.
3. Demonstrate to grill products to correct temperatures.

#### **CUL 127 - Lead Line**

##### *3 Credits*

Brigade system organization kitchen supervisor that develops leadership and teamwork on the line is completed. Responsible for production of all food on the restaurant line, demonstrate the ability to lead and ensure quality, timeliness, correct cooking procedures, attractive and appetizing presentations. Develop menu concepts, mise en place, costing and presentation of daily specials, emphasize consistency, time constraints, organization, coordination between hot and cold line as well as front and back of the house staff.

##### **Course Outcomes**

1. Supervise and direct cooking procedures in a la carte service area.
2. Function as a direct line supervisor; developing techniques of leadership and responsibility within a team environment.
3. Manage the flow of service between and kitchen and dining room.
4. Prepare and participate in production of student lunch.

#### **CUL 128 - Pantry**

##### *3 Credits*

Pantry kitchen is part of the à la carte kitchen line that creates; special sandwiches- both hot and cold, specialty salads and cold food menu items. Seasonal menu development with costing and plate

presentations is reviewed. Cold food preparation, holding for consistency, ability to produce under time constraints, organization, ergonomics in the kitchen, and coordination between hot and cold line as well as front and back of the house is covered.

#### **Course Outcomes**

1. Demonstrate a variety of cold salads, appetizers and specialty dressings.
2. Prepare a variety of hot and cold sandwich specials.
3. Prepare of variety of desserts for a la carte menu.

#### **CUL 129 - Advanced Techniques - Capstone**

##### *3 Credits*

Demonstrate hot and cold preparation skills in the planning, costing, developing, and preparing of various menu and food displays. All menu dishes are graded on taste, appearance, cost effectiveness, feasibility and overall customer appeal, as well as strict sanitation procedures. Menu's include; 1.) Composed cold platter to ACF standards and instructor's criteria. 2.) Hot food preparation of a 5-course menu with six portions is completed. 3.) Mystery basket challenge to ACF competition standards will be completed.

#### **Course Outcomes**

1. Plan, create, formulate, prepare and present a six-course menu for six portions.
2. Plan, create, formulate, prepare and present a cold food platter based on the ACF guidelines for Cold Food competitions for eight.
3. Create, formulate, prepare and present a mystery basket of a 5 course menu for six portions.

#### **CUL 130 - Sous Chef**

##### *3 Credits*

Students function as the direct kitchen supervisor, developing leadership and teamwork skills while responsible for all kitchen production. Emphasis is on daily assignments, production sheets, menu planning and product utilization. Hands-on food demonstrations to junior students and in coordination of station production are completed daily. The responsibility of overseeing all functions of production in the kitchen and special events is graded upon the instructor's criteria.

#### **Course Outcomes**

1. Demonstrate techniques of leadership, responsibility and teamwork for production in all areas of the kitchen, to include daily pre- and post-class meetings with students.
2. Exhibit role model behaviors in sanitation, proper food handling and professionalism.
3. Monitor time/temp logs and sanitation standards in all areas.
4. Assist the chef/instructors in daily functions and adjust duties of students as needed to accomplish daily tasks in kitchen.

#### **CUL 180 - Industry Communications - Human Relations**

##### *3 Credits*

This course provides the opportunity to learn the basic writing and oral communication skills for the culinary environment. Students author memos, cover letters, resumes, and written culinary directives. Oral presentations on the processes and training methods of food presentation are completed. Interviewing, conflict resolution, and team leadership are also addressed. Race relations, sexual harassment, stress management, problem-solving, team development, and leadership techniques are all discussed in this lecture-based course.

#### **Course Outcomes**

1. Describe the correct methods to identify and resolve conflict in the kitchen per industry and instructor standards.
2. Identify leadership styles and their appropriateness in food service per industry and instructor standards.
3. Identify the process of management through effective communication skills per industry and instructor standards.
4. Describe motivational techniques and correct procedures for creating attitudinal changes in the work environment per industry standards.
5. Understand proper procedures for new employee orientation per industry standards.
6. Demonstrate the ability to promote change and clearly execute ways of implanting change with the least employee resistance and successful implementation per industry standards.

## **CUL 190 - Co-operative/Internship/Work Experience**

### *5 Credits*

This is an instructor approved paid or unpaid work experience related to the student's program of study. Punctuality, attendance, and meeting the employer's expectations are the keys to a student's success.

### **Course Outcomes**

1. Apply learned skills in an industry working environment related to the Culinary Arts program with performance levels acceptable to the internship sponsor and instructor specifications.
2. Demonstrate the ability to conduct weekly meetings with instructor and cooperative employer per instructor standards.

## **Culinary Arts Apprentice**

### **CULAP 101 - Culinary Arts Apprenticeship - Introduction to Food Service**

#### *2 Credits*

To develop an understanding of the hospitality industry and career opportunities in the field. To investigate trade publications and professional organizations appropriate for continuing education. To become familiar with the organizational structure and basic functions of departments within the hospitality and food service establishments.

### **Course Outcomes**

1. Define the philosophy of the hospitality industry and its role in providing customer service.
2. Trace the growth and development of the hospitality and tourism industry from its birth to its present day. Include names of restaurateurs, chefs, and hospitality entrepreneurs that helped to shape our industry in the past and present day.
3. Discuss and evaluate the importance of professional ethics as it applies to the foodservice industry.
4. Outline the organization, structure and functional areas in various hospitality organizations as they pertain to the function of menu planning, purchasing, food production and services, food and beverage controls, management, etc. and give a short description for each.

5. Evaluate the types of professional organizations associated with the hospitality and foodservices profession, and discuss these organizations role in preparing and advancing ones career in the industry.
6. Evaluate the types of professional career opportunities in the hospitality and foodservice industry with support of guest speakers, field trips and stages.
7. Discuss/evaluate industry trends as they relate to the various segments of the foodservice and hospitality industry.
8. Discuss and evaluate industry trade periodicals, books, and journals that can contribute to individual growth and learning as they pertain to technical skills.

### **CULAP 102 - Culinary Arts Apprenticeship - Sanitation and Safety**

#### *3 Credits*

Self-paced online course using KP compass ServSafe study modules to become familiar with foodborne illnesses, potentially hazardous foods, time/temperature principles, hygiene rules and habits, receiving and storage practices, Hazard Analysis Critical Control Point (HAACP), contamination and spoilage of foods, Safety Data Sheets (SES), right to know laws, emergency policies, pest control, fire extinguishers, laws and agencies governing food service operations. Students will have the opportunity to take a National Restaurant Association ServSafe 5 year certification exam.

### **Course Outcomes**

1. Identify microorganisms, which are related to food spoilage and foodborne illnesses; describe their requirements and methods for growth.
2. Demonstrate acceptable procedures when preparing potentially hazardous foods to include time/temperature principles.
3. Demonstrate good personal hygiene and health habits in a laboratory setting to include handwashing.
4. Outline the requirements for proper receiving and storage of both raw and prepared foods.
5. Identify the Hazard Analysis Critical Control Point (HAACP) during all food handling processes as a method for minimizing the risk of foodborne illness.

6. List the major reasons for and recognize signs for food spoilage and contamination.
7. Recognize sanitary and safety design and construction features of food production equipment and facilities (i.e., NSF, UL, OSHA, ADA, etc.)
8. Review Safety Data Sheets (SES) and explain their requirements in handling hazardous materials. Discuss right-to-know laws.
9. Identify proper methods of waste disposal and recycling.
10. Demonstrate appropriate emergency policies for kitchen and dining room injuries.
11. Describe appropriate measures for insects, rodents and pest control eradication.
12. Describe appropriate types and use of fire extinguishers used in the foodservice area.
13. Review and apply the laws and rules of the regulatory agencies governing sanitation and safety in a foodservice operation.

### **CULAP 103 - Culinary Arts Apprenticeship - Food Preparation I**

#### *2 Credits*

Students will study fundamentals of the kitchen starting with knife skills and kitchen safety. Review of basic measurements, food quality, principles of heat transfer, recipe conversions, and factors of taste development will be completed. Analyzing the basic mother sauces and derivatives are reviewed. Discussion on the kitchen brigade evolution to include requisition of products.

#### **Course Outcomes**

1. Discuss proper kitchen safety including knife care.
2. Compare methods of measuring ingredients (liquid versus dry).
3. Discuss how to maximize food freshness, quality, safety, and sanitation when serving hot foods and cold foods.
4. Discuss the principles of heat transfer as they relate to cooking methods including roasting and baking, broiling, smoking, grilling, griddling, sautéing, frying, deep-frying, braising and stewing, poaching and steaming.
5. Discuss recipe conversions.
6. Explain the factors that affect taste, how we perceive those states and what we can do to optimize a combination of seasonings and flavors when preparing and cooking food.
7. Evaluating the differences in methods to develop flavor through preparation.
8. Analyze the relationship of mother sauces and their derivatives.
9. Discuss the evolution of the kitchen brigade.
10. Prepare written requisitions for production requirements.

### **CULAP 104 - Culinary Arts Apprenticeship - Food Preparation II**

#### *2 Credits*

Students will discuss more advanced cooking methodologies to include cooking techniques, current sauces and marketing trends. Discussion on master production schedules and how they relate to production lists and the brigade system. Evaluate and analyze all varieties of proteins, vegetables, legumes, grains and starches. Discuss sustainability and how it effects our industry now.

#### **Course Outcomes**

1. Discuss the advancement of cooking techniques commonly found in today's kitchen (immersion circulation, molecular, etc.).
2. Discuss modern sauces and how they relate to the classics.
3. Discuss the trends and fads commonly seen throughout the food service industry and how they relate to food preparation.
4. Discuss a master production schedule for large operations and how it relates to individual production lists.
5. Define the importance of the historical chefs in the industry and their contribution.
6. Define and describe the process for making classical stocks, soups, mother and compound sauces.
7. Evaluate and analyze a variety of proteins (including beef, chicken, pork, fish, game, lamb and veal), vegetables, legumes, grains, and starches using moist, dry and combination cooking methods.

- a. Moist heat methods to include steam, deep and shallow poach, simmer and boil.
  - b. Dry heat methods to include deep fry, sauté, pan try, grill, and roast.
  - c. Combination cooking methods to include poêle, stew, and braise.
8. Evaluate and analyze the preparation of classical stocks, soups, mother and compound sauces.
  9. Discuss the impacts of sustainability efforts in the food service industry and how they affect food production including staffing, morale, retention and growth of the industry.

### **CULAP 106 - Culinary Arts Apprenticeship - Food Cost Accounting**

#### *2 Credits*

Students have the opportunity to learn basic math that applies to daily kitchen operations to include, weights, measures, scaling, costing, evaluating recipe costs, calculating food costs, understanding expenses, P/L statements, budget creation and current marketing techniques. Review of baker's percentage, butcher's yields and determining selling prices will be completed.

#### **Course Outcomes**

1. Perform basic math functions to include fractions, weights and measurements.
2. Demonstrate competency of scaling, measuring, weighing ingredients with a portion scale.
3. Evaluate the components and functions of a standardized recipe.
4. Convert recipes using a yield formula to increase and decrease quantities.
5. Cost a recipe giving the overall cost, individual cost and menu sales price.
6. Calculate food cost to determine selling price using the factor method and/or percentage method.
7. Determine the amount of product needed in a baking and pastry recipe using the baker's percentage method.
8. Determine a butcher yield percentage to track cooking and carving loss, and determine the new yield and cost per pound.

9. Determine beverage costs and percentages.
10. Determine labor costs and percentages to include employee meals, benefits, fixed and variable labor hours.
11. Define controllable or variable expenses and discuss how prime costs can contribute to the overall variable costs.
12. Define and describe a profit/loss statement and assess how it is used to determine profitability in a foodservice operation.
13. Prepare a yearly budget to include food, beverage, and labor, controllable and fixed costs while determining profit.
14. Perform costing calculations utilizing current technology.
15. Identify marketing techniques to increase sales and profitability of restaurant operations.

### **CULAP 107 - Culinary Arts Apprenticeship - Dining Room Service and Beverage Management**

#### *2 Credits*

Students actively learn the importance of teamwork among kitchen personnel and techniques of service, menu preparation, suggestive selling, and point-of sale procedures, organizing and placing orders, techniques for bus station and dining room setup. Emphasis is on personal appearance, customer relations, attitude, hygiene and safety. Student will understand the current laws pertaining to the purchase and service of all alcoholic beverages. Students will also be able to explain the difference between fermented and distilled production processes and be able to distinguish wines by grape and growing regions. Students will be able to discuss all aspects and ramifications of serving alcohol and all other beverages in their operations.

#### **Course Outcomes**

##### ***Dining Room Service:***

1. Describe the mechanics of proper table service as it pertains to American, English, Russian, French, and buffet services.
2. Explain the importance of communication between the front and back of the house employees.
3. Describe the various functions of dining service personnel.



4. Perform the duties associated with a front and back server.
5. Discuss sales techniques used in increasing the guest check average.
6. Develop a guest service process when handling difficult guest situations to include accommodating the disabled.
7. Analyze and assess the training procedures required when working with the dining room personnel.
8. Explain the importance of using proper automated procedures when processing guest checks (include POS, Square, and Google).

#### ***Beverage Management:***

1. Identify local, state and federal laws pertaining to the purchase and service of alcoholic beverages including the effects of the Dram Shop Act on foodservice operations that serve alcohol.
2. Discuss and explain the basic production process for distillation and fermentation.
3. Distinguish wines by grape and/or other fruit variety, country, growing region and production process.
4. Analyze and evaluate the importance of the ongoing relationship between beverages and food and discuss that relationship in reference to menu planning.
5. Identify and discuss the presentation and service of alcoholic, non-alcoholic and beverages, including coffee and tea.
6. Identify equipment and glassware used for beverage preparation and service.
7. Discuss opening and closing procedures of a beverage operation.
8. Discuss the fundamentals and importance of responsible alcohol service; identify the levels and signs of intoxication and methods to control excessive consumption by guests. (Recommendation alcohol training certification).

#### **CULAP 108 - Culinary Arts Apprenticeship - Nutrition**

##### ***3 Credits***

The nutritional needs of the general public in commercial food service are covered with emphasis

placed on valid nutritional information from KP Solutions Nutrition Modules. Emphasis is on the Food Guides and 2011 USDA "My Plate" as it relates to consumers' diets as well as the importance of roles of carbohydrates, proteins, lipids, and vitamins and minerals in the body. The study of healthy menu choices, marketing, good nutrition, and weight control are completed. Healthy cooking techniques are observed. Students who wish to obtain Nutrition Certification can sign up for a proctored manage first exam after the class.

#### **Course Outcomes**

1. Identify and discuss dietary guidelines and recommended dietary allowances based on current USDA Food Guideline principles and food groups.
2. Describe primary characteristics, functions and major food sources of major nutrients.
3. List the primary characteristics, functions and sources of vitamins, water and minerals.
4. Interpret food labels in terms of the portion size, ingredients and nutritional value.
5. Identify common food allergies and determine appropriate substitutions (i.e. gluten, sugar, lactose free).
6. Evaluate and analyze recipes and menus using dietary guideline recommendations, food guides and food labels.
7. Discuss contemporary nutritional issues to include specialty diets, dietary trends, and religious dietary laws (i.e. vegetarianism, heart-healthy menus, food allergies, alternative dieting, vegetarian, etc.).
8. Discuss and demonstrate cooking techniques that apply sound nutritional principles and current industry trends.

#### **CULAP 109 - Culinary Arts Apprenticeship - Garde Manger**

##### ***2 Credits***

Develop skills in producing a variety of cold food products and to prepare items appropriate for buffet presentation, including decorative pieces. Evaluate and explain a variety of cold sauces and salad dressings. Describe the characteristics of sandwiches, canapé, appetizers, and hors d'oeuvres. Describe how to evaluate quality and products. Explain the processes of brining, curing, smoking, pickling and preserving foods.

Discuss the various cheeses used in today's garde manger.

### **Course Outcomes**

1. Identify tools, equipment and products typically used in Garde Manger with emphasis on proper food handling, including safety, sanitation, and storage.
2. Discuss the principles and philosophies of the Garde Manger kitchen.
3. Explain the design principles and layout of a modern buffet, incorporating sanitation and off-premise catering challenges when feeding quantity foods.
4. Evaluate a variety of cold sauces and flavoring techniques utilized in the cold food kitchen.
5. Define basic types of salad dressings and produce a variety of salad dressings including emulsified, dairy based, vinaigrette and coulis.
6. Explain the history and defining characteristics of the sandwich, as well as, the most popular modern variations.
7. Explain the history and defining characteristics of a hors d'oeuvre, canapé, and appetizer, as well as, give examples of each.
8. Describe the techniques used in maintaining quality of ingredients and preparation methods used to ensure freshness when producing a sandwich.
9. Explain the history and technical importance of curing, brining, pickling and smoking in preserving foods to maintain flavor, quality and sanitation.
10. Describe, identify and evaluate the various categories of cheeses and include several types and names of cheese associated with each category.

### **CULAP 110 - Culinary Arts Apprenticeship - Menu Planning**

#### **3 Credits**

Apply the principles of menu planning and layout to the development of menus for a variety of types of facilities and services, to include cyclical, a la carte, prix-fixe and table d'hôte. Apply seasonality and sustainability to menu development to include truth-in-menu, nutritional information and laws governing them. Define menu costs and work with industry standards on

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food costs to define menu prices.

### **Course Outcomes**

1. Identify basic menu principles when determining layout and design.
2. Describe the various types of menu available and explain when and how they are to be used.
3. Discuss the rationale for a seasonal menu and analyze how it may affect the overall menu costs, food quality and availability.
4. Create menu descriptions following established truth-in-menu guidelines.
5. Apply principles of nutrition when developing recipes and menu choices to include labeling laws that address allergies and raw food.
6. Determine food, labor cost and equipment utilization when determining menu item placement, flow of the operation, and successful manageability of the foodservice operation.
7. Determine menu prices using the percentage or factor methods in order to determine industry standard food costs.
8. Discuss menu-planning resources to include internet, professional sources, vendors, and foodservice associations.
9. Explain the importance of product mix and check average and their impact on profit contribution.
10. Develop a menu layout for a foodservice operation to include an example of a cyclical, a la carte, prix-fixe, or table d'hôte, or buffet.

### **CULAP 112 - Culinary Arts Apprenticeship - Baking and Pastry**

#### **2 Credits**

To apply the fundamentals of the science of baking and how it applies to the preparation of a variety of products, to include; bread production, both natural and chemical leavening, pie crusts, mixing methods, cookie types, cake types, icings custards, creams and sauces. Review and define what pâte à choux, meringue, phyllo and batters are in a kitchen. Students will understand processes of laminated doughs and be able to create and modify recipes for more beneficial nutrition. To use and care for equipment normally found in the bake shop or baking area and to understand baking terminology.

## Course Outcomes

1. Define baking terminology and explain how to apply them.
2. Identify tools, small and large equipment used in a commercial bakeshop and demonstrate proper handling of these items to include safety, sanitation, and storage.
3. Identify baking ingredients and explain their function in the formulation of baking and pastry recipes.
4. Demonstrate math skills that apply to baking to include, scaling, measuring and baker's percentage.
5. Describe the process of bread production with natural and chemical leavening agent to include the mixing methods.
6. Define and describe the various types of pies and tarts and explain the process of making different types of pie crusts to include the mixing methods.
7. Describe the variety of cookie types and the mixing methods utilized to produce them.
8. Describe:
  - a. The variety of cake types and the mixing methods utilized to produce them.
  - b. The variety of icings and toppings available in and covering various cakes.
9. Describe the various types of custards, creams and sauces available in the bakeshop.
10. Define and describe pastry items to include pâte à choux, meringues, phyllo and batters (pancake, waffle, fritters, and crepes) and explain the method of preparing these items.
11. Define and describe the process of production for laminated doughs and the varieties of products that utilize this method of production.
12. Discuss recipe modification to create nutritionally beneficial alternatives to baked goods and desserts.

## CULAP 113 - Culinary Arts Apprenticeship - Purchasing and Receiving

### 2 Credits

To review and discuss the overall concept of purchasing and receiving practices in quality foodservice

operations. To apply knowledge of quality standards and regulations governing food products to the purchasing function. To review and discuss the proper techniques on receiving and storage of food and non-food items.

## Course Outcomes

1. Discuss the flow of goods in a foodservice operation.
2. Describe purchasing methods used in foodservice operations (i.e. bids, cost+, purchase orders, phone, sales quotes, etc.).
3. Identify dry, refrigerated and frozen foods used in a commercial kitchen.
4. List factors that affect food prices, menu costs and quality such as market fluctuation, seasonality, product availability, supply and demand.
5. Explain the importance of a written food specification when ordering food and describe the components that are included in the food spec.
6. Discuss and analyze the importance of sanitation and HACCP procedures that affect receiving and issuing of goods in a foodservice operation.
7. Describe proper techniques of receiving and storing fresh, frozen and dry proteins, produce, eggs, dairy, and dry goods.
8. Explain regulations for inspecting and grading meats, poultry, seafood, eggs, dairy products, fruits and vegetables as outlined in the USDA, National Association of Meat Purveyors and other governmental regulatory agencies.
9. Explain and demonstrate the proper receiving and issuing procedures for non-food items such as chemicals in a foodservice operation.
10. Describe, write and use a food requisition, when ordering, receiving and issuing a food product.
11. Receive, store and issue food products utilizing written specs, proper food handling procedures.
12. Define, describe and explain the importance of a par system when ordering, receiving and storing food and the terms FIFO and LIFO, and how they are used effectively to maintain proper storage procedures.

13. Describe various technologies available to assist in the process of ordering and inventorying of food products.
14. Discuss inventory control procedures to deter theft and spoilage that can affect food costs.

#### **CULAP 114 - Culinary Arts Apprenticeship - Supervisory Management**

##### *3 Credits*

To prepare the apprentice for the transition of employee to supervisor. To evaluate styles of leadership in the industry and develop skills in human relations and personnel management to include; conflict resolution, types of stress and legal concerns in the kitchen. Motivational techniques and communications skills will be discussed.

##### **Course Outcomes**

1. Describe process of management through effective communication skills and interpersonal relationships.
2. Identify the difference between a manager and a leader and describe the qualities of each.
3. Summarize leadership styles and analyze when each is most appropriate.
4. Describe the supervisor's role in decision-making, problem solving and delegation of duties.
5. Describe the characteristics of a job description and develop a written example with job specifications.
6. Define the term motivation and give examples of motivational techniques used with employees. Analyze the effectiveness of each motivational example.
7. Assess and evaluate methods of conflict resolution and grievance procedures (union/non-union) when it comes to problem solving.
8. Identify types of stress found in the workplace and analyze positive ways of dealing with it.
9. Explain the importance of time management and give examples to include other organizational management techniques that provide labor cost effectiveness.
10. Discuss state and federal employment laws as they pertain to legal issues related to

managerial decisions (sexual harassment, discrimination, violence/anger and unemployment compensation).

11. Explain the purpose of a mission and vision statement and how they are used in organizational management.
12. Describe the process of hiring, training, disciplining and/or firing an employee based on human resources, state and federal laws that affect these processes.

#### **CULAP 115 - Culinary Arts Apprenticeship - Practical Exam Prep**

##### *2 Credits*

To prepare the Apprentice for the Certified Sous Chef practical and written assessments. Students will participate with hands-on labs honing fabrication skills of a variety of proteins (beef, lamb, chicken, pork, fish and game). Production of mother sauces to small sauces, cooking techniques for vegetables, starches and proteins will be completed. Advanced plating techniques utilized in the industry will be demonstrated.

##### **Course Outcomes**

1. Demonstrate fabrication of flatfish.
2. Demonstrate different cooking and plating methodologies for flatfish filets.
3. Demonstrate rice pilaf methodology.
4. Demonstrate proper broiling of meats to desired temperatures to include NY striploin.
5. Demonstrate proper methodology of vinaigrettes and pairing with appropriate greens.
6. Demonstrate a matignon to specifications.
7. Demonstrate proper fabrication and cooking of artichokes as defined in the Professional Cooking text.
8. Demonstrate stocks to sauces to plating techniques to current industry standards.

#### **CULAP 116 - Culinary Arts Apprenticeship - Bite of Apprenticeship**

##### *1 Credits*

Apprentice will work with the POE supervising chef to create 1-3 appetizers for the purpose of competing against other apprentice houses at the annual Bite of Apprenticeship in April. Apprentice will cost out

appetizers, prep for 300 attendees, display and work their station for the event.

#### **Course Outcomes**

1. Plan and create 1-3 appetizers with POE supervising chefs for 300-400 portions each.
2. Demonstrate proper costing for all appetizers created.
3. Demonstrate appropriate layout of station for optimal efficiency with POE supervising chefs support.
4. Work event with POE support.

#### **CULAP 117 - Culinary Arts Apprenticeship - Bite of Apprenticeship II**

##### *1 Credits*

Apprentice will work with the POE supervising chef to create 1-3 appetizers for the purpose of competing against other apprentice houses at the annual Bite of Apprenticeship in April. Apprentice will cost out appetizers, prep for 300 attendees, display and work their station for the event. This is the 2<sup>nd</sup> year competition.

#### **Course Outcomes**

1. Plan and create 1-3 appetizers for Bite of Apprentice for 300-400 portions each.
2. Demonstrate proper costing of appetizers create.
3. Setup station at venue and work it with minimal support for optimal efficiency.

#### **Custodial Training**

#### **MAIN 112 - Human Relations/Employment Skills**

##### *3 Credits*

Provides discussion and practice in communicating effectively with co-workers, supervisors and the public. Instructs students in the importance of work habits, personal hygiene, and attitude. Provides knowledge and experience in interviewing and job search strategies, and opportunity and advancement in the custodial industry.

#### **Course Outcomes**

1. Demonstrate and apply knowledge to the safe use of equipment, chemicals and related tools in the cleaning industry.

2. Demonstrate and apply effective communication skills as well as job search strategies for employment in the custodial field.
3. Demonstrate appropriate work place behavior, work ethics and sensitivity while dealing with co-workers and the public.
4. Demonstrate and apply knowledge of personal, public and work place security.
5. Perform routine and special area cleaning. Disinfection and organizational techniques to effectively clean a wide variety of commercial facilities environment.

#### **MAIN 114 - Safety**

##### *3 Credits*

Provides knowledge and experience with chemical use according to label directions and environmental policy. Also includes training in personal safety, public safety, fire safety, and procedures and work place security.

#### **MAIN 116 - Basic Cleaning**

##### *4 Credits*

Provides knowledge and experience with different techniques used in dust and damp mopping, vacuuming, window washing, waste removal, sanitation of restrooms, and shower rooms. Also includes cleaning routines and organizational skills needed to perform basic cleaning.

#### **MAIN 118 - Floor Care**

##### *4 Credits*

Provides knowledge and experience with caring for hard and resilient floor surfaces such as vinyl, terrazzo and concrete flooring surfaces. Also includes proper use of equipment and chemicals. Students will also learn how to develop a floor maintenance program.

#### **MAIN 120 - Carpet Care**

##### *4 Credits*

Provides knowledge and experience with caring for carpeted surfaces and upholstery. Also includes various types of carpet cleaning equipment chemicals of carpet care and identifying the correct cleaning methods used in carpet care.

#### **Dental Assistant**

#### **DENT 100 - First Aid, CPR and Vital Signs**

##### *2 Credits*

This American Heart Association compliant course offers study and practice of Cardiopulmonary Resuscitation (CPR) and other skills needed in providing

first aid to the injured. The student receives an American Heart Association (BLS) certification upon successful completion of the course and a First Aid certification from Renton Technical College. Knowledge and skills are demonstrated in taking vital signs on a patient, pre-screening health histories, preventing, identifying and addressing medical and dental emergencies, safety, asepsis and PPE.

### **DENT 101 - Dental Profession**

#### *3 Credits*

In this course of study, the student receives a thorough introduction to the field of dental assisting. The student studies the history of dentistry, follows it through today, and explores the possibilities of the future. The student also studies the roles of each team member in the dental office, professionalism, ethics and laws of dentistry, the dental specialists, abbreviations, and areas of service. Students receive a HIPAA certification.

#### **Course Outcomes**

1. Locate and summarize personal, departmental, and State policies.
2. Record the history of dentistry.
3. Identify the members of the dental health team, their areas of service and educational requirements.
4. Discuss leadership in the workplace.
5. Describe dental ethics and jurisprudence.

### **DENT 102 - Pre-Clinical Assisting I**

#### *5 Credits*

In this course of study, the student begins to acquire appropriate skills to interact with patients, maintain the operating field, use and manipulate dental instrument set-ups, transfer instruments while assisting with dental procedures, and perform other basic chairside procedures. The student also learns dental charting, steps in taking and pouring alginate impressions, and safety/professional/aseptic techniques and procedures. This course is taught at the in-depth level.

### **DENT 103 - Clinical Assisting I**

#### *4 Credits*

In this course of study, the student performs clinical procedures with dentists in the facility dental clinic and observes in multiple off campus general and specialty dental offices. The student demonstrates clinical competence, including dental charting, taking alginate impressions, pouring study casts, and

professional/safety/aseptic techniques and procedures. This course is taught at the in-depth level.

**Prerequisite(s):** DENT 102 and DENT 112.

#### **Course Outcomes**

1. Demonstrate basic clinical skills.

### **DENT 104 - Dental Materials I**

#### *2 Credits*

This course of study introduces the student to the properties and techniques for usage of common dental materials. It also enables the student to understand the rationale for the selection of materials for dental use and to prepare these materials efficiently and correctly. This course is taught at the in-depth level.

#### **Course Outcomes**

1. Identify dental materials and their uses.
2. Select appropriate dental materials for specific functions.

### **DENT 105 - Expanded Functions**

#### *2 Credits*

In this course of study, the student learns and practices expanded functions as allowed in the Washington State Dental Practice Act. The student practices these tasks in a laboratory setting while assisting dentists in the Renton Technical College Dental Clinic. Safety and aseptic techniques are evaluated.

#### **Course Outcomes**

1. Identify expanded functions that are legal to perform in the Washington State Dental Practice Act.
2. Practice all expanded functions legal to perform in the Washington State Dental Practice Act in the pre-clinical/laboratory setting.
3. Perform all expanded function tasks in the clinical setting.
4. Demonstrate safety and infection control while performing expanded functions.

### **DENT 112 - Pre-Clinical Assisting II**

#### *3 Credits*

In this course of study, the student acquires the appropriate skills to interact with patients, maintain the operating field, use and prepare dental instrument set-ups, transfer instruments, and perform other basic



chairside procedures and demonstrate pre-clinical competence in the program facility. This course is taught at the in-depth level.

**Prerequisite(s):** DENT 102

### **DENT 113 - Clinical Assisting II & Practicum**

#### *7 Credits*

In this course of study, the student performs advanced clinical procedures with dentists in the facility dental clinic and in an off campus dental facility. The student also demonstrates clinical competency including dental charting, taking alginate impressions, pouring study casts and professional/safety/aseptic techniques and procedures. This course is taught at the in-depth level.

**Prerequisite(s):** DENT 103

### **DENT 114 - Dental Materials II**

#### *3 Credits*

In this course of study, the student demonstrates the knowledge and skill involved in mixing dental materials. Students discuss the use/purpose, ratios, indications, contraindications and general information about each of the specified materials. This course is taught at the in-depth level.

**Prerequisite(s):** DENT 104

### **DENT 133 - Infection Control & Microbiology**

#### *5 Credits*

This course provides the student with the knowledge and skill needed to prevent disease transmission and cross-infection, and to clean, disinfect, and sterilize instruments/equipment and surfaces in the dental environment. The student further learns to define and describe pathogenic microorganisms, including bacteria, protozoa, viruses, rickettsia, yeasts, molds, and aerobic and anaerobic bacteria. Successful students are then eligible to take the Dental Assistant National Board Infection Control Exam and are awarded a certificate of completion for the State mandated 7-hour HIV/AIDS training. This course is taught at the in-depth level.

### **DENT 134 - Specialties**

#### *3 Credits*

In this course of study, the student receives a thorough study of the dental specialties and related skills that are officially recognized by the American Dental Association. Explorations of new and emerging specialties are also studied. This course is taught at the in-depth level.

### **DENT 137 - Laboratory Procedures**

#### *2 Credits*

In this course of study, the student performs laboratory procedures associated with chairside assisting, including pouring, trimming, and polishing study casts, fabricating night-guards and bleaching trays, custom impression trays, cleaning and polishing appliances, preparing cases for the dental laboratory, and caring for and maintaining equipment and safety.

#### **Course Outcomes**

1. Demonstrate safety in a dental lab.
2. Practice lab procedures as allowed by the Washington State Dental Practice Act in a pre-clinical setting.
3. Perform lab procedures as allowed by the Washington State Dental Practice Act in a clinical setting.

### **DENT 138 - Business Administration**

#### *2 Credits*

In this course of study, the student gains experience in basic business administration procedures for the dental office, including the use of dental software and computers. The student practices these procedures while training in the Renton Technical College Dental Clinic. This course is taught at the familiarity level.

### **DENT 141 - Dental Sciences I**

#### *3 Credits*

- **Embryology & Histology:** In this course of study, the student learns to describe the prenatal growth and development process of the face, teeth and oral cavity. Students also learn to identify the time table for eruption, shedding dates, and the structure and function of tissues and cells. This course is taught at the in-depth level.
- **Oral Anatomy:** In this course of study, the student learns the names and locations of the bones in the head and neck regions, the muscles of mastication and facial expression, and the nerves, lymph nodes, and salivary glands and tooth morphology including the shape and function of each tooth, and features of permanent and primary teeth. This course is taught at the in-depth level.
- **Head & Neck Anatomy:** In this course of study, the student learns the names, functions, and

locations of the internal and external landmarks of the oral cavity and face. This course is taught at the familiarity level.

#### **DENT 145 - Dental Sciences II**

*3 Credits*

- **Anatomy & Physiology:** In this course of study, the student learns the functions and locations of the major body systems including the skeletal, nervous, endocrine, reproductive, muscular, respiratory, and skeletal systems. The student also learns body planes, directional terms, composition of bone, and types of joints. This segment is taught at the familiarity level.
- **Oral Pathology:** In this course of study, the student learns to define and identify types of oral lesions, warning signs, how to prevent, and prognosis of cancers, categories of diagnostic information, and to identify lesions. Students learn to describe conditions and disorders that affect the oral cavity. Students also learn to recognize abnormal conditions and identify pathological conditions, and how these conditions could affect the health of the patient. This segment is taught at the familiarity level.
- **Pharmacology & Therapeutics:** In this course of study, the student learns the principles of pharmacology, terminology related to drugs and drug use, and to identify the routes of administration. Students learn the classification of drugs, types of drugs, drug reference materials, and parts and use of prescriptions. Drug addictions including opioids and other substances will be discussed. This segment is taught at the familiarity level.

#### **DENT 151 - Preventive Dentistry & Nutrition**

*2 Credits*

In this course of study, the student receives a thorough insight into preventive dentistry, the importance of good oral hygiene, how to promote preventive dentistry in the office, and procedures to control the patient's dental health. The student also obtains an understanding of nutrition as it relates to the patient's medical and dental health. Students give preventive oral hygiene instructions and nutrition counseling to patients based on the new USDA food pyramid. Preventive dentistry is taught at the in-depth level. Nutrition is taught at the familiarity level.

#### **DENT 153 - Radiology I**

*3 Credits*

This course includes radiation, physics, hygiene and safety/aseptic technique information. It provides information in exposing diagnostic radiographs using the paralleling and bisecting techniques and occlusal films, as well as panoramic and digital radiographs. Maintaining x-ray equipment, processing, mounting and evaluating radiographs is taught. This course is taught at the in-depth level.

#### **DENT 154 - Radiology II**

*2 Credits*

This course provides information and practicum in placing, exposing, processing, mounting, and evaluating radiographs on manikins (DXTTR units). Student expose radiographs using the paralleling technique and take bitewings, periapical, occlusal and panoramic films in conventional and/or digital processes. Aseptic techniques and professionalism are evaluated. This course is taught at the in-depth level.

**Prerequisite(s):** DENT 153

#### **DENT 155 - Radiology III**

*2 Credits*

This course provides information and practicum in placing, exposing, processing, mounting, and evaluating radiographs on patients. Students expose radiographs using the paralleling technique and take bitewings, periapical, occlusal and panoramic films in conventional and/or digital processes. Students are required to take patient films in the facility clinic before exposing them in the dental office. Aseptic techniques and professionalism are evaluated. This course is taught at the in-depth level.

**Prerequisite(s):** DENT 154

#### **Course Outcomes**

1. Expose, process, mount and evaluate film radiographs on patients.
2. Expose, mount and evaluate digital radiographs on patients.

#### **DENT 171 - Interpersonal Communications**

*2 Credits*

In the course of study, the student receives an understanding of intrapersonal and interpersonal effectiveness with an emphasis on communication, motivation, leadership, self-development, personal

attitude and professionalism. The student further learns human relations in the workplace including the study of behavior, personality, self-management, self-development, self-esteem, assertiveness and tact. Psychology of patient management, the mind, mental processes, feelings and desires are also discussed. Concepts of culture, ethnicity, race, professional attitudes, cultural diversity and how to recognize and react to harassment.

### **DENT 191 - Job Seeking Skills**

#### *1 Credits*

In this course of study, students gain experience in writing a personal resume, filling out job applications, learning job search techniques and job interview techniques. Students also integrate information in order to achieve goals and gather information to participate effectively in a diverse society.

#### **Course Outcomes**

1. Perform a job search.
2. Prepare a cover letter, resume and job application.
3. Obtain a letter of recommendations from a former employer.
4. Participate in an interview.

### **DENT 192 - Internship I**

#### *2 Credits*

In this course of study, the student initiates, prepares for and begins the first of two Internships. The student performs basic chairside procedures in a dental office. This may include expanded functions legal to perform by a Registered Dental Assistant in the State of Washington.

**Prerequisite(s):** DENT 113

#### **Course Outcomes**

1. Coordinate and contract two dental offices for internship requirements.
2. Demonstrate professionalism and appropriate communication in dental office.
3. Perform dental assistant duties as allowed by the Washington State Dental Practice Act in a dental office/clinic.
4. Analyze, discuss and document office experience

### **DENT 193 - Internship II**

#### *7 Credits*

In this course of study, the student completes the first Internship requirements and begins a second Internship by working in a second general dental office. The student performs basic chair side procedures and expanded functions legal to perform by a Registered Dental Assistant in the State of Washington.

**Prerequisite(s):** DENT 192

#### **Drafting - Supplemental**

### **DFTS 112 - AutoCAD Level I & II**

#### *6 Credits*

Students are introduced to the basics of engineering drafting and AutoCAD. Basic drawing commands, editing, dimensioning, and plotting are covered in this course. Requires a computer with a current version of AutoCAD. Class meets online at [www.waol.org](http://www.waol.org). RTC is a Premier Authorized Training Center for Autodesk, Inc.

### **DFTS 114 - AutoCAD Level I**

#### *3 Credits*

An introductory class to AutoCAD that equips the user to use AutoCAD on a basic level. The students learn the basic principles of the user interface, drawing setup procedures, function keys, basic 2D drawing creation commands, file management commands, layers, inquiring about drawing information, introduction to block creation, hatching, introduction to dimensioning techniques, object snaps, commands for object viewing, basic editing techniques, and text annotations. RTC is a Premier Authorized Training Center for Autodesk, Inc.

### **DFTS 116 - AutoCAD Level II**

#### *3 Credits*

A second level AutoCAD course that takes the user into intermediate AutoCAD functions and concepts. Topics covered include: CAD standards, creating and editing Blocks, Attributes, Dimensioning concepts, Paper Space, Model Space, Layouts, External References, DesignCenter, Geometric calculator, Properties Windows, Options Dialog Box, Grips, basic plotting techniques in model space and paperspace layouts, and plot style tables. RTC is a Premier Authorized Training Center for Autodesk, Inc.

**Prerequisite(s):** DFTS 114 or instructor permission.

### **DFTS 118 - AutoCAD Level III**

#### *0 Credits*

Customize AutoCAD to improve and optimize your

system for peak performance as a designer or drafter. Learn to simplify keyboard input, write macros and simple LISP routines, and create template files. Learn to customize menus and AutoCAD functions for increased productivity, and importing and exporting other files. Text, notebook, and disk required. RTC is a Premier Authorized Training Center for Autodesk, Inc.

**Prerequisite(s):** DFTS 116 or equivalent experience.

### **DFTS 136 - Revit Architecture Essentials**

#### *3 Credits*

This course is designed for new users of Revit Architecture. The course covers the basics of Autodesk Revit Building, from building design through construction documentation. Students are introduced to the concepts of Building Information Modeling and the tools for parametric design and documentation. In the hands-on lab sessions, the students use the parametric 3D design tools of Revit to design projects and use the automated tools for documenting projects. No previous CAD experience is necessary. However, architectural design, drafting or engineering experience is highly recommended. It is recommended that you have a working knowledge of Microsoft Windows. (Note for architects: program number LRA011, 24 LU hrs, non HSW).

### **DFTS 137 - Revit Architecture Advanced**

#### *0 Credits*

This course builds upon the Revit Architecture Essentials class and students learn advanced techniques for creating complex designs and professional looking renderings, creating and customizing objects, and collaborating on designs with other team members using Autodesk Architecture. Other topics include phasing and design options, running interface checks, and ODBC database export. (Note for architects: program number RD2008, 24 LU hrs, non HSW).

**Prerequisite(s):** DFTS 136 or instructor permission.

### **DFTS 139 - Revit Architecture Conceptual Design**

#### *0 Credits*

Students expand their knowledge in the areas of Conceptual Design, including massing studies, space planning, visualization, and rendering. (Note for architects: program number CRA 013, 8 LU hrs, non HSW)

**Prerequisite(s):** DFTS 136 or working knowledge of Revit Architecture

### **DFTS 140 - Programming for AutoCAD**

#### *0 Credits*

This hands-on class focuses on VBA and ADO. The students use VBA to create and manipulate the AutoCAD database; also use ADO to connect the desktop databases to AutoCAD. RTC is a Premier Authorized Training Center for Autodesk, Inc.

**Prerequisite(s):** DFTS 118 and some programming experience with Visual Basic.

### **DFTS 141 - Revit Architecture BIM Management**

#### *0 Credits*

Building Information Modeling (BIM) is an approach to the entire building life cycle. Revit Architecture is a powerful BIM program that supports the ability to coordinate, update, and share design data with team members throughout the design, construction, and management phases of a building's life. The objective of the Revit Architecture BIM Management course is to enable students who have worked with Revit to expand their knowledge in setting up office standards with templates that include annotation styles, preset views, sheets, and schedules, as well as creating custom element types and families. (Note for Architects: Program number BRA 011, 16 LU hrs, non HSW)

### **DFTS 142 - Revit Architecture Collaboration Tools**

#### *0 Credits*

Revit Architecture is a Building Information Modeling (BIM) tool, which can be used by more than one person working on a new project. The objective of the Revit Architecture collaboration Tools course is to enable students who have a basic knowledge of Revit to increase their productivity while working with other people on a team, either in the same firm or with other firms, and use Revit files or other CAD files.

### **DFTS 143 - Introduction to Autodesk Navisworks**

#### *0 Credits*

In this class the students will learn how to use the Navisworks collaboration tool to work with files connected to a construction project. Class topics include the import process of different file formats, annotation of 3D models, clash detection, and schedule coordination with TimeLiner.

**Prerequisite(s):** Knowledge of AutoCAD 3D commands, Autodesk Revit, or instructor's permission.

### **DFTS 144 - Revit MEP**

### *0 Credits*

The students will learn each aspect of Revit MEP: mechanical, electrical, and plumbing. Using solid modeling, the students will create equipment and symbols that can be used in future projects. The class also includes instruction on templates and project set up.

**Prerequisite(s):** Knowledge of AutoCAD 3D commands, Autodesk Revit, or instructor's permission.

## **Early Childhood Education**

### **ECC 120 - Culture and Diversity**

#### *3 Credits*

Examine biases in our communities and explore how these biases affect young children and the development of positive self-esteem. Discuss techniques, principles, and methodology used in the Anti-Bias Curriculum, and recreate curriculum and environment to reflect culturally relevant and anti-bias principles.

#### **Course Outcomes**

1. Define terminology associated with culture and diversity.
2. Develop strategies to examine and appropriately address one's own biases.
3. Develop strategies to counter biases in the classroom.
4. Identify and explain how biases affect the self-esteem of children.
5. Identify strategies to create an anti-bias environment.
6. Explain and discuss current trends regarding Anti-Bias Education in Early Childhood Education.

### **ECC 185 - Curriculum Development II**

#### *5 Credits*

Scaffold observational and planning skills to create curriculum that is culturally sensitive and inclusive, and that prepares children (0-8 years) for success in school.

#### **Course Outcomes**

1. Plan for and support children's learning through developmentally appropriate play and interactions.

2. Select materials appropriate to the developmental levels of all children within a setting.
3. Build children's understanding of their own and other cultures by providing cultural experiences using songs, stories and language familiar to the child.
4. Plan and adapt curricula and environments appropriate to the developmental levels, interests and abilities of the children within a setting.
5. Use appropriate materials, activities and strategies in an integrated curriculum that includes literacy, social studies, music, dramatic play and movement.
6. Utilize observation data to plan curriculum that meets the needs and interests of all children in the classroom.
7. Articulate how integrated, play-based curriculum supports children's current skills, ongoing growth and school success.

### **ECC 192 - Practicum II**

#### *4 Credits*

Explore the foundations of child development and the relationship between children, families and the community. Apply skills in observation and assessment to prepare appropriate learning opportunities and measure language and literacy development. NOTE: The outcomes and competencies are based on the Washington State Core Competencies for Early Childhood Professionals.

#### **Course Outcomes**

1. Identify typical and atypical cognitive, physical, social and emotional development of infants, toddlers, preschoolers, and school age children from a multi-cultural perspective.
2. Demonstrate ability to effectively incorporate culturally diverse perspectives into the classroom through daily practices with young children.
3. List tools for communicating and creating relationships with families that are respectful, inclusive and reflect an understanding of cultural and community influences.

4. Demonstrate ways to collect information about children through observation and assessment data.
5. Demonstrate ways to record information in an appropriate manner (per industry standards) for future interpretation.
6. List appropriate children's literature and other literacy materials for a population of diverse learners that is reflective of all and strategies for selecting these materials.

### **ECC 193 - Practicum III**

#### *4 Credits*

Explore the foundations of child development and identify the red flags that might indicate a child has special needs. Apply skills in establishing a safe, healthy and effective learning environment, with appropriate materials and activities that supports all children. Investigate and reflect on what culture is, and how to create an anti-bias environment and approach to teaching children. NOTE: The outcomes and competencies are based on the Washington State Core Competencies for Early Care and Education Professionals.

#### **Course Outcomes**

1. Develop strategies to counter biases in the classroom.
2. Demonstrate knowledge and ability to effectively incorporate culturally diverse perspectives and research into daily practices with young children.
3. Identify strategies to create an anti-bias environment.
4. Prepare and evaluate the learning environment by arranging the physical space to encourage active exploration and developmentally appropriate leaning through play.
5. Identify strategies to maintain an appropriate daily schedule for young children, including a balance of active, quiet, individual & group, indoor & outdoor, teacher directed and child initiated.
6. Explain how the curriculum is delivered through environmental arrangement, learning activities and interactions and give examples that support young children's development.

7. Select materials appropriate to the developmental levels of all children within the setting for math, science, art and dramatic play.

### **ECC 202 - Technology for Teachers**

#### *2 Credits*

Designed to give students an introduction to the role and use of technology in Early Childhood and for personnel employed in child care programs. This course provides the basic components of keyboarding, office applications and communication, while taking into consideration culturally relevant/anti-bias practices. Students will demonstrate skills of being technologically literate (technology literacy is the ability to responsibly use appropriate technology to communicate, solve problems, and access, manage, integrate, evaluate and create information to improve learning).

#### **Course Outcomes**

1. Demonstrate skills and understanding of word processing concepts at a basic level.
2. Read and reflect on current research articles on teaching and learning with technology.
3. Create a newsletter and PowerPoint presentation that could be shared with caregivers and families.
4. Create, maintain and use an email account to communicate and collaborate professionally, using proper spelling, grammar and structuring.
5. Identify appropriate websites and search engines to locate current information and resources related to Early Childhood Education.
6. Demonstrate skills in proper citation and academic honesty.

### **ECC 250 - Early Childhood Capstone**

#### *5 Credits*

Students will have the opportunity to demonstrate developmentally appropriate plans/assessments, providing appropriate guidance techniques and using ethical/professional behaviors to design, implement and evaluate activities and environments for all children. Students will explore strategies for supporting/involving families; and modeling reflective and professional practices based on NAEYC standards and Washington State Core Competencies.

#### **Course Outcomes**



1. Display knowledge of child development and education.
2. Plan and organize an optimal learning environment (with appropriate materials and set up furniture) that supports the diverse needs of all children.
3. Plan children's environment that reflect safe, healthy and nutritional standards for all children.
4. Encourage the development of children's communication skills.
5. Generate assessment-based experiences/lessons that stimulate children's development.
6. Integrate positive child guidance that supports children's social and emotional development.
7. Preserve respectful, collaborative relationships with families.
8. Demonstrate respect, understanding and support for all children and their families who may enter into your program regardless of culture, race, language, abilities, religion, or family life style.
9. Demonstrate professionalism and ethical conduct standards.

#### **ECC 290 - Practicum IV - Implementing DAP (Developmentally Appropriate Practice)**

##### *5 Credits*

In an early learning setting, students will apply best practices for engaging in nurturing relationships with children. The focus will be on keeping children healthy and safe while promoting growth and development.

##### **Course Outcomes**

1. Identify your own individual competencies & skills that are needed in the workplace.
2. Demonstrate understanding of work place competencies; use of resources, information, systems, technology, and interpersonal skills.
3. Demonstrate understanding of foundation skills needed in early childhood and early elementary programs; basic skills, thinking skills and personal qualities.
4. Describe each of the developmental domains & how to meet individual & group needs.

5. Identify strategies to support diverse family groups in a child care environment, and ways to involve them in the program.

#### **ECED& 105 - Introduction to Early Childhood Education**

##### *5 Credits*

Explore the foundations of early childhood education. Examine theories defining the field, issues, trends, best practices, and program models. Observe children, professionals and programs in action.

##### **Course Outcomes**

1. Explain current theories and ongoing research in early care and education as it applies to children, families and early childhood programs.
2. Describe the role of play in early childhood programs.
3. Compare early learning program models.
4. Explain the importance of developing culturally responsive partnerships with families.
5. Identify appropriate guidance techniques used in early care and education settings.
6. Describe the observation, assessment, and teaching cycle used to plan curriculum for all young children.
7. Apply the professional code of ethics for early care and education to resolve dilemmas.
8. Describe major historical figures, advocates, and events shaping today's early childhood education.

#### **ECED& 107 - Health, Safety and Nutrition**

##### *5 Credits*

Introduction to implementation of equitable health, safety and nutrition standards for the growing child in group care. Focus on federal Child Care Block Grant funding (CCDF) requirements, WA state licensing and Head Start Performance standards. Develop skills necessary to keep children healthy and safe, report abuse and neglect, and connect families to community resources.

##### **Course Outcomes**

1. Describe federal and state mandated health, safety, and nutrition practices.
2. Identify indicators of illnesses/infectious diseases and steps to prevent the spread of them.

3. Outline safety procedures for providing emergency care and daily care.
4. Evaluate program safety policies.
5. Describe food programs and practices that support the development of children.
6. Create examples of developmentally appropriate and culturally responsive health, safety, and nutrition education materials and activities.
7. Describe the responsibilities of mandated reporters.
8. Develop strategies for working with culturally, linguistically, and ability diverse families in accessing health, nutritional, and dental services.

### **ECED& 120 - Practicum - Nurturing Relationships**

#### *2 Credits*

In an early learning setting, engage in establishing nurturing, supportive relationships with all children and professional peers. Focus on children's health & safety, promoting growth & development, and creating culturally responsive environment.

#### **Course Outcomes**

1. Describe the characteristics of nurturing relationships built between teachers and children.
2. Practice ideals of professionalism in work with children, families and peers.
3. Recognize cultural responsiveness when observing professionals and programs.
4. Identify practices that promote health, safety, growth and development of children.

### **ECED& 132 - Infant Toddler Care**

#### *3 Credits*

Examine the unique developmental needs of infants and toddlers. Study the role of the caregiver, relationships with families, developmentally appropriate practices, nurturing environments for infants and toddlers, and culturally relevant care.

#### **Course Outcomes**

1. Discuss developmental milestones from birth to 36 months articulating the influences of individual development, temperament and

cultural norms in the context of important, ongoing relationships.

2. Design a plan to support reciprocal, culturally sensitive partnerships with families.
3. Select positive guidance techniques that are appropriate and effective with infants and toddlers.
4. Critique infant and toddler early learning environments, articulating environmental influences on the learning processes of infants and toddlers during authentic play activities.
5. Describe a plan for developmentally appropriate, culturally relevant curriculum that supports language, physical, cognitive, creative, social, and emotional development.

### **ECED& 160 - Curriculum Development I**

#### *5 Credits*

Investigate learning theory, program planning, tools and methods for curriculum development promoting language, fine/gross motor, social-emotional, cognitive and creative skills and growth in children birth through age 8 utilizing developmentally appropriate and culturally responsive practice.

#### **Course Outcomes**

1. Explain major early childhood curriculum theories and current trends in curriculum design for early learning environments.
2. Apply principles of developmentally, individually and culturally appropriate practice when designing, implementing and evaluating curriculum.
3. Evaluate integrated learning experiences supportive of children's development and learning incorporate national, state and local standards.
4. Design curriculum that supports children's language/communication, cognitive, social/emotional, fine/gross motor and creative development.
5. Design curriculum that is inclusive and represents the diversity of children and families.
6. Plan developmentally appropriate activities and schedules, which promote all children's growth and learning.

7. Observe, document and assess individual and group needs, interests and skills for the purpose of curriculum planning and ongoing modifications of plans.

### **ECED& 170 - Learning Environments**

#### *3 Credits*

This class focuses on the adult's role in designing, evaluating, and improving indoor and outdoor environments that ensure quality learning, nurturing experiences, and optimize the development of young children.

#### **Course Outcomes**

1. Design healthy, respectful, supportive, and challenging learning environments for children.
2. Identify strategies to achieve compliance with Washington Administrative Code and other state or federal regulations.
3. Create environments that promote growth in all developmental domains and academic disciplines.
4. Establish environments, routines, and schedules that promote children's age-appropriate, self-regulated behaviors.
5. Establish environments that promote the cultural diversity of children, families, and their communities.

### **ECED& 180 - Language and Literacy Development**

#### *3 Credits*

Teaching strategies of language acquisition and literacy skills development are examined at each developmental stage (birth-age 8) through the four interrelated areas of speaking, listening, writing, and reading.

#### **Course Outcomes**

1. Explain the continuum of language acquisition and early literacy skills.
2. Develop evidence-based, appropriate environments and opportunities that support children's emergent language and literacy skills.
3. Describe strategies for responding to children who are culturally, linguistically, and ability diverse.
4. Develop ways to facilitate family and child interactions as primary contexts for heritage language and English development.

5. Analyze images of culture and individual abilities reflected in children's literature and other learning materials.
6. Utilize developmentally appropriate and culturally responsive assessments practices for documenting the growth of language and literacy skills.

### **ECED& 190 - Observation and Assessment**

#### *3 Credits*

Collect and record observation of and assessment data in order to plan for and support the child, the family, the group and the community. Practice reflection techniques, summarizing conclusions and communicating findings.

#### **Course Outcomes**

1. Describe reasons for collecting observation and assessment data.
2. Identify indicators of growth, development, learning and social behaviors in all children.
3. Identify techniques for avoiding bias, judgments, and assumptions in observations.
4. Collect factual, descriptive data using a variety of assessment tools and strategies.
5. Document and analyze assessment data for use in planning curriculum for individual and groups of children.

### **EDUC& 115 - Child Development**

#### *5 Credits*

Build foundation for explaining how children develop in all domains, conception through early adolescence. Explore various developmental theories, methods for documenting growth, and impact of brain development. Topics addressed: stress, trauma, culture, race, gender identity, socioeconomic status, family status, language, and health issues.

#### **Course Outcomes**

1. Discuss prominent child development research and theories guiding parenting and care giver's practices.
2. Describe the developmental sequence from conception through early adolescence in all domains.
3. Analyze critical stages of brain development as influencers of child development.

4. Examine techniques to conduct and document observations of children as a means to assess and communicate growth and development.
5. Explain individual differences in development.
6. Identify how family, caregivers, teachers, community, culture, and trauma influence development.
7. Outline community resources to support children's and families' development.

### **EDUC& 130 - Guiding Behavior**

#### *3 Credits*

Examine the principles and theories promoting social competence in young children and creating safe learning environments. Develop skills promoting effective interactions, providing positive individual guidance, and enhancing group experiences.

#### **Course Outcomes**

1. Identify developmentally appropriate individual and group behaviors of children.
2. Compare at least three approaches to guiding behavior.
3. Recognize positive, respectful, culturally responsive approaches to guidance.
4. Plan environment supportive of children's development with focus on attachment, self-help, relationships, and executive function.
5. Articulate strategies to promote social/emotional competence and positive sense of self.

### **EDUC& 150 - Child, Family and Community**

#### *3 Credits*

Integrate the family and community contexts in which a child develops. Explore cultures and demographics of families in society, community resources, strategies for involving families in the education of their child, and tools for effective communication.

#### **Course Outcomes**

1. Evaluate and describe the cultural influences, social issues, changes and transitions that affect children, families, schools and communities.
2. Examine the concept of family, school, peers, media and community as socialization agents.

3. Analyze strategies that empower families to establish and maintain collaborative relationships to support the growth and development of children.
4. Identify how one's family history and life experiences may impact relationships with children and families.
5. Identify community services and agencies that support the needs of children and families and establish resources and referral systems for parents and educators.

### **EDUC& 203 - Exceptional Child**

#### *3 Credits*

Recognize the characteristics and behavioral clues of children with special needs and how to support their development and work effectively as a team with diverse family needs. Accessing local resources and types of services available for both teachers and families are discussed.

#### **Course Outcomes**

1. Describe typical and atypical development/behaviors of children birth to age eight.
2. Identify characteristics of children with hearing, speech and vision disabilities.
3. Identify characteristics of children with physical delays, attention deficit disorder, alcohol/drug affected children and other learning disabilities.
4. Establish and apply effective ways to work with children with disabilities and their families, including effective cross cultural communication techniques.
5. Identify and explain resources and services available in the community for children with disabilities and their families.
6. Describe the process for identifying, making a referral, screening and seeking support services for children with special needs, and how to communicate this to families.
7. Describe the ADA/IDEA laws and how they affect early childhood teachers.

### **Economics**

#### **ECON& 201 - Microeconomics**

#### *5 Credits*

Microeconomic concepts are applied to problems

involving scarcity, choice, competition, and cost. Examines the basic principles and models of microeconomics and their application to contemporary issues and problems including production, allocation, supply and demand analysis, elasticity, consumer choice, market structures, antitrust and regulation, and public microeconomics.

**General education distribution area: Social Science.**

#### **Course Outcomes**

1. Explain in detail the concepts of supply, supply determinants, and the elasticities of supply.
2. Relate the market model of perfect competition.
3. Demonstrate an in-depth understanding of monopolies.
4. Apply the concept of scarcity in real-world situations.

#### **ECON& 202 - Macroeconomics**

##### *5 Credits*

Macroeconomics focuses on the national economy the determination of the national income level, economic growth and prosperity, government spending and taxation, money and banking, analysis of employment, inflation, aggregate output and economic growth, and fiscal and monetary policy tools including the intended and unintended effects of government policies including the effects of both demand-side and supply-side fiscal and monetary policies on the economy.

**General education distribution area: Social Science.**

#### **Course Outcomes**

1. Explain in detail the concepts of demand and the price and income elasticities of demand.
2. Relate the significance of news items and statements related to stock markets.
3. Demonstrate an in-depth understanding of the significance and differences of GNP, GDP, price indices, and business cycle.
4. Evaluate the effectiveness of international free trade vs. protectionism on international economic well-being.
5. Relate the causes, impacts, and possible solutions of the recent economic phenomena of stagflation.

#### **eLearning Professional Development**

Renton Technical College

#### **ELEA 101 - eLearning in the Community College**

##### *0 Credits*

This is a survey-style course that explores different online format options along with evolving technologies and how they are intertwined. It will also look at current changes in higher education and society at large. The range of student needs and how to best meet them will also be discussed.

#### **ELEA 102 - Course Design and Implementation**

##### *0 Credits*

This class will focus on creating course design for student success. From navigational concerns to alignment of course and unit objectives, students will begin the process of course layout. Completion of a 3-week Quality Matters online course is embedded into the course content.

#### **ELEA 103 - Reaching Every Learner**

##### *0 Credits*

This course will explore ways to keep our diverse and busy adult students engaged and motivated by creating pathways to success. Utilizing a variety of readings and activities, students will discover methods for creating an effective and relevant online class.

#### **ELEA 104 - Information Literacy for Online Educators**

##### *0 Credits*

This course covers how to find materials, OER, and understanding copyright law.

#### **ELEA 105 - Media Creation & Tech Integration**

##### *0 Credits*

This class will focus on ways to make use of current technology tools, apps, and websites for your subject. Students will also create their own personalized videos for the flipped, hybrid or online class. This will be closely aligned with each participant's culminating project.

#### **ELEA 106 - Culminating Project**

##### *0 Credits*

The Culminating project will be a completed online or hybrid class made available in the Canvas format. Each course will reflect the main components of the certificate courses. The projects will be peer-reviewed.

#### **ELEA 107 - Certificate in Connected Adult Education**

##### *0 Credits*

This course will cover theories of adult learning and the importance of creating clear learning pathways so that students can succeed, including communication styles, writing the syllabus and course outcomes.

## **ELEA 108 - Teach Smarter, Not Harder: Planning/Assessing**

### *0 Credits*

This course includes vital information for busy new community college teachers to help them plan, pace, and pinpoint how to use their time. Recommended for anyone who feels like their life has been swallowed up with teaching and is looking for ways to regain balance.

## **ELEA 109 - Find Your Footing: Teaching Practices/Class Management**

### *0 Credits*

This class will cover the basics of classroom management for the adult learner, covering various issues and practices, making use of scenarios and real-life situations.

## **ELEA 110 - Connect with Intent: Cultural Diversity**

### *0 Credits*

The community college classroom is full of a diverse student body with a variety of backgrounds, cultures, and experience. Create a classroom community that will build on each other's strengths and unite students in their learning experience.

## **ELEA 111 - SHIFT: Teaching Online**

### *0 Credits*

This **self-paced course** is for any educator developing and/or teaching an online course. You can work through the modules at your own pace, and you will receive feedback on the creation of your online presence plan from the Director of Innovative Teaching and Learning, Dr. Liz Falconer.

Completion of the course brings you a Certificate of Completion from Renton Technical College, and meets Department of Education standards for teaching online. It is worth 10 clock hours. Renton Technical College is a certified OSPI clock hour provider.

### **Course Outcomes**

1. Write and align unit and course objectives in an online course.
2. Demonstrate knowledge of accessibility and usability in online course design.
3. Write assignment rubrics and create active learning assessments.
4. Demonstrate familiarity with copyright law as it relates to eLearning.
5. Access online support and OER materials.

6. Create an Online Presence Plan to meet Department of Education Standards.

## **ELEA 112 - SHIFT: Teaching Hybrid Courses**

### *0 Credits*

This **self-paced course** is for both current hybrid/blended learning instructors and those who are interested in learning more about the teaching of this format.

You can work through the modules at your own pace, building a Hybrid Course Planner as you go. You will receive feedback on your completed Course Planner from the Director of Innovative Teaching and Learning, Dr. Liz Falconer, Quality Matters Master Reviewer.

Completion of the course brings you a Certificate of Completion from Renton Technical College, and meets Department of Education standards for teaching online. It is worth 10 clock hours. Renton Technical College is a certified OSPI clock hour provider.

### **Course Outcomes**

1. Articulate the difference between ground, hybrid and online courses.
2. Demonstrate familiarity with C.L.A.S.S., understanding the considerations important to teaching in a hybrid format.
3. Clarify the role of the hybrid teacher in the digital era.
4. Connect your hybrid course to appropriate online tools/sites that will enhance active student learning.
5. Create assignments that take advantage of the hybrid format by aligning both in-class and out-of-class activities.
6. Create course design that demonstrates an appreciation for what "Greater than the Sum of Two Parts" means.
7. Utilize UDL and RA concepts in course design.
8. Build a Hybrid Course Planner.

## **Electrical - Supplemental**

## **ELECS 115 - Basic Electricity (Plant & Machine Maintenance Electrical I)**

### *7 Credits*

Designed for plant and machine maintenance trainees. Basic electricity course covers the essential topics in AC

circuits with emphasis on applications and troubleshooting. Instruction includes circuit and electrical theory. We will also have hands on labs. Ladder and control circuits are also taught. Textbook, digital volt meter and calculator are required.

### **ELECS 116 - Plant & Machine Maintenance Electrical II**

#### *7 Credits*

This theoretical course is designed for plant and machine maintenance trainees. Basic theory and application areas include continuation of theory on DC and AC circuits and introduction to complex AC circuits. Other areas covered are basic laws and formulae, resistive, inductive, and capacitive loads and calculations, power and power factor, self and mutual inductance, transformers, batteries, AC and DC generator/alternators, AC and DC motors, control circuits, test instruments, circuit diagrams, pilot devices, single and three phase circuits, maintenance issues, and safety. Textbook is required.

**Prerequisite(s):** Plant & Machine Maintenance Electrical I or instructor approval.

### **ELECS 117 - Plant & Machine Maintenance Electrical III**

#### *6 Credits*

This theoretical course is designed for plant and machine maintenance trainees. Basic theory areas include DC and AC solid state motor controls and static input/output devices and closed loop regulation concepts. Other areas covered include test equipment for advanced trouble shooting, circuit analysis, schematic analysis and basic introduction to Programmable Logic Controllers and their application to motor control. Textbook and calculator are required. This course is pending approval by the Department of Labor and Industries Electrical Section to offer hours of continuing education for electricians (Industry Related).

**Prerequisite(s):** Plant & Machine Maintenance Electrical II or instructor approval.

### **ELECS 118 - Plant & Machine Maintenance Electrical IV**

#### *6 Credits*

This course builds on and applies theories first introduced in electrical courses I, II and III. The course includes theory and hands-on labs with major emphasis on troubleshooting. The use of advanced digital multimeter techniques are highlighted.

**Prerequisite(s):** Plant & Machine Maintenance Electrical III or instructor approval.

### **ELECS 232 - Basic HVAC & Refrigeration Systems**

#### *4 Credits*

Students learn the theory of mechanical refrigeration and its various applications. Course work helps prepare students for the City of Seattle Refrigeration Operator's License. It is suggested students also take ELECS 234. Textbook is required.

### **ELECS 234 - Basic HVAC & Refrigeration Electrical Schematics**

#### *4 Credits*

Students learn electrical components and wiring layouts commonly found in HVAC and refrigeration systems, and a practical foundation in electrical theory to aid in troubleshooting and diagnosis. Textbook is required. This course is approved by the Department of Labor and Industries' Electrical Section to satisfy 12 hours of continuing education for electricians (Industry Related) and 16 hours of basic classroom training for trainee card holders. It is suggested students also take ELECS 232.

### **Engineering Design Technology**

#### **DFT 101 - Introduction to Drafting**

#### *3 Credits*

This course is an introduction to the drafter's role in industry. Course topics include the fundamentals of sketching and manual drafting such as linework and lettering, scales, geometric construction, dimensional layout lead grades and the use of related drafting tools. The course also covers industry standards for document control and archival of information, with instruction on using computer technology.

#### **Course Outcomes**

1. Demonstrate basic knowledge and understanding of graphic communication.
2. Demonstrate basic knowledge and understanding of technical drawings, industry standards and current business practices.
3. Recognize the most frequently used conventional drafting instruments and their purposes.
4. Demonstrate the proper use of scales including the mechanical engineers , architects, civil engineers, and metric scale.
5. Describe the various standard sizes of paper used in drafting in both inches and millimeters.
6. Illustrate the various types of lines used on technical drawings.



7. Demonstrate the most commonly used sketching techniques.

### **DFT 106 - Mechanical Drafting**

#### *5 Credits*

Students learn orthographic projection, auxiliary views, and section views. The class also covers dimensioning machined parts sheet selection and title block creation.

#### **Course Outcomes**

1. Interpret multiple layout methods and techniques for a technical drawing.
2. Demonstrate proficiency in planning a drawing.
3. Utilize proper dimensioning standards and procedures.
4. Recognize commonly used symbols in blueprint reading.
5. Read and create mechanical drawings used in the manufacturing industry.
6. Define and evaluate industry need for Model Based Definition.

### **DFT 111 - Engineering Static Analysis**

#### *5 Credits*

This course is a corequisite of engineering introductory physics and static analysis. Students will learn how to perform loading analysis on simple stationary members in mechanical components and commercial buildings.

**Prerequisite(s):** AMATH 175J or higher, with a 2.0 or higher.

#### **Course Outcomes**

1. Determine loads on a mechanical loading scenario.
2. Calculate maximum loading and moment on stationary mechanical members.
3. Use mathematics and geometry to determine failure modes.
4. Use models and simulation programs to confirm static analysis calculations.

### **DFT 112 - Engineering Strength of Materials**

#### *5 Credits*

This course leads students into calculating maximum stress and failure modes when loading scenarios are known. Students will calculate maximum stress and differentiate tensile strength, shear strength and

flexural strength. Students will also use material property data to determine if design components are strong enough for their application or will fail. Corequisite(s): DFT 111

#### **Course Outcomes**

1. Determine maximum tensile, shear, and flexural stress from load scenarios.
2. Analyze how fatigue effects component life and longevity.
3. Identify material property data.

### **DFT 113 - Introduction to Computer Aided Design**

#### *5 Credits*

This course provides a thorough introduction to the applications and uses of AutoCAD in the industrial manufacturing environment. Students learn PC workstation components, configuration and command structure, pull down menus and special access commands, geometric construction, dimensioning, and drawing editing.

#### **Course Outcomes**

1. Organize drawing plans for use in manufacturing.
2. Describe the basic components of the digital design application.

### **DFT 115 - Structural Detailing**

#### *3 Credits*

Course content introduces the students to commercial grade construction practices. This class also focuses on rigid frame construction using heavy duty steel, wood laminates, and reinforced concrete wall and floor systems.

**Prerequisite(s):** DFT 117 & DFT 121

### **DFT 117 - Introduction to BIM Applications**

#### *5 Credits*

This class provides an introduction to the use of Revit Architecture, including the production of floor, framing and site plans, elevations, sections, basic electrical, window and door schedules, perspectives, and cover pages. Corequisite(s): DFT 121

#### **Course Outcomes**

1. Utilize Autodesk Revit to produce a set of floor plans.

2. Construct schedules defining product application.
3. Fully dimension floor plants to architectural standards.
4. Fully describe and apply appropriate notes to a full section.

### **DFT 121 - Commercial Architecture**

#### *5 Credits*

Students are instructed in architectural drafting including drafting techniques, floor, framing and site plans, elevations, sections, basic mechanical (electrical), schedules and specifications, and building codes. Corequisite(s): DFT 117

#### **Course Outcomes**

1. Identify and describe standard layouts of foundation, floor, roof, elevation and related details drawings to current industry standards.
2. Identify and utilize structural components used in commercial construction.
3. Recognize and explain the use of common commercial construction materials and methods.
4. Discuss the use and application of building codes.

### **DFT 122 - Working with As-Builts**

#### *3 Credits*

This course introduces the concept of implementing design changes to the Architects original design intent. Students are exposed to the initial record from which future system changes and/or additions can be designed. Significant attention will be on changes made in the field and updating the drawing (Red line) record for future use of the building as it relates to operations and maintenance as well as safety and sustainability.

**Prerequisite(s):** DFT 113 or DFTS 112

#### **Course Outcomes**

1. Implement design changes to a set of plans for accuracy.
2. Utilize multiple measuring instruments to identify and locate restructural components.
3. Recognize inaccuracies between original design intent and completed project.

4. Conduct a physical walk through for drawing accuracy.

### **DFT 124 - Materials in Manufacturing and Construction**

#### *3 Credits*

This course is an introduction to materials in design. You will learn the physical/mechanical properties of different materials, how materials are used and incorporated into the manufacturing of mechanical parts, and how materials are used and incorporated into the construction of commercial buildings.

#### **Course Outcomes**

1. Apply proper use of one and two point perspectives.
2. Utilize the procedures for drawing both one and two point perspectives.

### **DFT 128 - Civil Drafting**

#### *4 Credits*

This class acquaints students with the basics of site plan layout using AutoCAD, Revit, and Civil 3D. Students learn how to draft plan and profile, topographical maps, and other survey/civil drawings.

**Prerequisite(s):** DFT 113

#### **Course Outcomes**

1. Prepare a site plan including legal description and boundary lines.
2. Prepare a plan and profile describing cut and fill of a given boundary.
3. Conduct a solar study.
4. Design and apply a topography within a given boundary.

### **DFT 154 - Software Applications for Drafting**

#### *2 Credits*

Students receive a review of Microsoft Word and PowerPoint to create technical publications and presentations in engineering. The bulk of the course focuses on using Microsoft Excel to produce and organize data for use in engineering design and related functional groups.

#### **Course Outcomes**

1. Utilize Microsoft applications to produce architectural schedules.

2. Create and maintain information using the chart wizard.
3. Utilize the math functions to compute specific tolerances.
4. Prepare complex instructions describing assembly procedures.

#### **DFT 185 - Job Readiness**

##### *2 Credits*

This course prepares students to seek and obtain employment by providing instruction in job search strategies, resume writing, interview skills, and career planning. Students are also instructed in employability traits such as work ethics, personal appearance and grooming, punctuality, and corporate citizenship.

#### **DFT 201 - Geometric Dimensioning and Tolerancing**

##### *3 Credits*

This course further develops the concepts of geometric dimensioning and tolerancing (GD&T) and related practices used on engineering drawings with emphasis placed on applied design, production standards and interchangeability. You will learn to interpret GD&T as well as apply it. Corequisite(s): DFT 106

##### **Course Outcomes**

1. Describe the basic concept of geometric dimensioning and tolerance.
2. Utilize Autodesk Inventor to apply geometric symbols to industry standards.

#### **DFT 206 - Mechanical Design**

##### *5 Credits*

This course is an introduction to mechanical design, more specifically fasteners, shafts, and tolerance specification along with a look at mechanical design practices.

**Prerequisite(s):** DFT 106

##### **Course Outcomes**

1. Demonstrate effective communication skills within a team environment.
2. Produce a strategic plan for completing a team project.
3. Prepare sketches, layout drawings, detailed drawings, sub assembly drawings, and final assembly drawings.

#### **DFT 213 - Parametric Modeling**

##### *5 Credits*

This course is an advanced look at CAD, more specifically parametric modeling in SOLIDWORKS. In this course, we will create part models, detailed drawings, and assemblies all driven from a centralized model.

##### **Course Outcomes**

1. Describe and create layouts using utilizing a three-dimensional model.
2. Implement drawing changes communicated through mark-ups and drawing change orders.

#### **DFT 215 - Model-Based Definition**

##### *2 Credits*

This course provides an introduction to the applications and uses of model-based definition (MBD), a product data documentation method becoming more and more common in the industrial manufacturing environment. Students learn the theory and guidelines for model-based definition and practice documenting designs with MBD.

##### **Course Outcomes**

1. Understand the advantages and disadvantages of Model-Based Definition (MBD).
2. Use MBD best practices to document the design of a part.
3. Use MBD best practices to document the design of an assembly.
4. Interchange between MBD and drawing-based definition using the same model data.

#### **DFT 294 - Engineering Design Technology Cooperative Education (optional)**

##### *5 Credits*

This course provides the option of cooperative/internship training in drafting, within the prescribed hours of the student's program of study. Instructor approval is required, and the experience can be either paid or unpaid.

#### **DFT 295 - Engineering Design Technology Practicum**

##### *3 Credits*

This course will bring together everything you have learned thus far and act as a "proof" that you are ready to enter the engineering design industry. You will complete either a commercial building design or mechanical design project from start to finish. This will be an experience that instills confidence in what you have gained at RTC, and a proper send off into your

career aspirations.

**Prerequisite(s):** DFT 106 or DFT 117

#### **Course Outcomes**

1. Complete a data package from start to finish in your chosen specialty.
2. Use a supplemental design software to streamline the production process of design data packages.
3. Manage a large project with deadlines, milestones, and deliverables.
4. Collaborate with the different functional groups that have stake in a project.

#### **DFT 296 - Engineering Design Technology Internship**

##### *10 Credits*

This course provides the option of cooperative/internship training in drafting, within the prescribed hours of the student's program of study. Instructor approval is required, and the experience can be either paid or unpaid.

#### **English**

#### **ENGL 075 - Business English**

##### *4 Credits*

This course provides students with comprehensive coverage of basic English grammar and mechanics. Students learn the rules of proper punctuation, capitalization, sentence structure and various other elements associated with successful business correspondence.

#### **Course Outcomes**

1. Demonstrate knowledge of the eight parts of speech by writing examples of each and by correctly classifying words in sentences per standard business English and acceptable law office standards.
2. Identify the major parts of sentences and identify phrases and dependent and independent clauses to understand how words are joined together to make meaningful communication per standard business English and acceptable law office standards.
3. Apply knowledge of grammar, capitalization, punctuation skills and number style to identify and correct errors in written communications

per standard business English and acceptable law office standards.

#### **ENGL 085 - Business Communication**

##### *4 Credits*

This course is designed to assist students in developing the skills necessary to write effective resumes, reports, memos, letters and other business communications. Students will engage in writing activities, use document templates and forms, and review the basics of oral and written communication in the business world.

#### **Course Outcomes**

1. Use proofreader's marks in your own work and when peer editing and find and correct punctuation, capitalization and number usage rules in sentences.
2. Improve sentence and paragraph level writing skills.
3. Write informal and formal messages, memorandums, letters, and short reports.
4. Become familiar with the format and content of the most common types of legal letters.
5. Use document templates and forms to draft legal documents.
6. Develop presentation and oral communication skills.

#### **ENGL& 101 - English Composition I**

##### *5 Credits*

This college-level writing course develops a wide range of expository writing and critical-thinking skills, including audience awareness, persuasive purpose, independent editing, and resource and literacy analysis. Students incorporate composition ideas from primary experience and secondary sources. Students learn and demonstrate skills in integrating and documenting into their writing researched materials, according to an academically-recognized style, such as APA, Chicago, or MLA. Students revise drafts based on constructive comments offered by their peers and instructor. Upon successful completion of the course, students are able to write essays (of at least 1,000 words), demonstrating the conventions of standard written English.

**General education distribution area: Communication.**

**Prerequisite(s):** Completion of COMP 100 with a 2.0 or higher, or recommendation from the directed self-placement (DSP).

## Course Outcomes

1. Identify common sentence errors and apply appropriate punctuation.
2. Demonstrate audience awareness in developing and delivering expository prose in academically-accepted formats.
3. Demonstrate proper conventions, organizations, and formats of paragraph and essay structure, including unity, development, and coherence.
4. Identify and adopt best methods of enhancing exposition to make it precise, literal, and relevant.
5. Identify and apply appropriate and standard diction that accommodates diverse audience members.
6. Identify and adopt a variety of rhetorical modes and strategies to present cogent and convincing arguments.
7. Demonstrate critical reading strategies by identifying common literary devices and articulating literary themes.
8. Identify, retrieve, and evaluate secondary sources for authority, relevance, and credibility for use in research.
9. Document research sources according to an academically-recognized style: APA or MLA.
10. Revise at every level of composition: assignment compliance, diction, sentence, paragraph, essay, and documentation.

## ENGL& 102 - Composition II

### *5 Credits*

This course helps students develop ideas to guide research, to gather information from the library, internet, experts and other sources, and to judge the quality of the information. They learn to use ideas from a large number of sources as evidence in essays and longer research papers.

**General education distribution area: Communication.**

**Prerequisite(s):** Completion of ENGL& 101 with a 2.0 or higher.

## Course Outcomes

1. Approach essay writing as a process which incorporates pre-writing, outlining, revising, and editing methods.
2. Demonstrate awareness of purpose and audience as integral to the composition process, structure, and development of ideas.
3. Organize information according to a variety of conventional business/academic formats as appropriate to the writing assignments.
4. Apply effective thesis and topic sentence statements in conventional essay composition.
5. Compose clear, precise, relevant, literal expression using correct sentence mechanics.
6. Identify and apply appropriate diction that accommodates diverse audience members.
7. Demonstrate an understanding of common rhetorical devices and strategies in order to present cogent and convincing arguments.
8. Identify, retrieve, and evaluate a variety of secondary sources for authority, relevance, persuasive appeal, and credibility for use in research.
9. Document research sources according to an academically-recognized style: APA or MLA.
10. Identify a range of literary genres and articulate their common themes, conventions, and devices.
11. Revise at every level of composition: assignment compliance, diction, sentence, paragraph, essay, and documentation.

## ENGL& 111 - Introduction to Literature

### *5 Credits*

An analysis and critical understanding of selected literature across genres, locales and eras. Themes include family, faith, good and evil, the individual and society, cultural identity and gender. Students explore elements of plot, theme, setting and character development. Exams and essays based on readings.

**General education distribution area: Humanities.**

## Course Outcomes

1. Develop a greater appreciation for poetry, drama, and/or fiction.
2. Present a strong argument about a work of literature.

3. Analyze works of literature using appropriate vocabulary.
4. Connect ideas from literature, outside research, and personal experiences.
5. Use and cite sources ethically.

### **ENGL& 235 - Technical Writing**

#### *5 Credits*

This course focuses on various aspects of professional and technical writing. Students study user guides, reports, proposals and other forms of business correspondence in order to successfully write for the workplace.

**General education distribution area: Communication.**

**Prerequisite(s):** Completion of ENGL& 101 with a 2.0 or higher.

#### **Course Outcomes**

1. Identify and respond to real-world problems with practical solutions.
2. Collaborate with others to plan, develop, and edit deliverables.
3. Demonstrate appropriate business/technical formats in written presentations.
4. Apply effective thesis and topic sentence statements in conventional essay composition.
5. Articulate and demonstrate technical writing as reader-oriented, with ethical, legal, security implications.
6. Identify and adopt best methods of organizing ideas to inform targeted audiences.
7. Identify and apply professional and appropriate diction that accommodates diverse audience members.
8. Compose sentences with attention to correct punctuation and grammar, concise expression, and professional tone.
9. Identify, retrieve, and evaluate secondary sources for currency, authority, relevance, and credibility for use in research.
10. Integrate borrowed source materials into the writing using proper documentation methods.
11. Document research sources according to an academically-recognized style: APA or MLA.

12. Revise at every level of composition: assignment compliance, diction, sentence, paragraph, essay, and documentation.

### **ENGL& 254 - World Literature**

#### *5 Credits*

This course explores selected works of world literature, focusing on the cultural, philosophical and historical elements which help shape them.

**Prerequisite(s):** Completion of ENGL& 101 with a 2.0 or higher.

#### **Course Outcomes**

1. Describe, analyze, and compare selected works of literature based on cultural, political, or historical contexts.
2. Describe, analyze, and compare selected works of literature based on form and genre.
3. Describe, analyze, and compare selected works of literature based on theme, particularly across cultures.
4. Describe, analyze, and compare selected works of literature based on dissemination, including cultural impact, translation, adaptation, and re-imagination.
5. Express original and informed ideas about literature through a variety of means, including class discussion, oral performance, and creative transformation of a work.
6. Write coherent, organized essays with accurate literary terms and MLA format.

### **Ford Asset**

#### **FAS 101 - Safety and Environmental Issues**

#### *2 Credits*

This course prepares students in the proper safety procedures and usage of shop equipment and chemicals, as well as identification, handling, storage, and disposal of hazardous automotive waste products through web-based classroom and lab instruction.

#### **FAS 112 - Basic Shop Skills**

#### *1 Credits*

This course prepares students in basic shop skills such as: using hand tools, measuring devices, automotive shop equipment, tire service, fastener application, and basic welding operations. Students learn navigation of electronic service information and written publications.

## **FAS 115 - Electrical/Electronic Systems**

### *9 Credits*

This course prepares students for Ford Motor Company Service Technician Specialty Training certification in specialty 34, Automotive Electrical/Electronic System Repair. Students learn electrical/electronic theory, application, diagnosis and repair based on Ford/NATEF competencies through Web-based, classroom and lab instruction. Topics include: Battery, starting and charging system service, lighting system repair, automotive accessory diagnosis, electrical, electronic and multiplex system diagnosis and scan tool usage. Students prepare for ASE certification in Electrical/Electronic Systems (A6).

## **FAS 118 - Brake Systems**

### *6 Credits*

This course prepares students for Ford Motor Company Service Technician Specialty Training certification in specialty 38, Brake System Repair. Students learn basic brake and anti-lock system theory, application, diagnosis and repair based on Ford/NATEF competencies through Web-based classroom, and lab instruction. Students learn on-car machining, brake service and antilock repair. Students prepare for ASE certification in Brakes (A5).

## **FAS 119 - Steering & Suspension Systems**

### *6 Credits*

This course prepares students for Ford Motor Company Service Technician Specialty certification in specialty 33, Steering and Suspension System Repair. Students learn steering and suspension theory, application, diagnosis and repair based on Ford/NATEF competencies through Web-based classroom and lab instruction. Topics include: steering/suspension diagnosis and service, multiplexed steering and suspension service, wheel alignment and wheel service. Students prepare for ASE certification in Suspension & Steering (A4).

## **FAS 120 - Engine Repair**

### *7 Credits*

This course prepares students for Ford Motor Company Service Technician Specialty Training certification in specialty 32, Gasoline Engine Repair. This course covers engine theory, operation and diagnosis, disassembly, inspection, component measurement and reassembly techniques of gasoline and diesel engines based on Ford/NATEF competencies through Web-based classroom and lab instruction. Students prepare for ASE certification in Engine Repair (A1).

## **FAS 123 - Diesel Fundamentals**

### *4 Credits*

This course prepares students for Ford Motor Company Service Technician Specialty Training certification in specialty 51, Diesel Engine Performance, and specialty 52, Diesel Engine Repair through Web-based classroom and lab instruction. Students learn basic diesel operation, as well as proper use of special diesel diagnostic tools and equipment.

## **FAS 124 - Climate Control Systems**

### *4 Credits*

This course prepares students for Ford Motor Company Service Technician Specialty Training certification in specialty 35, Climate Control Systems. Students learn climate control theory, application, diagnosis and repair based on Ford/NATEF competencies through Web-based, classroom and lab instruction. Students perform refrigerant recovery and recycling per EPA regulations and prepare for EPA recycling certification. Students prepare for ASE certification in Heating/Air Conditioning (A7).

## **FAS 171 - Written Communications**

### *3 Credits*

Students develop writing skills to describe repairs, repair procedures, and suggestions for further maintenance. Students learn to prepare a cover letter and resume for employment opportunities.

## **FAS 191 - Cooperative Training I Part A**

### *3 Credits*

Students work in the dealership developing competencies covered in Safety and Environmental Issues, Basic Shop Skills, Electrical/Electronic Systems and Pre-Delivery Inspection courses.

## **FAS 192 - Cooperative Training I Part B**

### *3 Credits*

Continuation of FAS 192, Cooperative Training I Part A.

## **FAS 193 - Cooperative Training II**

### *7 Credits*

Students work in the dealership developing competencies in brake systems and steering and suspension systems.

## **FAS 216 - Manual Transmissions and Drivetrains**

### *8 Credits*

This course prepares students for Ford Motor Company Service Technician Specialty Training certification in specialty 36, Manual Transmission and Drivetrain



Repair. Students learn manual transmission and drivetrain repair theory, application, diagnosis and repair based on Ford/NATEF competencies through Web-based classroom, and lab instruction. Topics include: noise, vibration and harshness diagnosis, differential overhaul, driveline service, manual transmission, and transfer case overhaul. Students prepare for ASE certification in Manual Drivetrain & Axles (A3).

### **FAS 217 - Automatic Transmissions**

#### *8 Credits*

This course prepares students for Ford Motor Company Service Technician Specialty Training certification in specialty 37, Automatic Transmission Repair. Students learn automatic transmission theory, application, diagnosis, repair, and overhaul based on Ford/NATEF competencies through Web-based classroom and lab instruction. Students prepare for ASE certification in Automatic Transmission & Transaxle (A2).

#### **Course Outcomes**

1. Inspect and diagnose and repair automatic transmissions to Ford/industry quality standards.

### **FAS 223 - Engine Performance**

#### *14 Credits*

This course prepares students for Ford Motor Company Service Technician Specialty Training certification in specialty 31, Gasoline Engine Performance. Students learn engine performance theory, application and diagnosis of ignition, fuel, emissions and on board diagnostic systems based on Ford / NATEF competencies through Web-based classroom and lab instruction. Students prepare for ASE certification in Engine Performance (A8).

#### **Course Outcomes**

1. Perform accurate engine performance diagnosis and repair on gasoline and diesel vehicles to Ford/NATEF Standards.

### **FAS 294 - Cooperative Training III**

#### *7 Credits*

The student works in the dealership developing competencies in engine repair, diesel fundamentals and climate control systems.

### **FAS 295 - Cooperative Training IV**

#### *7 Credits*

The student works in the dealership developing  
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competencies in manual transmission and drivetrain and automatic transmissions.

#### **Course Outcomes**

1. Perform drivetrain and 4x4 diagnosis and repair to Ford /NATEF standards.
2. Perform manual and automatic transmission diagnosis and repair to Ford/NATEF standards.

### **FAS 296 - Cooperative Training V Part A**

#### *3 Credits*

Students work in the dealership developing competencies in engine performance, and emissions certification.

#### **Course Outcomes**

1. Perform assigned engine performance diagnostic and repair tasks to Ford /NATEF standards.

### **FAS 297 - Cooperative Training V Part B**

#### *5 Credits*

Continuation of FAS 296, Cooperative Training V Part A.

### **Geology**

### **GEOL& 101 - Introduction to Physical Geology**

#### *5 Credits*

Examines geologic processes that shape the Earth. Emphasis is placed on understanding the language and methods of science as applied to our changing planet. Students develop critical thinking skills and apply them to regional geology. Topics include earthquakes, volcanism, glaciers, rivers, and structure of the Earth. May include field trips. Includes laboratory.

**General education distribution area: Natural Science, with lab.**

#### **Course Outcomes**

1. Examine the environment around you.
2. Demonstrate knowledge of geological concepts including plate tectonics, plate boundaries, internal and external earth processes and geologic time.
3. Recognize the crystalline structure of minerals and the physical properties of minerals.
4. Identify and analyze sedimentary, igneous and metamorphic structures in rocks.

5. Explain geologic hazards with particular attention paid to Washington State.
6. Increase skills to solve problems and answer questions.

## History

### HIST 110 - Survey of American History

#### 5 Credits

This survey course examines the creation and evolution of the United States beginning with the histories of pre-contact native peoples and continuing through the present time. Through the exploration of key figures, eras and events, students develop historical thinking skills, draw conclusions from competing and contradictory sources, and recognize the role of perspective in historical documentation.

**General education distribution area: Social Science or Humanities.**

#### Course Outcomes

1. Articulate how the American people and nation evolved over the first 100 years, and coped with issues, personalities and events that challenged them.
2. Access and use primary and secondary print and non-print resources (documents, texts, media, databases, museum collections and electronic resources and oral histories) to explore and understand past events and issues in American history.
3. Use maps to locate sites significant in US history, and understand how geography has been a force in history.
4. Write solid, well-documented history essays.
5. Explain how US history intersects with the history of other nations and populations.
6. Acquire new lifelong learning skills and interests.

### HIST& 126 - World Civilization I

#### 5 Credits

This course examines the development of civilizations from prehistoric through the beginning of the Middle Ages. It emphasizes economic, social and political global perspectives by studying worldviews and systems of thought.

**General education distribution area: Social Science or Humanities.**

**Prerequisite(s):** Eligible for COMP 100 or instructor's permission.

#### Course Outcomes

1. Describe the historical significance and context of geography, environment, events, personalities, and the political, intellectual, economic, cultural, social, philosophical and religious ideas and customs of the ancient world.
2. Demonstrate knowledge of the influence of geography on world history.
3. Analyze primary and secondary source documents, both written and in artifactual form and relate them to their historical context.
4. Analyze the multifaceted legacy of events and ideas from the past.
5. Effectively research a limited historical question, event or idea using original and secondary sources.
6. Communicate research effectively.

### HIST& 136 - U.S. History I

#### 5 Credits

Reviews the significant contributions of the Colonial Period, emphasizing political and constitutional developments from the American Revolution through the Civil War. Emphasis on the Constitution and causes and consequences of the Civil War. Includes contributions and achievements of key political/legal, scientific, cultural and military individuals.

**General education distribution area: Social Science or Humanities.**

#### Course Outcomes

1. Consider current events in light of a basic knowledge of US history.
2. Recognize the role of government in the national discourse.
3. Make civic-minded decisions in that light.
4. Consider information sources critically.

### HIST& 137 - U.S. History II

#### 5 Credits

Covers U.S. development from the Post-Civil War Reconstruction period to the present. Includes political,

social, and economic forces affecting the United States during the period of westward movement, industrialization, world wars, economic growth and world dominance. Covers profound technological developments of the twentieth century in relation to the world of work. Addresses the fall of the Soviet Union and the rise of Islam in relation to the U.S. as a global power.

### **General education distribution area: Social Science or Humanities.**

#### **Course Outcomes**

1. Analyze current events in light of a basic knowledge of US history.
2. Evaluate the role of government in the national discourse.
3. Make civic-minded decisions in that light.
4. Evaluate information sources critically.

### **Human Relations**

#### **HUM 101 - Human Relations**

##### *3 Credits*

Students are introduced to basic human relations theory and skills. Focus is on the importance of maintaining positive relationships in a professional and diverse workplace and functioning as an effective member of work teams.

#### **Course Outcomes**

1. Pinpoint methods of enhancing and developing self-confidence and self-esteem.
2. Enhance your verbal and nonverbal communication skills.
3. Recognize and identify effective social networking and proper etiquette in the digital world.
4. Apply interpersonal and task related tactics for effective traditional as well as virtual team play.
5. Develop your team leadership skills and potential.

### **Humanities**

#### **HUM& 101 - Introduction to Humanities**

##### *5 Credits*

This course takes an interdisciplinary approach to the visual, performing and literary arts. Students explore cultural and political contexts, as well as aesthetics

principles, of arts around the world. Emphasis is placed on discovery, analysis, and appreciation of diverse works from areas like the fine arts, theater, music, architecture, literature, philosophy, and/or religion.

### **General education distribution area: Humanities.**

#### **Course Outcomes**

1. Demonstrate knowledge of the cultural and political dimensions of art in its various forms.
2. Describe cultural and historical impacts on various art forms.
3. Discuss intersections between art and identity, sense of place and community.
4. Critically analyze the different characteristics of various genres through both written and oral assignments.
5. Develop public speaking skills and perform a short presentation.
6. Acquire the ability to read scholarly works carefully, and to hone research skills via the use of research tools such as databases.

### **Industrial First Aid**

#### **INDS 101 - First Aid/CPR & AED**

##### *1 Credits*

Teaches to effectively recognize and treat in the critical minutes until Emergency Medical Services (EMS) arrive. Includes general principles of first aid, medical emergencies, injury emergencies, environmental emergencies, blood borne pathogens and safety precautions. Upon completion of written exam and skills evaluation AHA card issued. This course is approved by OSHA, WISHA (Labor and Industries).

### **Industrial Production Technologies**

#### **IPT 102 - Lean Manufacturing**

##### *3 Credits*

In this course, Students learn manufacturing resource planning (MRP) concepts and how to apply those principles in diverse industrial environments. Students learn how their future positions impact production flow, and gain basic planning and troubleshooting skills to solve problems and contribute to a high efficiency environment. Students will apply MRP concepts in increasingly complex scenarios throughout the remainder of the program.

#### **IPT 103 - Quality Control**

### *2 Credits*

Students will be able to explain how safety, planning and inspection increase product output. Students will also identify the development of corrosion and the necessary ingredients needed for an electro-chemical corrosion cell to develop. The student will be able to analyze facts and principles drawing conclusions about how corrosion develops on metal surfaces based on the galvanic series chart and properties of anodic metals. The student will become familiar with the different types of corrosion that develop depending upon the material composition of the metal substrate, environmental contributors and contamination. The student will be able to analyze the facts and principles drawing conclusions about the subject.

#### **IPT 104 - Intro to Aircraft Structures**

### *3 Credits*

In this course, students learn the importance of aircraft ground/bonding sealing, corrosion prevention and to identify the characteristics of metals achieving a good working knowledge of material compositions and their ability to perform under certain conditions. The student will be able to analyze the facts and principles drawing conclusions about metal identification and its characteristics. Specific skills include IPT rivet identification, rivet pattern layout, drill bit identification, and nut plates, blind fastener and latch identification.

#### **IPT 105 - Intro to Fabrication**

### *5 Credits*

This is a manufacturing lab class covering drilling, riveting, counter-sinking fasteners, non-powered metal bending operations, powered metal cutting, hand forming and portable dimpling process and micro-shaving, and nut plates, blind fastener and latch installation. Students learn how to use measurement hand tools, non-powered cutting tools, and manual cutting machines in developing flat pattern layouts. The student will identify why and when the task must be done and why each step is required based on normal operating standards. The student learns the principles of folds, angles or channels required in the fabrication and metal forming process. The student will be able to identify why and when the task must be accomplished through reading engineering drawings, understanding general dimensions & tolerances, predicting, isolating, and resolving problems about the task.

#### **IPT 218 - Introduction to Production**

### *5 Credits*

This class is designed to familiarize students with general dimensions and tolerances of production tool drawings as well as identifying symbols and characters used for metrology. Also students discuss production tooling feature types, ease of operation, longevity and strength. And in addition to learning the importance of selecting the proper material composition of tools, learn that fit, form and function for production line assistance operations and shop safety, as well as being proactive in identifying potential issues such as fixture/rig design flaws and improper use or operator training.

#### **IPT 219 - Service Life Evaluation Program**

### *2 Credits*

This course outlines the importance of developing a cost-saving program that tracks shop-to-floor rotation, user training, and proper storage of production line tools. Students will learn to identify issues such as improper wear, and heat or cold damage. They will also discuss investigative techniques for visually identifying metal fatigue and structural damage of production floor tools. Learning the documentation of measurements/calibration, and how form, fit, and function are verified.

#### **IPT 220 - Precision Fabrication**

### *3 Credits*

This is a hands-on lab that students will utilize their training in production drawings to manufacture fixtures & jigs within engineering drawing specifications, using dye & scribe techniques and metrology to layout patterns. As well as using air tools for precision drilling and adding specified features. With necessary attention to detail, micro-adjustments with abrasive materials, and shaping with hand tools while using metrology devices to ensure quality during the process. Keeping in mind fit, form & function in any production setting, for any assembler to use without hesitation or delay on the production floor.

#### **IPT 221 - Intro to Measurement**

### *3 Credits*

Students learn device calibration practices, traceability of measurements and gaging techniques for calibration, as well as focusing on software use in tooling. Students learn the importance of proper training and discussion of various types of contact & non-contact measuring equipment and its importance in metrology. Discussion of the conversion of physical measurements to virtual and digital dimensions generated by various programs

and their potential uses in metrology. Students will learn basic camera operations, techniques, photo measurement integration and the importance of adaptive lighting, as well as discussing the importance of tracking features, surface texture, and target & scale bar placement for 3-dimensional enhancement.

### **IPT 222 - Advanced Measurement**

#### *2 Credits*

Along with a brief overview of Nanometrology research worldwide and sub-atomic measurements metrology, students discuss measurement integration of systems into systems or the use of Adaptive Manufacturing & Mechatronics. Students will perform practical operations of a laser measuring device and provide analysis of a provided structure. Students will use 3D camera & software to perform practical operations and provide detailed analysis of a provided structure. Students will tour industry lab environments to understand how precision measuring is applied in actual business contexts. Students will also discuss potential improvements such as artificial intelligence, robots, sensor imbedded parts and interlinking of facilities and equipment digitally. Learning that laser scanners and other devices are used to display virtual landscapes to provide a preview of possible production floor layouts. Imbedding lean processes thinking provides students with knowledge to project ideas and to see cost savings, efficiency, and time saving implementation. Students are introduced to additive technologies, including 3-D modeling software, to build objects made of metals and plastics. Students also learn how layered fabrication is applied across the manufacturing sector, from aerospace and space environments, industrial settings, and even health care technologies. Students learn the evolution of Additive Manufacturing from rapid retooling and preproduction, to fabrication and end-use products. Students learn about advanced technologies, such as lasers, injections, and 3-D printing, and how they are used to cure and fuse materials as diverse as resin, thermoplastics, plasters, and glass.

### **Intensive Entry Construction**

#### **JSTI 101 - Core Construction Skills**

#### *6 Credits*

Students learn core construction skills such as construction print reading, measurements and layout. Ergonomic hazards of construction are identified, and participants demonstrate preventative measures. Participants identify construction materials, apply industry terminology, and identify and safely operate hand and power tools related to the construction

trades. Students learn electrical load counts for safe use of power tools. Participants demonstrate standard hand signals for cranes, use rigging equipment, wear personal protective equipment, and demonstrate proper use and handling of ladders.

#### **JSTI 109 - Safety, Tool and Equipment Certification**

#### *6 Credits*

Participants receive training in traffic control (flagging) and powder-actuated tools. Students can receive certification in each of these areas. Students earn forklift, boom lift and scissor lift certifications. Students earn the Industrial First Aid/CPR & AED certification, which includes general principles of first aid, medical emergencies, injury emergencies, environmental emergencies, blood borne pathogens and safety precautions. This course includes OSHA 10 certifications. Upon completion of written exam and skills evaluation, AHA card issued. The Industrial First Aid/CPR & AED certification is approved by OSHA, WISHA (Labor and Industries). Students complete 40 hours of scaffold erection training.

#### **Course Outcomes**

1. Receive Washington State approved training and Certification in the safe operation of a sit-down counter-balance lift truck (Fork Lift), Traffic Control/Flagging, Industrial First Aid/CPR & AED, OSHA 10 Workplace Safety Certification, and Certification to operate Powder Actuated tools.

#### **JSTI 111 - Structural Trades**

#### *3 Credits*

This course emphasizes those building trades involved in the skeletal aspect of a structure. This includes electricians, ironworkers, rough and form carpenters, laborers, brick and cement masons, and piledrivers. Students work with tools, materials, and methods specific to each trade, developing skills and knowledge to include steel studs and wood framing. Students are introduced to sustainable building practices. Students operate such equipment as air compressor and guide projects as a team.

#### **JSTI 117 - Electrical and Mechanical Trades**

#### *3 Credits*

This course covers building trades involved in the interior of a structure such as electrical, plumbing, and sheet metal work. Students learn basic electrical theory, use Ohm's Law and build simple circuits. Students also learn basic plumbing applications, soldering, and how to

work with sheet metal. Safe and correct use of tools is emphasized throughout.

### **JSTI 168 - Trades Math I**

#### *3 Credits*

This course is taught with a vocational emphasis to develop and deepen students' conceptual understanding of mathematics by their chosen CTP pathway, and to develop proficiency in problem-solving with whole numbers, fractions, decimals, and percents. Students are introduced to Ohm's Law and basic electrical math principles. Students study ratio and proportion, geometry, and basic algebra as applied to the construction trades.

#### **Course Outcomes**

1. Review, develop and deepen an understanding of mathematics.
2. Develop or rediscover proficiency in problem-solving with whole numbers, fractions, decimals, percents, ratio and proportion, geometry, and basic algebra as it will be applied in the construction trades.

### **JSTI 175 - Communication for Trades**

#### *2 Credits*

Introduction to the communication skills needed in the construction, maintenance, and manufacturing trades.

#### **Course Outcomes**

1. Explain and describe processes and solutions for resolving workplace conflict, bullying, harassment, and stereotyping.
2. Demonstrate appropriate electronic, written, and verbal business communications.
3. Comprehend and explain principles of effective communication, ethics, conflict resolution, stereotyping, harassment, and bullying.

### **JSTI 194 - Cooperative Work Experience**

#### *3 Credits*

This is an instructor-approved, paid or unpaid work experience related to the student's program of study, and includes a trades rotation with partner apprenticeships.

### **Legal Assistant**

### **LGL 101 - Introduction to the Legal Profession**

#### *5 Credits*

Student will learn about the organization of legal offices  
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including the values and ethics required for employment. Students will practice client service skills and the expectations of the hiring managers and lawyers in the firm.

#### **Course Outcomes**

1. Demonstrate knowledge of the basics of the legal industry with an emphasis on job opportunities and structure of courts, law firms, and government agencies.
2. Distinguish the various types of law and demonstrate knowledge of the basics of American law, Washington laws and court rules.
3. Recognize and model the professional standards of the legal industry.
4. Identify and demonstrate knowledge of ethics of the legal profession including NALS guidelines of ethics for legal assistants and paralegals.
5. Recognize and distinguish the various computer applications, internet resources and office equipment used in law firms.
6. Practice client service skills and demonstrate the expectations of hiring managers and lawyers in the law firm.

### **LGL 105 - Legal Keyboarding**

#### *1 Credits*

This course prepares students to use computers in a legal setting by improving existing keyboarding skills through extensive, focused practice at a computer keyboard. Speed with accuracy is emphasized and applied to standard business documents.

**Prerequisite(s):** Ability to type 30 wpm (tested on first day of class).

#### **Course Outcomes**

1. Demonstrate keyboarding skills at 45 wpm with 6 or fewer errors.
2. Improve accuracy and increase speed in keyboarding alphabetic and numeric copy and in document production to meet individual student goals established at beginning of program.

### **LGL 108 - Law Office Procedures I**

#### *5 Credits*

Students learn procedures for effectively managing time, prioritizing tasks, and calendaring appointments



and case events. Students also learn techniques and procedures for handling telephone and receptionist duties including opening and closing client files. Students become familiar with ARMA indexing rules and records management including effectively organizing and filing paper and electronic files, indexing pleadings, and handling exhibits.

#### **Course Outcomes**

1. Identify the key elements of effective time management task prioritization and create, implement and evaluate a personal plan for managing and prioritizing time effectively.
2. Describe and apply proper techniques and procedures for performing effective telephone and receptionist duties per instructor guidelines and/or NALS recommendations.
3. Demonstrate a working knowledge of file management, including computer file management, opening and closing files, running conflict checks, using filing equipment, supplies and materials such as index tabs, labels and dividers, and indexing, storing, and retaining files.
4. Apply knowledge of the various functions of the court clerk's office including e-filing, filing fees and local court rules.
5. Demonstrate ability to correctly and quickly alphabetize and index documents according to standard law office practice and Association of Records Managers and Administrators (ARMA) guidelines.
6. Describe various types of exhibits that are used at trial, list five best practices for preparing trial exhibits, and describe how exhibits are labeled and presented to the court.

#### **LGL 109 - Law Office Procedures II**

##### *5 Credits*

Students study the role of the legal assistant and the importance of ethics and client confidentiality in today's law offices. Students study techniques and procedures for managing meetings, making travel arrangements, and processing documents for mail, facsimile, e-filing, and/or courier transmission. Students also become familiar with time and billing procedures and with office supplies and equipment such as copiers, scanners and facsimile.

#### **Course Outcomes**

1. Demonstrate calendaring and docket control procedures and identify the requirements for effective calendaring of appointments and events and use a paper and electronic calendar program for scheduling per law firm, and/or NALS guidelines.
2. Find resources, describe procedures, and complete documents to assist lawyers with travel and meeting arrangements per general law office standards.
3. Identify and describe office equipment and supplies commonly found in a law office and explain procedures related to using copiers, scanners and facsimile equipment per general law office standards.
4. Demonstrate general knowledge of accounting terms and time and billing procedures used by attorneys and paralegals per instructor guidelines and NALS recommendations per law firm, and/or NALS guidelines.
5. Develop transferable and life-long learning skills and strategies such as note-taking, organizing and using web-based and written resources, assignments, handouts to self-regulate, self-monitor, and self-evaluate to enable the performance of legal assistant duties.
6. Process documents for mail, facsimile, e-filing, and courier transmission.

#### **LGL 110 - Family Law and Estate Planning Procedures**

##### *5 Credits*

Students learn the aspects of domestic cases, including dissolution, legal separation, and parenting issues, with an emphasis on drafting family law pleadings. Students will learn basic estate planning techniques and will draft wills, powers of attorney, and trust documents.

#### **Course Outcomes**

1. Demonstrate a working knowledge of basic family law procedures, concepts and terminology including dissolution procedures and pleadings, parental rights, custody and support, adoptions, guardianships, domestic violence issues, prenuptial agreements and domestic relations law (RCW Title 26).
2. Draft and evaluate court pleadings commonly associated with family law court issues.



3. Acquire and demonstrate a working knowledge of basic estate planning and probate terminology, concepts and procedures including wills, codicils and trusts, community property agreements, power of attorneys, healthcare directives, various types of probates (including small estates, community property clearances, adjudications, testate and intestate estates) and procedures, pleadings, probate and trust law (RCW Title 11).
4. Draft and evaluate estate planning instruments, including wills, powers of attorney, and trust documents.

### **LGL 113 - Business Law Procedures**

#### *5 Credits*

Students learn about the forms and key elements of business organizations. Students prepare corporate documents with an emphasis on grammar, proofreading, and writing skills. Students also focus on real estate transactions and civil property issues, including drafting real estate transfer documents, and will learn about bankruptcy procedure.

#### **Course Outcomes**

1. Define, summarize, describe or explain terminology and concepts related to contracts, intellectual property, insurance, real estate law, business organizations, environmental law and bankruptcy law.
2. Create, modify, and evaluate business-related and corporate documents.
3. Locate, evaluate and correctly use appropriate web-based and written resources to complete business and corporate related tasks.
4. Create, modify and evaluate a variety of real estate documents including but not limited to various types of deeds, promissory notes, title reports, excise tax statements, HUD1 settlement statements and foreclosure procedures.
5. Locate and correctly use appropriate web-based and written resources to complete real estate documents and searches, including current LPO requirements.

### **LGL 117 - Law Office Procedures III**

#### *5 Credits*

Students study the Washington Court Rules including general procedures of court filings, with emphasis on Renton Technical College

electronic filing, and calendaring case schedules. Students prepare complex legal correspondence and pleadings. Students learn how to read case citations and cite and type legal authorities using the Uniform System of Citations. To avoid violations of conflict of interest, unauthorized practice of law, and other violations and maintain client confidentiality, students will review and understand the Washington Rules of Professional Conduct.

#### **Course Outcomes**

1. Describe federal and state court systems, explain where laws come from, distinguish between primary and secondary sources of law, how to read court opinions, and how to verify that research results are up to date per standard legal guidelines for entry-level support professional.
2. Demonstrate general knowledge of legal reference and resource materials commonly found in law offices per standard law office procedures recommendations.
3. Demonstrate general knowledge of legal research terminology, concepts, and citation styles per court rules, the Uniform System of Citation (The Bluebook) and standard law office procedures.
4. Demonstrate skill at formatting legal briefing memorandums per court rules, the Uniform System of Citation (The Bluebook) and standard law office procedures.
5. Apply research rules and techniques using a web-based online legal research site.

### **LGL 120 - Human Relations in the Legal Office**

#### *3 Credits*

Students are introduced to basic human relations theory and skills. Focus is on the importance of maintaining positive relationships in a professional and diverse workplace and functioning as an effective member of work teams.

#### **Course Outcomes**

1. Understand and practice professionalism, teamwork, and other appropriate human relations behaviors to become an effective employee per common law office standards.
2. Identify and practice speaking and listening techniques that enhance their relationships

with co-workers, attorneys and clients per common law office standards.

3. Demonstrate professional work habits expected in the legal office environment, including goal setting, time management, following directions, and confidentiality and legal ethics.
4. Demonstrate and practice critical thinking skills needed to prioritize, anticipate and analyze problems, and to evaluate and implement solutions per common law office standards.
5. Exhibit a commitment to diversity and enhanced employability through the understanding and practice of human relations and teamwork skills per common law office standards.

### **LGL 121 - Word Processing**

#### *5 Credits*

Students apply word processing skills, concepts, and functions to produce multi-page correspondence, envelopes, labels, pleadings, and various legal documents from rough draft copy. Students also work with word processing features, such as styles, merge, tables, footnotes, to prepare a variety of legal documents and forms. Students also learn to automate procedures using macros, autotext, autoformat, and to use Wizards to create forms, and pleadings.

#### **Course Outcomes**

1. Demonstrate proficiency using features of word processing software to prepare, format, edit and enhance the visual display of text in documents per current software program standards of operation.
2. Demonstrate working knowledge of mail merge feature, footnotes, macros, styles, templates, and forms per current software program standards of operation.
3. Develop word processing skills to effectively, independently, and correctly format and finalize a variety of business documents per current software program standards of operation.

### **LGL 127 - Office Applications I**

#### *4 Credits*

Students will learn concepts of basic computerized presentation preparation. Students will prepare, edit, and format text adding graphics, tables, charts, animation and transition, and hyperlinks on slides to enhance visible appeal. Student will work with Adobe  
Renton Technical College

Pro.

#### **Course Outcomes**

1. Demonstrate proficiency using features of presentation software to prepare, format, edit and enhance the visual display of presentations per current software program standards of operation.
2. Demonstrate working knowledge of editing, inserting, importing data, formatting presentations and creating charts and tables per current software program standards of operation.
3. Develop presentation creation skills to effectively, independently, and correctly format and finalize a variety of presentations per current software program standards of operation.
4. Demonstrate working knowledge of Adobe Pro features per current software program standards.

### **LGL 128 - Office Applications II**

#### *4 Credits*

Students will learn concepts of basic spreadsheet applications including inserting formulas in a worksheet, formatting and enhancing a worksheet, moving and maintaining a workbook, creating charts and inserting formulas, and adding visual interest to workbooks.

#### **Course Outcomes**

1. Apply knowledge gained using spreadsheet software to produce a variety of documents per current software program standards of operation.
2. Demonstrate working knowledge in presenting, sorting, calculating, and manipulating data in worksheets per current software program standards of operation.

### **LGL 140 - Technology in the Law Office**

#### *4 Credits*

Students examine technologies, software, and practices used in law offices such as case and document management tasks, time and billing software, docket/calendar control, and electronic court filing procedures. Students perform hands-on activities using Access to enter data into database tables, create reports and labels, and perform simple queries. Also, students gain hands-on experience using Outlook for e-

mailing, calendaring, managing tasks, and creating and maintaining contact lists.

### **Course Outcomes**

1. Demonstrate introductory knowledge using database software by producing merge letters, database tables, queries, forms and reports per current software program standards of operation.
2. Demonstrate proficiency using an information management program such as Outlook to calendar and schedule events and appointments, create and manage contact lists, tasks and notes, and e-mail messages per current software program standards of operation.
3. Demonstrate knowledge of technologies and software common to law offices, including case and document management systems, time and billing software, docket/calendar control processes, and electronic court filing procedures.

### **LGL 192 - Job Search**

#### *4 Credits*

Students examine the role of the successful legal assistant and the importance of ethics and client confidentiality in today's law offices. Students create cover letters and resumes and develop job search strategies and interviewing skills to assist in their placement after training. Students participate in mock interviews.

### **Course Outcomes**

1. Develop a strategic plan to find a position in a law office or government entity upon completion of training per law office human resources, and/or employment agency guidelines.
2. Demonstrate job search readiness by preparing an effective and accurate resume, cover letter and job application per instructor guidelines and standard law office procedure.
3. Apply appropriate interview skills in mock and/or real interview situations per law office personnel criteria.

### **LGL 199 - Field Experience**

#### *5 Credits*

Students who are qualified shall participate in a paid or Renton Technical College

unpaid internship or field experience. Students may gain on-the-job experience by applying directly to law firms, government agencies, legal aid organizations, etc. and then working or volunteering part-time. Students may receive credit for work appropriate to their training.

### **Course Outcomes**

1. Participate in a paid or unpaid field experience/internship or co-operative work experience.
2. Gain on-the-job experience by applying directly to law firms, government agencies, legal aid organizations, etc. and then working or volunteering part-time.
3. Write a reflection paper regarding the field experience/internship.

### **LGL 201 - Civil Litigation**

#### *5 Credits*

Students learn about the phases in civil litigation and examine the steps in civil lawsuits, including pretrial and trial procedure, as well as alternative dispute resolution options (e.g., mediation, arbitration). Students schedule and calendar events and prepare correspondence, forms, and pleadings with emphasis on grammar, proofreading, and good writing. Students study the law of torts (civil wrongs and liabilities), sources of American law, and the state and federal court system. Students visit a courthouse to learn about the law library and view a civil court proceeding.

### **Course Outcomes**

1. Describe the organization and jurisdiction of state and federal court systems and the various ways in which disputes can be resolved outside the court system - mediation and arbitration.
2. Define and classify tort actions and defenses to tort actions.
3. Develop and apply a working knowledge of terminology, concepts, and procedures related to civil litigation.
4. Draft and examine correspondence, forms, and pleadings used in the steps of a civil lawsuit.

### **Machinist Apprentice**

### **MACH 101 - Boeing Machinist Apprenticeship**

#### *0 Credits*

This course, consistent with State Apprenticeship

Standards as approved by the Washington State Apprenticeship Council for the Boeing Machinists, Jig & Fixture Builders, Maintenance Machinists, Model Makers, N.C. Spar Mill Operators, Tool & Cutter Grinder Operators, Tool & Die Makers, Tool Inspectors and the Seattle Area Machinist Apprenticeship Programs.

### **MACH 102 - Seattle Machinist Apprenticeship**

#### *0 Credits*

This course is consistent with State Apprenticeship Standards as approved by the Washington State Apprenticeship Council for the Boeing Machinists, Jig & Fixture Builders, Maintenance Machinists, Model Makers, N.C. Spar Mill Operators, Tool & Cutter Grinder Operators, Tool & Die Makers, Tool Inspectors, and the Seattle Area Machinists Apprenticeship programs.

### **Medical Administrative Programs**

### **MAP 101 - Introduction to Medical Terminology**

#### *5 Credits*

This class provides a comprehensive foundation of basic medical terminology for use in health care careers. Includes Greek and Latin word roots, prefixes, suffixes, combining forms, special endings, plural forms, abbreviations and symbols. Terminology emphasis on body structures, pathologies, medical procedures, medical specialties, and common terms and abbreviations used in health care. Introduces concepts and application of reading, writing and interpreting common medical formats such as operative and SOAP notes.

#### **Course Outcomes**

1. Describe medical terminology related to the various body systems.
2. Build medical terminology related to body structures, functions and disorders.
3. Define common medical terms and abbreviations.
4. Analyze medical terminology based on word structure.
5. Explain the importance of medical terminology when documenting and communicating patient information.

### **MAP 114 - Computer Fundamentals (Office 365)**

#### *5 Credits*

This course prepares students to use computer applications in the classroom by providing a solid foundation in basic computer terminology; operating  
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systems; browsers; basics of internet; and introduction to Office 365. Students will use basic Office 365 features including features of the ribbon, quick access tool bar, formatting, e-mail, opening and saving documents, and creating and editing business letters and tables. Students will use many of the tools and features in Office 365 to perform basic tasks.

### **MAP 115 - Advanced MS Office and Keyboarding (MOS)**

#### *5 Credits*

This class builds on skills learned in MAP 114. Students prepare for the Microsoft Office Specialist (MOS) certification with further independent practice on different types of documents, including newsletters, reports, resumes, and work correspondence.

### **MAP 120 - Human Relations**

#### *2 Credits*

This course explores personal and professional qualities necessary for success in the healthcare industry. It also prompts self-awareness and encourages development of coping skills for dealing effectively with co-workers, supervisors, doctors and patients.

### **MAP 123 - Patient Navigation and Chronic Illness**

#### *3 Credits*

This course introduces students to the treatment and prevention of chronic illnesses, integration of medical and behavioral health, and innovative models of care and barriers to care associated with low health literacy, limited English proficiency and quality of life issues.

### **MAP 147 - Insurance Claims, Processing, and Adjudication**

#### *2 Credits*

What happens after medical billers send a claim? This course will explore the workflow of claims submission; the claims adjudication processes; and medical reviews, edits, and denial codes.

### **MAP 155 - Introduction to Excel**

#### *5 Credits*

This course provides students with basic Excel skills to solve business problems. This course covers the following topics: getting started with Excel; creating a worksheet, charting data; editing workbooks, formulas, and cells; using functions, creating tables managing large workbooks and analyzing data with charts and What-if analysis tools. This course will also introduce students to appropriate formatting and use of worksheets to be used with medical office reimbursement applications and functions.

## **MAP 190 - Career Opportunities and Employment Expectations**

### *2 Credits*

Students create and modify resumes, cover letters, learn effective interviewing skills and the use of social media sites. In addition, students analyze traits employers are seeking in new hires.

### **Course Outcomes**

1. Identify appropriate professional conduct for the medical office.
2. Identify the appropriate professional dress for a medical setting.
3. Evaluate viable job listings from at least two sources.
4. Identify and enroll in professional social network sites.
5. Demonstrate interviewing skills.

## **MAP 201 - Diagnostic and Procedural Coding**

### *5 Credits*

The purpose of this course is to give students practice applying the official coding guidelines to complex documentation in medical records. Students will assign both diagnosis codes and procedure codes to complex case studies focusing on correct code assignment, sequencing and official guidelines. The uses and formats of health information are explored, and examples are provided to illustrate the use of the health record as the basis for clinical code selection and reporting.

### **Course Outcomes**

1. Classify the users of health records and the rights of those users to access records.
2. Demonstrate knowledge of the proper handling of health records.
3. Analyze the impact of computerization on health record management.
4. Interpret the HIPAA privacy regulation and its implications for coding professionals.
5. Apply the basic language associated with health records.

## **MAP 208 - Patient Navigation and the Healthcare System**

### *3 Credits*

This class covers the responsibilities of a patient

navigator with an emphasis on communication and problem-solving with clients. Students also learn how various health care systems, terminology and health insurance interact. Topics will focus on individual and family centered care issues, communication and health literacy, transitions and resource referral.

## **MAP 211 - Navigating EHRs in Healthcare**

### *3 Credits*

This electronic health record (EHR) simulation will provide you with unique, hands-on learning of the simulated medical office. The assignments in this text provide realistic practice of all of the tasks you will encounter in a real medical office-from front office (administrative) skills to clinical skills to practice management skills (billing, coding, and insurance). This simulation mimics how to interact with patients and the requirements for an EHR.

## **MAP 247 - Introduction to Medical Databases**

### *2 Credits*

This course will discuss and analyze the role of databases in medical coding and payment. Students will review and analyze use of ICD10, CPT, SNOMED CT and UHDDS in database and practice management.

## **MAP 278 - Databases and Statistical Terms**

### *5 Credits*

This course is designed to teach the utilization and application of Excel: use financial and lookup functions; define names, validate data, and audit worksheets; use advanced sorting and filtering; create pivot tables and charts; and collaborate with external data and database functions. Theory of basic statistical analysis of record content and record management will be presented. Review of basic mathematical functions, introduction of measures of central tendency and variability, and principles of manual and computer graphic display will be incorporated in both application and analysis. This course also includes theory on census calculations/reports and public health statistical data collection and reporting.

## **MAP 280 - Current Legal Aspects of Healthcare**

### *5 Credits*

This course covers current legal issues affecting healthcare systems including the provider, governing, and payment organizations. The relationships between HIPAA, administrative rules and procedures for reimbursement, treatment, and ethics are analyzed.

### **Course Outcomes**

1. Analyze the importance of complying with laws that regulate the practice of health care.
2. Summarize the impact of illegal practices.
3. Differentiate between legal and illegal practices found in health care settings.
4. Explain the various ways that members of the health care team must adhere to legal and ethical standards.

### **MAP 285 - The Revenue Cycle**

#### *5 Credits*

This course will explore the prospective payment systems used by key healthcare organizations. This course examines coding and reimbursement; managed care plans; prospective payment systems; Medicare-Medicaid reimbursement and the resource-based relative value scale (RBRVS); case mix management; and revenue cycle management. It serves as a preparation for employment in the reimbursement system setting, as well as for a position as a professional coder.

#### **Course Outcomes**

1. Outline the process of revenue cycle management.
2. Apply the basic language associated with reimbursement.
3. Assess various reimbursement methodologies.
4. Explain prospective payments and their significance for reimbursement purposes.
5. Identify the different code sets approved by the Health Insurance Portability and Accountability Act of 1996 (HIPAA).
6. Outline medical necessity in the revenue cycle.

### **MAP 289 - Certification Exam Preparation**

#### *5 Credits*

This course will cover anatomy, physiology, medical terminology, coding basics, evaluation management (E/M), surgery, genital system, nervous system, urinary system, pathology, medicine and test-taking strategies and techniques. Coding conventions and guidelines are emphasized to help students prepare for the AAPC and AHIMA certification exams.

### **MAP 291 - Professional Practice Experience**

#### *4 Credits*

This externship program provides the student with opportunities to obtain actual work experience while

testing the concept of the student's chosen profession, thus assisting the student to be more certain of career objectives. Students obtain a minimum of 132 hours of supervised work experience at an instructor-approved facility and participate in weekly seminar.

**Prerequisite(s):** Completion of all course requirements with a 2.0 or higher AND instructor approval.

### **MAP 293 - Billing Physician-Related Services**

#### *4 Credits*

This course familiarizes the student with incident-to billing, split-billing, and Medicare annual visits. Billing for non-physician providers and ancillary services such as acupuncture are also included.

### **MAP 295 - Coding Simulation**

#### *5 Credits*

Students practice using ICD-10-CM, HCPCS and CPT by coding inpatient and outpatient source documents and charts. Theory and practice in coding problem-solving, data quality control and use of the computer encoder are emphasized. Students code approximately 100 real medical records from a variety of inpatient and outpatient facilities utilizing online records under the guidance of an MAP instructor. The student does not go to individual sites to perform this activity.

#### **Course Outcomes**

1. Promote the development of additional coding skills in a functional healthcare setting.
2. Enhance the comprehension of coding concepts and principles.
3. Foster the understanding that reality demands strict application of theory.
4. Gain insight into the demanding work environment of coders.
5. Develop appropriate skills for communicating with a variety of health care professionals.
6. Apply codes of ethics from AAPC and/or AHIMA.
7. Apply fundamental coding guidelines and conventions for diagnostic and procedural coding.

### **Marine Apprentice**

### **MARI 101 - Automatic Radar Plotting Aids (ARPA)**

#### *3 Credits*

Students learn the proper use of Automatic Radar Plotting Aids. The curriculum exceeds IMO

requirements for ARPA training and satisfies the USCG, STCW - 1995 requirements. "Hands-on" simulation is conducted on Sperry, Furuno, Decca, and Raytheon ARPA displays. Successful completion of the courses entitles students to an Automatic Radar Plotting Aids certificate and an Unlimited Radar Renewal Endorsement.

### **MARI 102 - Cargo Handling & Stowage**

#### *3 Credits*

This course prepares the student for undertaking deck watch duties while loading and discharging cargo in port and care of cargo in transit. Subjects include, but are not limited to, inspection and preparation of holds, segregation of cargo, securing cargo, ventilation, deck cargo, refrigerated cargo, container ships, Ro-Ro ships, cargo handling equipment and safety, dangerous, hazardous, and harmful cargo, oil tankers, bulk carriers, confined space entry, and stowage and stability calculations.

### **MARI 103 - Meteorology**

#### *3 Credits*

Students learn various weather systems, reporting procedures and recording systems. Students use and interpret information obtained from shipboard meteorological instruments and includes, but is not limited to, ship borne meteorological instruments, the atmosphere, its compositions and physical properties, atmospheric pressure, wind and pressure systems over the oceans, anticyclones, weather services for shipping, and weather forecasting.

### **MARI 104 - Basic Shiphandling**

#### *3 Credits*

This course utilizes full mission visual simulation to reinforce theoretical lessons. Subjects will include, but are not limited to, general principles, turning circle and stopping distance, effects of wind and current, maneuvering for man overboard, shallow water effects, anchoring and mooring, and steering control systems.

### **MARI 105 - Celestial Navigation**

#### *7 Credits*

This course teaches the most common forms of position fixing by celestial bodies. Teaching is done through lecture, demonstration, and practice. The equipment used for Celestial Navigation is the sextant. Subjects for this course include, but are not limited to, nautical astronomy, sextant and altitude correction, sight reduction and lines of position, meridian transit, time of sunrise/sunset, and star identification and selection.

### **MARI 106 - Basic Safety Training**

#### *3 Credits*

This course is required for all mariners. It comprises of basic survival techniques, personal and social responsibilities, preventing marine pollution and basic firefighting. Students are trained and must demonstrate proficiency in all disciplines.

### **MARI 107 - Electronic Navigation Course**

#### *3 Credits*

This course covers theory and practical use of electronic navigational aides. Possible errors and limitations are stressed along with methods of resolving position ambiguity. The mode of teaching is lecture, demonstration, and practice. A blind bridge simulator is used and the equipment used is GPS, ECDIS, Loran C, and AIS. Subjects for this course include, but are not limited to the equipment aforementioned, basic principles, Omega/Decca, radio direction finders, echo sounders, speed logs, radar navigation, and navigation software.

### **MARI 108 - Emergency Procedures**

#### *2 Credits*

This course covers procedures for dealing with emergency situations and the training that is necessary to maintain an effective response. The development and use of a checklist is stressed. Taught through lecture and exercises, the subjects for this course include, but are not limited to, contingency planning, grounding, collision, safety of passengers and crew, fire/explosion, abandoning ship, emergency steering arrangements, towing, rescue, assisting vessels in distress, and emergencies in Port.

### **MARI 109 - Shipboard Medical First Aid**

#### *3 Credits*

This course is designed for licensed deck officers who provide immediate first aid to ship's personnel and assist the ship's Medical Person-in-Charge. Subjects include airway management, patient assessment, medical emergencies, and trauma.

### **MARI 110 - Radar Observer Unlimited**

#### *3 Credits*

Students learn the proper use of radar for risk assessment, collision avoidance, and navigation. The curriculum exceeds USCG and IMO requirements for radar training. "Hands-on" simulations are conducted in the Institute's unique interactive Radar Simulator. This course utilizes Furuno, Decca, and Speery ARPA Radar Displays.



## **MARI 111 - Radar Recertification**

### *1 Credits*

This is a one-day course emphasizing Relative Motion and Rules of the Road. Re-certification is required every five (5) years.

## **MARI 112 - Search and Rescue**

### *1 Credits*

This valuable course provides the trainee with knowledge of the contents of the IMO Merchant Ship and Rescue Manual (MERSAR), and the procedures necessary to respond to a distress signal at sea. Subjects included in this course are administration and international provisions, communications, operating procedures, SAR resources, navigation, search areas, and search patterns.

## **MARI 113 - Ship Construction and Basic Stability**

### *3 Credits*

This course covers basic ship construction features and terminology and principles of stability. Subjects include ship dimensions, ship stresses, hull structure, rudders and propellers, displacement, buoyancy, statical and initial stability, list, trim, and free surface effect.

## **MARI 114 - Terrestrial & Coastal Navigation/Compasses**

### *9 Credits*

This course covers every aspect of traditional navigation outside of celestial. Thorough voyage planning and maintaining positional accuracy are stressed. Subjects include but are not limited to: chart work, position fixing and voyage planning. The course on compasses covers the theory of the Earth's magnetism and the application of variation and deviation to courses and bearings. General gyro theory and operating procedures, gyrocompasses, and autopilots make this course effective in teaching the most in depth and effective use of compasses for navigation.

## **MARI 115 - Bridge Watchkeeping**

### *6 Credits*

This course utilizes a lecture and demonstration style and includes the simulation equipment Transad Navi-Trainer. Watchkeeping focuses on taking action to avoid close quarters situations in accordance with the COLREGS and watchkeeping procedures. Course subjects include: rules of the road, keeping a safe navigational watch, Bridge Resource Management, keeping an anchor watch, keeping a watch in Port, pollution prevention, and record keeping.

## **MARI 116 - Global Maritime Distress and Safety System GMDSS**

### *6 Credits*

This course is required for persons assigned to operate GMDSS equipment onboard. It covers the training recommended by the U.S. GMDSS Implementation Task Force in order to achieve the learning objectives required by Table A-IV/2 of the STCW code. Course subjects include: principles of communication, equipment overview, distress-urgent-safety communication, routine communications, SAR and survival craft equipment, VHR equipment and operations, satellite equipment and operations, maritime safety information, MF-HR equipment and operations, equipment test and maintenance, rules and regulations, and publications and documents.

## **MARI 117 - Cargo Operations - Advanced**

### *6 Credits*

This course is required for all Second Mates upgrading to Chief Mate/Master. It covers the practical and legal aspects of cargo operations. It satisfies the knowledge and understanding requirements for Cargo Operations as detailed in NMC Policy Letter 04/02. Additionally, this course prepares prospective Chief Mates for their role in maintaining the vessel. Course subjects include: dry cargo operations, tanker operations, and construction and maintenance.

## **MARI 118 - Electronic Chart Display and Info Systems (ECDIS)**

### *3 Credits*

This 35-hour course is designed to enhance the safety of navigation by providing the knowledge and skills necessary to fully utilize the features of EDCIS. The requirements of the course meet the ECDIS training requirements of Table A-II/2 of the STCW Code. This course (in combination with VPEN) satisfies the Advanced Navigation Requirements of STCW for Chief Mates and Masters of vessels over 500 ITC. Course subjects include: use, installation and correction of electronic charts; validity sensor data; selecting operation settings and alarms for route monitoring; navigational calculations; route planning and scheduling; and ARPA, AIS and trial maneuver functions.

## **MARI 119 - Medical Person-in-Charge**

### *6 Credits*

The purpose of this two-week (ten-day) course is to present medical knowledge and skills for the Ship's Medical Officer in order for him/her to provide quality medical assistance and advanced emergency medical

care to ship's personnel in accordance with guidelines established by STCW 95. Course subjects include: specific diseases and traumatic injuries, performing adequate physical assessment, administering medications, performing intravenous therapy, suturing wounds, inserting nasogastric tube, performing urinary catheterization, utilizing shore-side resources, and locating information on and conducting radio consultations.

#### **MARI 120 - Voyage Planning & Electronic Navigation**

##### *3 Credits*

This course provides trainees with knowledge, understanding and proficiency in appraising and planning an ocean and coastal voyage, and using bridge electronics such as GPS, GYRO, and Autopilot in executing the plan. This course (in combination with ECDIS) satisfies the Advanced Navigation Requirements of STCW for Chief Mates and Masters of vessels over 500 ITC. Course subjects include: Great Circle and Mercator Sailing, tidal calculations, ocean routing, voyage planning, GPS, DGPS, magnetic compass, gyro compass, adaptive auto pilots, and integrated bridge systems.

#### **MARI 121 - Tankerman Person in Charge**

##### *3 Credits*

This course satisfies training requirements set forth in 46 CFR Part 13 and STCW - 1995 Section A-V/1 for persons desiring to serve in the capacity of Person in Charge (PIC) aboard a tank vessel or barge carrying dangerous liquid cargoes. The information presented familiarizes the student with the operational practices, safety concerns, and pollution prevention requirements associated with tank vessels and barges operating in the oil and chemical service industry.

#### **MARI 122 - Advanced Meteorology**

##### *3 Credits*

The goal of this 35-hour course is to provide trainees with an in-depth understanding of weather charts, text/voice forecasts, satellite images and on-scene observations. The course covers all the principles of effective weather routing using the latest on-board weather technology. Assessments - Trainees will demonstrate proficiency in Meteorology, including the ability to understand and interpret a synoptic chart, forecast weather and oceanographic conditions, and demonstrate knowledge of various weather systems' characteristics. This course meets requirements of STCW - 1995 for Chief Mates & Masters of over 500 ITC.

#### **MARI 123 - Bridge Resource Management**

##### *2 Credits*

This is an abbreviated version of the 5-day Bridge Resource Management (BRM) course. It is designed to meet the USCG requirements in 46 CFR 10.205(o) and the STCW-95 requirements of Section B, VIII/2, Part 3-1. There is no simulator phase with this 3-day course.

#### **MARI 124 - Advanced Shiphandling**

##### *6 Credits*

This course is divided into two (2), one-week modules. Both weeks must be completed successfully within one (1) year of each other before a final STCW compliant certificate of competence is issued. Week one includes: forces, turning and stopping review, traffic separation schemes and VTS, pilot station maneuvers, restricted waters, anchoring, heavy weather, search and rescue, and ice. Week two includes: review of pivot point and transverse thrust, propulsion and rudder systems, docking and undocking, ship and tug interaction, dry-docking, advanced docking/undocking, and emergency procedures.

#### **MARI 125 - Flashing Light**

##### *1 Credits*

This course serves as an alternative to taking Flashing Light at the USCG. Flashing Light is required for all Able Seamen upgrading to Mate 200 GRT or higher. Course subjects include Morse Code and the International Code of Signals.

#### **MARI 126 - Rating Forming Part of a Navigational Watch**

##### *2 Credits*

This course is required for all mariners assigned to lookout and watch keeping support duties on ocean going vessels. It is supplemented by a period of required sea service of not less than two months, where trainees conduct related practical training and assessments. This course qualifies for Lookout duties only, Full RFPNW issued after seetime and assessments.

#### **MARI 127 - Able Seaman**

##### *4 Credits*

This 7-day course is designed for mariners at the entry-level position. It provides the trainee the knowledge, understanding and proficiency to work safely and efficiently aboard today's merchant vessels. Marines pike seamanship proficiency is demonstrated by actually typing various knots, bends, hitches, and splices.

#### **MARI 128 - Compasses**

### *3 Credits*

This course on compasses covers the theory of the Earth's magnetism and the application of variation and deviation to courses and bearings. General gyro theory and operating procedures, gyrocompasses, and autopilots make this course effective in teaching the most in-depth and effective use of compasses for navigation.

### **MARI 129 - Advanced Fire Fighting**

#### *3 Credits*

The Advanced Firefighting course is designed to provide training for those personnel who will command fire-fighting efforts on board the vessel. The course is certified by the US Coast Guard and complies with the requirements of 46 CFR and STCW 95. This course meets the Basic Fire-Fighting requirements of Basic Safety Training (as per MC 2.03).

### **MARI 130 - Simulation Assessment**

#### *1 Credits*

The purpose of this two-day program is to provide an opportunity for mariners to complete the necessary assessment control sheets as outlined in the USCG NMC Policy Letter 01-02, for Officers in Charge of a Navigational Watch.

### **MARI 131 - Security Officer: Port, Company & Ship**

#### *2 Credits*

An introduction to the environmental aspects of vessel operations and the basic structure of the marine international and federal regulatory environment. This module is intended to give students a broad perspective on the potential environmental impacts of their operations in order to gain a greater appreciation for why the permit has been required. This section will cover MARPOL and US Coast Guard Act to Prevent Pollution from Ships requirements, focusing principally on bilge water, ballast water, gray and blackwater as well as air pollution prevention requirements under international and federal law.

### **MARI 132 - Lifeboatman/Proficiency in Survival Craft**

#### *2 Credits*

This course provides the knowledge, understanding, and proficiency required to take charge of a survival craft or rescue boat during and after launching as outlined in the STCW Code, Section A-V1/2-1, VI 2-2, and 46 CFR 12.10-5.

### **MARI 133 - Basic Safety Training**

#### *3 Credits*

This course is required for all mariners. It comprises of Renton Technical College

basic survival techniques, personal and social responsibilities, preventing marine pollution and basic firefighting. Students are trained and must demonstrate proficiency in all disciplines.

### **MARI 134 - Advanced Firefighting**

#### *2 Credits*

This course is required for all mariners. It comprises of basic survival techniques, personal and social responsibilities, preventing marine pollution and basic firefighting. Students are trained and must demonstrate proficiency in all disciplines.

### **MARI 135 - Vessel Security Officer**

#### *2 Credits*

This 2 day, 18 hour course of instruction is designed to provide instruction and proficiency required for personnel who are assigned responsibilities as Vessel Security Officer (VSO) to perform their duties in accordance with the requirements of the Maritime Transportation Security Act of 2002, Chapter XI-2 of SOLAS 74 as amended, the IMO ISPS Code, and U.S. Coast Guard regulations contained in 33 CFR Chapter I Subchapter H. The course also meets the mandatory minimum requirements for knowledge, understanding and proficiency in Table A-VI/5 of the STCW95 Code, and the mandatory training requirements in 33 CFR Part 104.

### **MARI 136 - License Preparation**

#### *9 Credits*

This three week program is designed to thoroughly prepare students to sit for their Mate 500, 1600 and Third Mate Unlimited License. Our license prep instructors are also our STCW Program instructors, so they know exactly what subjects students typically need more help with. In addition to helping the student prepare for all of the exam modules, PMI Instructors help each student prepare for the exam environment by providing tips on taking USCG exams, reviewing USCG Exam Room protocol, and how to most effectively use the materials provided in the exam room. We utilize the latest in Computer Based Training to complement our classroom instruction. Students have access to "Lap Ware" at no additional cost.

### **MARI 137 - Leadership**

#### *1 Credits*

This one-day seminar is a discussion-based look at leadership styles, both effective and ineffective. Course topics focus on the importance of leadership skills in the role of Mate and incorporate the students' current

experiences as they contribute to the development and recognition of their own personal leadership styles.

### **MARI 138 - Leadership & Manager Skills**

#### *3 Credits*

This course will cover all pertinent areas of senior leadership concepts, techniques and skills as currently reflected in academic writings and as collected from "real life" experiences of individuals who have been in positions of leadership. Course instructors have been or are responsible for the success of the ships and/or maritime organizations and the individuals who work to support those organizations. Additionally, the course provides communications, interpersonal conduct, and meeting/group interaction techniques and skills that assist and augment the attendee's efforts to be a successful, safe, and effective leader.

### **Major Appliance and Refrigeration Technology**

### **MART 111 - Industrial Direct Current (D-C)**

#### *3 Credits*

This course provides the student with necessary knowledge and skills in the understanding of the Electron and D-C Theory and electrical circuits.

#### **Course Outcomes**

1. Apply the rules and formulas of DC circuits.
2. Demonstrate electrical hook-up configurations on a five -light board display to 100% accuracy.
3. Calculate electrical values in series, parallel, and the combination series-parallel electrical circuits to current industry standards.

### **MART 112 - Industrial Alternating Current (A-C)**

#### *3 Credits*

This course covers alternating current and the electrical circuits.

#### **Course Outcomes**

1. Analyze and compute values of AC electrical circuits and calculate transformer values.
2. Create various series parallel, and combination circuits given a schematic sample.

### **MART 123 - Diagnostic Techniques & Test Equipment**

#### *5 Credits*

The course covers the proper use of the different types of test equipment required to successfully diagnose the appliance electrical circuits.

**Prerequisite(s):** MART 111 and MART 112

#### **Course Outcomes**

1. Use test instruments properly for measurement of all electrical values.
2. Analyze an electrical circuit and determine proper testing points for those values.

### **MART 125 - Electric Motors**

#### *2 Credits*

This course covers the theory of operation for both DC and AC electric motors, the different types, applications, the starting devices for, and the physical components of the machines. The course includes practical hands-on diagnosing, testing, and operations for single phase, including single and dual-voltage motors.

**Prerequisite(s):** MART 111 and MART 112

#### **Course Outcomes**

1. Test the operation of and diagnose failures in various types of motors.
2. Articulate the operation of DC and AC type motors.

### **MART 143 - Dishwashers**

#### *5 Credits*

This course covers aspects of detergent, water conditions, and the machine design for the proper operation of a dishwasher. Also covered are the aspects of diagnoses and repairing the machine, including interpretation of schematics, cam charts, and electronic cycle charts. The student learns to instruct the customer on proper usage of the equipment. Five Major brands will be examined. Each Student will give a report to the class on one machine.

### **MART 204 - Automatic Washers**

#### *5 Credits*

This course provides the student with the necessary knowledge to properly diagnose and service domestic and commercial automatic Top Loading and Front Loading and Combination washing machines for the major appliance manufacturers. Emphasis is placed on student development of advanced electrical/electronic diagnostic techniques.

#### **Course Outcomes**

1. Diagnose and repair common problems found in the field on top loading washer within specified times.

### **MART 217 - Clothes Dryers**

#### *5 Credits*

This course provides the student with the necessary knowledge skills to properly diagnose and service domestic and commercial gas and electric dryers. Emphasis is on student development of advanced electrical/electronic techniques.

#### **Course Outcomes**

1. Diagnose and repair common problems found in the field on gas and electric clothes dryers within specified times.

### **MART 222 - Cooking Equipment**

#### *5 Credits*

This course covers the different styles of gas and electric domestic Surface Cooking and Venting Systems. Emphasis is on components, operational function and installation requirements. The student acquires the skills to provide service with the proper test apparatus and advise the customer in proper use of the equipment. Electrical systems diagnostics is emphasized.

#### **Course Outcomes**

1. Properly diagnose, comply with safety, and repair gas and electric cooktops.
2. Analyze and perform correct electrical and gas installations of cook tops and vents.

### **MART 223 - Advanced Cooking Equipment**

#### *5 Credits*

This course covers the different styles of domestic cooking equipment. Emphasis is on components and installation requirements. The student acquires the skills to provide service with the proper test apparatus and advise the customer in proper use of the equipment. Electrical systems diagnostics is emphasized.

### **MART 226 - Refrigeration Principles**

#### *4 Credits*

This course covers thermodynamic laws, laws of temperature and pressure, heat transfer theory and provides the necessary knowledge to diagnose and repair/replace components in the refrigeration sealed system.

#### **Course Outcomes**

1. Demonstrate the basic steps in identifying how refrigeration systems operate and how to diagnose refrigeration problems.

### **MART 228 - EPA Regulations and Refrigerant Recovery**

#### *1 Credits*

This course provides the student with necessary knowledge and skills to safely reclaim CFC refrigerants to EPA standards. The student will prepare to pass the EPA Refrigeration Technician Certification Examination. (This course is usually taught concurrently with Evacuation and Brazing.)

#### **Course Outcomes**

1. Pass the EPA 608 refrigeration handling certificate test and will obtain the certificate.

### **MART 230 - Brazing Principles and Techniques**

#### *5 Credits*

Students braze ferrous and non-ferrous refrigeration tubing with silver and phosphorus alloys to appliance and refrigeration industry standards. Additional emphasis is on developing the skills to braze aluminum tubing. (Course is usually taught concurrently with EPA and Evacuation.)

#### **Course Outcomes**

1. Connect refrigeration tubing using brazing and non-flame techniques for a leak-free industry standard connection.

### **MART 232 - Refrigeration Evacuation and Charging**

#### *2 Credits*

This course provides the student with the necessary knowledge and skills to safely evacuate and charge refrigeration systems. (Course is usually taught concurrently with EPA and Brazing).

#### **Course Outcomes**

1. Demonstrate accepted charging techniques to industry standards.
2. Describe and demonstrate methods of evacuation as required by current industry standards.
3. Explain the effects of moisture and contaminants in a sealed system to current industry standards.

4. Identify vacuum dehydration techniques to current industry standards.

#### **MART 234 - Domestic Refrigeration Servicing**

##### *5 Credits*

This course provides necessary skills and troubleshooting knowledge to successfully diagnose, repair and prevent reoccurrence of a wide variety of Free Standing and Built In domestic refrigeration problems. Emphasis is on electrical skills, techniques, and sealed system servicing.

##### **Course Outcomes**

1. Diagnose and successfully repair all malfunctions, both mechanical and electrical, on free standing domestic refrigeration systems.

#### **MART 235 - Window Air and Wall AC/HP Servicing**

##### *4 Credits*

This course provides necessary knowledge to diagnose and repair domestic air conditioners, heat pumps, and the related control systems.

##### **Course Outcomes**

1. Diagnose and successfully repair all malfunctions, both mechanical and electrical, on built - in window and wall mounted air conditioning systems

#### **MART 236 - Advanced Refrigeration**

##### *5 Credits*

This course provides necessary skills and troubleshooting knowledge to successfully diagnose, repair and prevent reoccurrence of a wide variety of reach in/free standing commercial refrigeration problems. Emphasis is on electrical skills, techniques, and sealed system servicing.

#### **MART 237 - Commercial Refrigeration**

##### *5 Credits*

This course provides necessary skills and troubleshooting knowledge to successfully diagnose, repair and prevent reoccurrence of a wide variety of split system display commercial refrigeration problems. Emphasis is on electrical skills, techniques, and sealed system servicing.

#### **MART 238 - HVAC Systems and Controls**

##### *3 Credits*

This course provides the necessary knowledge to

diagnose and repair light commercial AC, heat pumps, and the related control systems found air conditioning.

#### **MART 239 - Advanced HVAC Systems and Controls**

##### *5 Credits*

This course provides necessary skills and troubleshooting knowledge to successfully diagnose, repair and prevent reoccurrence of a wide variety of Electronic HVAC Control Systems commercial refrigeration problems. Emphasis is on electrical skills, techniques, and sealed system servicing.

#### **MART 245 - Commercial Ice Machines**

##### *2 Credits*

This course provides necessary skills and troubleshooting knowledge to successfully diagnose, repair and prevent reoccurrence of a wide variety of commercial ice machine problems as well as cleaning and sanitization.

#### **MART 251 - Light Commercial Refrigeration Service I**

##### *6 Credits*

This course provides necessary skills and troubleshooting knowledge to successfully diagnose, repair and prevent reoccurrence of a wide variety of reach in/free standing commercial refrigeration problems.

#### **MART 252 - Light Commercial Refrigeration Service II**

##### *6 Credits*

This course provides necessary skills and troubleshooting knowledge to successfully diagnose, repair and prevent reoccurrence of a wide variety of Walk-In commercial refrigeration problems. Emphasis is on electrical skills, techniques, and sealed system servicing.

#### **Massage Therapy**

#### **MAST 101 - Massage Techniques I**

##### *5 Credits*

Students are introduced to massage therapy by studying the history of massage, hygiene practices, draping, and scope of practice. Students engage in an in-depth study of the theory, physiological effects, endangerments, indications, contraindications, benefits and practical application of Swedish massage. The course focuses on building strong foundational skills, such as developing palpation skills with the ability to accurately assess and positively affect tissue.

Practitioner self-care and proper body mechanics are integrated throughout Massage Techniques I and II. Students will be introduced to and begin to compare

the vast array of massage modalities. In MAST 101 and throughout the RTC Massage Program, students will learn meet the treatment needs of diverse clients, including, but not limited to pregnant clients, clients with disabilities, athletic clients and clients over the age of 55.

### **MAST 102 - Anatomy & Physiology I**

#### *3 Credits*

This course gives students a working knowledge of the terminology, structure and function of the human body, with a foundational introduction of the following systems: integumentary, skeletal, muscular, fascial, and circulatory. This course will explore anatomy and physiology's relevance to massage including how massage affects the physiology of these systems.

### **MAST 103 - Kinesiology I**

#### *2 Credits*

This course of study provides the student with an applicable, working knowledge of the principles of movement in the human body. Included is the study of bones, joints, and muscles of the following areas: shoulder girdle, spine, posterior trunk, abdomen, neck, face and head. Students develop foundational palpation skills of the above areas and begin to build the knowledge and skills to be able to teach their clients how to stretch the muscles of these areas.

### **MAST 104 - Pathology I**

#### *2 Credits*

Students receive a thorough introduction to human disease as it relates to the practice of massage with a focus on contraindications, indications, treatment and referral guidelines for diseases of the integumentary, musculoskeletal, and circulatory systems. Students study the stages of inflammation, a key concept that will guide students' clinical reasoning throughout much treatment work.

### **MAST 111 - Massage Techniques II**

#### *3 Credits*

Students are introduced to and begin to compare the vast array of massage modalities. The benefits and physiological effects of each modality are discussed at various times during Massage Techniques I, II and Injury Evaluation and Treatment I and II. Instructors will teach: Reflexology, Hot Stone Massage, Hydrotherapy, Myofascial Release (MFR), Deep Tissue Massage, Trigger Point Release, Seated Massage, Pregnancy Massage, Sport's Massage and other non-Swedish western techniques. The exact timing varies depending on the

best approach to teach each particular group of students.

### **Course Outcomes**

1. Demonstrate knowledge of the terms and concepts related to massage benefits and effects including mechanisms related to stress management and pain management.
2. Develop appropriate client-centered massage treatment plans using a clinical reasoning process with respect to clients' prioritized concerns and assessment findings regarding indications, cautions, contraindications and medication considerations.
3. Demonstrate safe, modest bolstering, draping and assisting of clients in the prone, supine, side-lying and semi-reclined positions.
4. Demonstrate knowledge of terms and concepts related to Swedish Massage, myofascial release, hydrotherapy and neuromuscular massage.
5. Demonstrate safe, effective client-centered treatment integrating Swedish Massage, myofascial release, hydrotherapy and neuromuscular massage with appropriate sequencing, comfortable client positioning, modest draping, professional and effective client communication and proper body mechanics.
6. Demonstrate knowledge of terms and concepts related to special populations.
7. Develop massage treatments which are adapted for special populations including clients who are: over 55, obese, children, pregnant, athletes or fitness oriented, disabled or end-of-life.

### **MAST 112 - Anatomy and Physiology II**

#### *3 Credits*

This course gives students a working knowledge of the terminology, structure and function of the human body, with a foundational introduction of the following systems: nervous, lymphatic, respiratory, digestive, and endocrine. This course explores anatomy and physiology's relevance to massage including how massage affects the physiology of these systems.

### **Course Outcomes**



1. Demonstrate knowledge of the terminology, components and concepts associated with human anatomy and physiology.
2. Identify the location of key structures within each system.
3. Summarize the primary functions of each system as well as the specialized cells, primary tissues, membranes, organs and other primary structures within each system.
4. Recall and describe the primary processes in each system.
5. Summarize the anatomy and physiology related to immunity, stress, healing and pain/pain-management.
6. Demonstrate knowledge of the physiological effects that massage and bodywork have on each system.
7. Compare and contrast the anatomy and physiology of different systems as well as discuss how they interrelate.
5. Recognize the location and function of the primary ligaments.
6. List and describe muscle fiber arrangements and discuss the functional ramifications.
7. Describe how muscles co-ordinate movement including concepts of prime mover, agonists, synergists, antagonists, fixators and tonus.
8. List and recognize the origin, insertion, and actions of the required muscles.
9. Categorize muscles into their groups (example: rotator cuff muscles = supraspinatus, Infraspinatus, Teres minor, Subscapularis).
10. Recognize muscles that are synergists and antagonists.
11. Palpate muscles and demonstrate and understanding of fiber direction and relative depth.
12. Demonstrate an understanding that when muscles contract they shorten and that when muscles stretch they lengthen; while demonstrating the ability to apply this knowledge to specific muscles and the resulting movements.
13. Demonstrate a working knowledge of isotonic (concentric and eccentric) and isometric muscle contractions.
14. Demonstrate the safe, effective application of passive stretching.
15. Demonstrate the ability to safely and effectively teach clients to stretch.

### **MAST 113 - Kinesiology II**

#### *2 Credits*

This course of study provides the student with an applicable, working knowledge of the principles of movement in the human body. Included is the study of bones, bony landmarks, joint structure and function with an in-depth study of the muscles of the following regions: gluteal, thigh and lower leg, feet, the upper arm and forearm. Students further develop foundational palpation skills learning to differentiate the qualities of different types of connective tissues. Students also learn to use passive and active range of motion to assess the quality of movement in the areas listed above.

#### **Course Outcomes**

1. Demonstrate knowledge of the key terms and concepts related to the bones, bony landmarks, ligaments, joints, muscles, and actions.
2. Palpate bones, bony landmarks, joints, ligaments, and muscles.
3. Accurately define and utilize terminology relating to position, location, planes, regions and movements.
4. Demonstrate an understanding of joints type, structure, movements and characteristics

### **MAST 114 - Pathology II**

#### *3 Credits*

In this course, students receive a thorough introduction to human disease, with focus on contraindications, indications, and treatment guidelines for pathologies of the central nervous system, the respiratory system, circulatory system and digestive system.

#### **Course Outcomes**

1. Demonstrate knowledge of the definitions, demographics, etiology, signs and symptoms of common conditions.
2. Demonstrate knowledge of the terms and concepts related to massage cautions and contraindications including endangerment areas, local and systemic contraindications.

3. Demonstrate knowledge of conditions that require cautious work, session adaptations, local or systemic contraindications or medical release.
4. Demonstrate the use of a clinical reasoning process to identify contraindications, an understanding of when there is a need for increased therapist caution, and the capacity to choose appropriate adaptive measures for session planning.
5. Recognize major effects, common side effects and adverse reactions to common medications including: anti-inflammatory, muscle relaxers, blood thinners, diabetes management, analgesics, antibiotics, antipsychotic, anti-depressant and cardiovascular.
6. Plan sessions with adjustments made for client medications factoring in major effects, common side effects, bioavailability and local contraindications.
7. Plan sessions for clients with different injuries in the acute stage, subacute stage, and maturation stage of healing, demonstrating the ability to adapt sessions appropriately, choose effective application methods, and address compensating structures.

### **MAST 116 - Injury Evaluation and Treatment I**

#### *2 Credits*

This course focuses on treatment work. Students gain experience in consultation, postural assessment, range of motion testing and specific treatment approaches to musculoskeletal conditions. Students complete a case study that incorporates documentation and billing. Students discuss the factors, classifications, and structures involved in pain. Students demonstrate knowledge of concepts related to the acute, subacute, and maturation stage of healing. Student also gain literacy in research terminology and are able to discuss the results of massage research studies.

#### **Course Outcomes**

1. Explain the healing process of an injury, the signs and symptoms of each stage and appropriate treatment guidelines including appropriate hydrotherapy for each stage.
2. Demonstrate ability to assess of specific injuries and conditions which are commonly treated in

massage practices, formulate an appropriate treatment plan and educate clients.

3. Demonstrate accuracy in SOAP charting procedures, medical abbreviations related to massage therapy, client initial intake protocol and postural assessment.
4. Use a clinical reasoning process to develop and adapt safe treatment plans with respect to clients' prioritized concerns, injuries, pathologies, assessment findings, indications, cautions, contraindications and medication considerations.
5. Demonstrate safe, modest bolstering, draping and assisting of clients in the prone, supine, side-lying and semi-reclined positions as appropriate for specific populations, injuries and pathologies.
6. Demonstrate safe, effective client-centered treatment for specific injuries and pathologies integrating Swedish Massage, myofascial release, hydrotherapy, manual lymphatic drainage and neuromuscular massage within the scope of practice of an entry level massage practitioner.

### **MAST 124 - Pathology III**

#### *3 Credits*

In this course, students receive a thorough introduction to human disease, with focus on contraindications, indications, and treatment guidelines for pathologies of the central nervous system, the respiratory system, circulatory system and digestive system.

### **MAST 126 - Injury Evaluation and Treatment II**

#### *3 Credits*

In this course, students gain experience in the assessment of various conditions and the development of treatment plans that result in positive outcomes. The results of postural assessment, range of motion testing, and palpation inform the student's critical thinking skills that are necessary to decide which treatment techniques to use in different stages of healing. Students complete a case study that incorporates documentation and reinforces the importance of evidence based practices.

### **MAST 127 - First Aid/CPR and Safety**

#### *2 Credits*

This course covers one and two person adult, child and infant CPR. Students practice caring for persons with foreign body airway obstruction (FBAO), pocket mask,

bag valve mask, personal barriers techniques and use of Automated External Defibrillator (AED). The course teaches students to effectively recognize and treat in critical minutes until Emergency Medical Services (EMS) arrive. Topics include: general first aid principles, medical emergencies, injury, environmental emergencies, and bloodborne pathogens. This course is approved by OSHA, WISHA (Labor and Industries) for healthcare providers. An AHA card is issued upon successful completion of a written exam and skills evaluation.

### **MAST 151 - Massage Licensing Preparation**

#### *4 Credits*

In this course students learn the requirements and steps necessary to become a licensed massage therapist in Washington state. During the course students review a comprehensive massage curriculum by completing timed practice exams and tutorials online. Students are prepared to take the exams required to become licensed massage practitioners. Students complete the Washington state department of health application in class and gather all the required documentation needed for licensure. In the last week of class students have the option of mailing in their completed applications to the department of health.

### **MAST 171 - Communication**

#### *2 Credits*

Students learn communication and documentation skills that are necessary for massage practitioners working in a variety of environments: clinical, on-site, spa and sports. Students practice communication skills which are necessary for developing therapeutic relationships, gathering health-related information and exchanging information with the health care team. The focus of this course is on maintaining proper documentation utilizing health history forms and SOAP charting.

### **MAST 173 - Massage Employment I**

#### *2 Credits*

In this course students will identify the types of massage they would like to practice. Students will compare and contrast employment options for massage practitioners. This will include looking at benefits, challenges and responsibilities of being employees, independent contractors or starting their own massage practices. Students will participate in activities to help them evaluate which job settings suit them best. Based on their findings students will participate in exercises designed to help them accomplish their professional goals.

### **MAST 174 - Massage Employment II**

#### *2 Credits*

This course will help students prepare for a successful hiring and negotiation process as an employee or independent contractor. In this course, students will research massage job opportunities. Students will write and refine resumes and cover letters geared towards different massage settings. Students will practice massage interview skills and other skills which are helpful in securing and maintaining employment, like contract negotiation. Responsibilities of independent contractors will be introduced, such as filing taxes. Students gain understanding of the Safety and Health Core Rules (WAC 296- 800) used by most employers Washington state. Students who are interested in starting a private practice will receive guidance on an independent business start-up project.

### **MAST 181 - Human Relations and Professionalism I**

#### *2 Credits*

This course of study provides students the opportunity to thoroughly explore and understand client practitioner relationships. Students learn how to maintain high professional and ethical standards as a massage practitioner. Students also gain knowledge of concepts relating to interpersonal skills including assertive communication and conflict resolution. Key themes which are addressed are boundaries, informed consent, confidentiality, dual relationships, diversity, sexual issues, transference, and counter-transference and business framework. Students read, reflect, journal, discuss and role-play to develop an applicable understanding of the professional, ethical practice of massage.

### **MAST 182 - Human Relations & Professionalism II**

#### *1 Credits*

This course of study provides students the opportunity to deepen their understanding of ethical and legal issues as well as client-practitioner relationships. Students gain knowledge concepts related to interpersonal skills including assertive communication and conflict resolution. Key themes which are addressed are boundaries, informed consent, confidentiality, dual relationships, diversity, sexual issues, transference, counter-transference and ethics in business. Students study industry codes of ethics and laws related to the profession, such as HIPAA. Students read, reflect, journal, discuss and role-play to develop an applicable understanding of the professional, ethical practice of massage.

## **MAST 191 - Clinic**

### *2 Credits*

This course is designed to give the student the opportunity to prepare for a professional massage practice. Students will work with clients in a school clinic. Students will practice massage professionally with the public, having the opportunity to plan and manage sessions with diverse clients. Students will practice proper documentation for every massage. Students will have the opportunity to practice additional tasks related to maintaining a massage business such as reception duties and marketing while managing the school clinic.

## **MAST 192 - Internship**

### *1 Credits*

This course is designed to give the student the opportunity to prepare for a professional massage practice. Students will work with clients out in the field in a variety of clinics. Students will practice proper documentation for every massage. Students will have the opportunity to practice additional tasks related to maintaining a massage business such as reception duties and marketing.

## **MAST 201 - Holistic Self-Care for Massage Practitioners**

### *3 Credits*

This class will provide daily opportunities to practice holistic self-care. Students will have the opportunity to practice self-care with Ohm Therapeutics tuning forks, diverse meditations, visualizations, journaling, yoga, and other bodywork techniques. This class will include a Reiki Level I attunement, practice, and certificate. By focusing on holistic self-care students will increase the efficacy of their massage practice including their ability to be present with clients and work with intention. Self-care can also help prevent injuries and support a long, vibrant practice.

## **MAST 203 - Massage Business Start-Up I**

### *3 Credits*

This course will explore private practice options and business structures such as sole proprietorship. Students will look at their target market(s), location and business feasibility and begin to develop a business plan. While exploring location options, students will look at zoning ordinances and local, state and federal license and permit regulations. Students will set a fee scale and determine start-up costs.

## **MAST 205 - Asian Bodywork Modalities**

### *3 Credits*

This course offers a theoretical and hands-on introduction to various Asian bodywork modalities including acupressure, Massage Cupping, Shiatsu, Thai Massage, Jin Shin Do and Acutonics & Ohm Therapeutics (utilizing tuning forks). The focus of this class will be hands-on practice of Asian Bodywork Modalities integrated into a Swedish Massage or treatment massage. For example, Shiatsu and Thai Massage will be introduced with applications modified for use with a massage table rather than a mat. Foundational theories will be introduced with direct connections to assessment and treatment. Acupressure point protocols will include treatment for general support and wellness as well as specific treatment.

## **MAST 207 - Massage Business Start-Up II**

### *3 Credits*

In this course students will complete a business plan and learn how to effectively market his or her massage business. Students will develop company policies and procedures. Students will learn financial recordkeeping strategies. The course will introduce massage business income, expenses, deductions and taxes.

## **MAST 209 - Integrative Massage**

### *3 Credits*

This course will provide opportunities to do focused treatment work with specific areas and seamlessly integrate diverse modalities. Strategic approaches will vary depending on the stage of healing, assessment findings and goals. Students will develop effective treatment plans to work with diverse client populations and medical needs.

## **Mathematics**

### **MATH 065 - Fundamentals of Mathematics**

#### *5 Credits*

The course covers addition, subtraction, multiplication, and division of whole numbers, fractions, and decimals, percentages, ratio and proportion, estimation, solving applied math problems.

#### **Course Outcomes**

1. Apply the concepts of numbers and procedures of numerical operations to different number representations.
2. Convert between different number representations.
3. Use the concepts and language of ratio and proportion in applicable computations.

4. Apply algebraic concepts and numerical computations to answer word problems.
5. Apply estimation strategies to numerical computations and to answering word problems.
6. Communicate using mathematical notation and language.

### **MATH 075 - Pre-Algebra**

#### *5 Credits*

This course lays the foundation for the study of algebra. The topics include: review of whole number operations, fractions, decimals, percent, ratio and proportion; signed numbers and operations on signed numbers; real numbers; simplifying algebraic expressions; solving linear equations; geometry; units of measurement; introduction to graphs and statistics. This class is taught either in traditional lecture mode or through individually tailored, interactive computer instruction that provides the student's primary method of learning, with the instructor available to assist students on an individual basis during the class period.

**Prerequisite(s):** Completion of MATH 065 with a grade of 2.0 or higher, or ACCUPLACER score of 30 or greater, or other placement.

#### **Course Outcomes**

1. Apply the concepts of numbers and procedures of numerical operations to real numbers.
2. Solve linear equations in one variable and solve formulas for one of the variables.
3. Use the concepts and language of ratio and proportion in calculation of unit conversions.
4. Interpret/construct graphical representations of categorical/quantitative variables.
5. Calculate centers and statistical summaries for quantitative variables.
6. Apply concepts of probability in the calculation of the probability for simple compound events.
7. Apply algebraic and geometric concepts, and numerical computations, to solve problems.
8. Communicate using mathematical notation and language.

### **MATH 085 - Beginning Algebra**

#### *5 Credits*

This introductory course in algebra covers the following topics: review of selected pre-algebra topics,

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introduction to set theory and the real numbers; algebraic expressions; linear equations in one variable and their applications; linear inequalities; introduction to graphing; systems of two equations in two unknowns and their applications; systems of inequalities; polynomial operations; factoring polynomials; simplifying rational expression; solving quadratic equations by factoring. This class is taught either in traditional lecture mode or through individually tailored, interactive computer instruction that provides the students' primary method of learning, with the instructor available to assist students on an individual basis during the class period.

**Prerequisite(s):** Completion of MATH 075 or AMATH 175 with a grade of 2.0 or higher, or ACCUPLACER arithmetic score of 80 or greater, or ACCUPLACER elementary algebra score of 30 or greater, or other placement.

#### **Course Outcomes**

1. Solve inequalities and equations, systems of inequalities and equations, in one and two variables.
2. Solve absolute value equations and inequalities in one variable.
3. Apply properties of real numbers to performing operations with algebraic expressions.
4. Factor polynomials in one variable and use factoring to solve polynomial equations in one variable.
5. Use the Cartesian coordinate system to graph points and linear relationships.
6. Calculate the slope and vertical intercept given two pieces of information about a linear relationship.
7. Apply algebraic and geometric concepts, and numerical computations, to answer word problems.
8. Communicate using mathematical notation and language.

### **MATH 092 - Descriptive Statistics with Algebra II**

#### *5 Credits*

This course provides an introduction to statistics and algebra for non-STEM majors and is based on the Statway™ curriculum for teaching statistics with integrated algebra. This is the first quarter of two in the STATWAY sequence. This course covers concepts and

methods of statistics with an emphasis on data analysis. Topics for this course include: exponential functions, solving linear equations, probability and introduction to logarithms. Application problems will be taken from numerous fields. This sequence is recommended for students with majors that require no mathematics beyond freshman-level statistics. Completion of the MATH 092, and MATH 136 sequence is equivalent to finishing a college level statistics course (such as MATH&146).

### Course Outcomes

1. Summarize and describe data graphically using dot plots, histograms, data plots, scatterplots and boxplots.
2. Summarize and describe data numerically using mean, median, standard deviation and quartiles.
3. Analyze linear data graphically, numerically and symbolically.
4. Examine, use, and interpret bivariate data.
5. Identify the pitfalls of bad sampling methods; use real-life data sets to discuss and identify good sampling techniques.
6. Use properties of basic probability to compute the probabilities of normally distributed data sets.
7. Compute, interpret and estimate probability of simple events.
8. Use appropriate technology as a tool for quantitative analysis.
9. Identify and use sampling distribution models.
10. Discuss mathematical problems and write solutions in accurate mathematical language and notation.
11. Interpret mathematical solutions.

### MATH 095 - Intermediate Algebra

#### 5 Credits

This course covers the following topics: review of selected elementary algebra topics; absolute value equations and inequalities; factoring polynomials; rational expressions; solving rational equations; rational exponents and radicals; quadratic equations and complex numbers; functions and their graphs; inverse functions; exponential and logarithmic functions; properties of logarithms; solving polynomial, quadratic-

form and radical equations. This class is taught either in traditional lecture mode or through individually tailored, interactive computer instruction that provides the student's primary method of learning, with the instructor available to assist students on an individual basis during the class period.

**Prerequisite(s):** Completion of MATH 085 or AMATH 185 with a grade of 2.0 or higher, or a NEXTGEN Accuplacer Quantitative Reasoning, Algebra and Statistics score of 250+, or other placement.

### Course Outcomes

1. Apply properties of real numbers to perform operations with rational expressions and solve rational equations.
2. Apply properties of real numbers to perform operations with radical expressions and solve radical equations.
3. Apply properties of real and complex numbers to solve quadratic equations.
4. Determine the domain and range of functions using algebraic and graphical methods.
5. Evaluate, graph, and perform operations on functions.
6. Perform operations on functions.
7. Apply exponential and logarithmic properties to solve exponential and logarithmic equations.
8. Apply algebraic and geometric concepts, and numerical computations, to answer word problems.
9. Communicate using mathematical notation and language.

### MATH 136 - Inferential Statistics

#### 5 Credits

This course provides an introduction to statistics and algebra for non-STEM majors and is based on the Statway™ curriculum for teaching statistics with integrated algebra. This is the second quarter of two in the Statway sequence. This sequence covers concepts and methods of statistics with an emphasis on data analysis. Topics for this course include probability distributions, confidence intervals, and hypothesis testing for proportions and means. Application problems will be taken from numerous fields. This sequence is recommended for students with majors that require no mathematics beyond freshman-level

statistics. Completion of the MATH 092 and MATH 136 sequence is equivalent to finishing a college level statistics course (such as MATH& 146).

### Course Outcomes

1. Apply concepts of sampling distributions and the central limit theorem and use these to analyze, describe and measure sampling variability.
2. Conduct hypothesis testing and calculate confidence intervals for one-sample mean, two-sample means, one-sample proportion and two-sample proportions.
3. In a given context, determine appropriate null and alternative hypotheses and identify conclusions that reasonably follow from a decision to reject or not reject the null hypothesis, and explain these conclusions in context.
4. Interpret statistical significance, including significance levels and P-values.
5. Identify and explain the limitations of statistical inferences.
6. Use appropriate technology as a tool for doing statistics.
7. Discuss mathematical problems and write solutions in accurate mathematical language and notation.
8. Interpret mathematical solutions.

### MATH& 107 - Math in Society

#### 5 Credits

This college level course provides a mathematical perspective of contemporary issues. The course is designed for students who do not intend to continue in mathematics or science. Topics vary but may include areas of finance, statistics, data analysis, logic and applications relevant to humanities, social sciences and education. Content emphasis is on problem solving and quantitative reasoning.

**General education distribution area: Quantitative / Symbolic Reasoning.**

**Prerequisite(s):** Completion of MATH 095, AMATH 190, or AMATH 195 with a 2.0 or higher, or placement by assessment.

### Course Outcomes

1. Solve traveling salesman problems.
2. Organize a random statistical sample.
3. Compute measures of central tendency and variance.
4. Display data using histograms box and scatter plots.
5. Distinguish between permutation and combination problems and calculate.
6. Calculate the number of outcomes in probability using the multiplication rule.
7. Use a normal distribution to compute probability.
8. Determine how different voting schemes affect the outcome of an election.
9. Distinguish between Borda count method, Plurality method, Plurality with elimination method, and the method of pair wise comparison.
10. Model population growth using various methods.
11. Distinguish between simple interest and compound interest.
12. Solve problems using continuous compounding formula.
13. Compute average daily balance on a consumer loan.

### MATH& 141 - Precalculus I

#### 5 Credits

Elementary functions, their graphs and transformations of their graphs, with applications to mathematical modeling. Examples include linear, quadratic, polynomial, rational, exponential, logarithmic, composite functions, and inverse functions.

**General education distribution area: Quantitative / Symbolic Reasoning.**

**Prerequisite(s):** Completion of MATH 095 or AMATH 193 or AMATH 195 with a 2.0 or higher, or a score of 265-300 on the QRAS Next-Gen Accuplacer, or a score of 220-244 on the AAF Next-Gen Accuplacer.

### Course Outcomes

1. Solve problems involving the function concepts of domain, range, symmetry, composition, and



inverses using functions in graphical, symbolic or numerical form.

2. Graph polynomial, rational, exponential, and logarithmic functions and interpret these graphs through the lens of linear transformations.
3. Identify, locate and communicate important graphical and functional features.
4. Use theorems and algebraic techniques to determine zeros of polynomial functions.
5. Solve equations/inequalities involving polynomial, rational, exponential, and logarithmic functions using graphical and algebraic methods.
6. Use the binomial theorem for polynomial expansion.
7. Apply the technique of proof by induction.
8. Apply algebraic and geometric concepts, and numerical computations, to answer word problems.
9. Communicate using mathematical notation and language.

### **MATH& 142 - Precalculus II**

#### *5 Credits*

Trigonometric and inverse trigonometric functions, their graphs and transformations of their graphs, with applications to mathematical modeling. Solving trigonometric equations, the derivation and use of trigonometric identities. Polar coordinates and parametric equations, with applications to mathematical modeling. Conic sections, with applications to mathematical modeling.

**General education distribution area: Quantitative / Symbolic Reasoning.**

**Prerequisite(s):** Completion of MATH& 141 with a 2.0 or higher, or placement by assessment.

#### **Course Outcomes**

1. Evaluate and graph trigonometric functions using both right-angle and unit-circle formulations through the lens of linear transformations.
2. Identify important features of trigonometric and inverse trigonometric functions including

domain, range, symmetry, period, amplitude and phase shift.

3. Verify trigonometric identities and simplify trigonometric expressions.
4. Solve trigonometric equations using trigonometric identities and inverse trigonometric functions.
5. Translate between the Cartesian and parametric representations, and between polar and rectangular coordinates, of equations and graphs.
6. Perform vector operations.
7. Apply vector properties for solving mathematical problems.
8. Apply trigonometric, algebraic, parametric, vector, and geometric concepts to answer word problems.
9. Communicate using mathematical notation and language.

### **MATH& 146 - Introduction to Statistics**

#### *5 Credits*

This course is an introduction to statistics and how it may be applied in the analysis of numerical data. It includes the following topics: structure of data sets, central tendency, dispersion, means, standard deviation, correlation, and regression, binomial and normal probability distributions, sampling methods, confidence intervals and hypothesis testing.

**General education distribution area: Quantitative / Symbolic Reasoning.**

**Prerequisite(s):** Completion of MATH 095, AMATH 190 , or AMATH 195 with a 2.0 or higher, or placement by assessment.

#### **Course Outcomes**

1. Construct graphical displays for a quantitative and categorical data.
2. Compute and compare summary statistics for different data sets and determine percentiles.
3. Construct two-way tables and determine marginal, joint, and conditional proportions.
4. Determine data proportions and percentiles for normally distributed data.

5. Construct and interpret graphical displays for bivariate quantitative variables.
6. Model bivariate quantitative data and determine if model is appropriate.
7. Use terms and concepts related to sample surveys, experiments, and observational studies.
8. Calculate probabilities of independent/dependent compound events.
9. Construct two-way tables and determine marginal, joint, and conditional probabilities.
10. Determine independence between two categorical variables.
11. Compute expected value and standard deviations of a random variable.
12. Determine sampling distributions for sample proportions and sample means.
13. Construct and interpret confidence intervals.
14. Perform hypothesis tests.
15. Communicate using mathematical notation and language.

### **MATH& 148 - Business Calculus**

#### *5 Credits*

Introduction to Differential and Integral Calculus of elementary functions with emphasis on business applications and its use in optimization.

**General education distribution area: Quantitative / Symbolic Reasoning.**

**Prerequisite(s):** Completion of MATH& 141 with a 2.0 or higher, or placement by assessment.

#### **Course Outcomes**

1. Apply concepts, techniques, and vocabulary of limits and continuity.
2. Use the product, quotient, chain rule, and implicit differentiation to differentiate algebraic, exponential and logarithmic functions.
3. Determine equations for tangent lines and find the average and instantaneous rates of change.
4. Apply concepts, techniques and vocabulary of limits, continuity, and derivatives to related rate

problems and contextualized business applications.

5. Use L'Hopital's rule for determining limits of indeterminate forms.
6. Apply concepts of functions and their derivatives for curve-sketching, determining maxima and minima, and optimization.
7. Calculate antiderivatives and use the substitution rule to calculate antiderivatives of algebraic and exponential functions.
8. Determine the values of definite integrals using the Fundamental Theorem of Calculus and areas.
9. Apply the concepts of definite and indefinite integrals to growth/decay and contextualized business problems.
10. Calculate partial derivatives of simple functions of two or more variables, and apply them to solve optimization problems.
11. Use Lagrange multipliers to solve optimization problems.
12. Communicate using mathematical notation and language.

### **MATH& 151 - Calculus I**

#### *5 Credits*

Differential calculus. The definition and interpretation of the derivative, with applications to mathematical modeling. Derivatives of algebraic and transcendental functions.

**General education distribution area: Quantitative / Symbolic Reasoning.**

**Prerequisite(s):** Completion of MATH& 142 with a 2.0 or higher, or placement by assessment.

#### **Course Outcomes**

1. Apply concepts, techniques, and vocabulary of limits and continuity using numerical, graphical and symbolic techniques to solve problems.
2. Demonstrate an understanding of the precise definition of a limit.
3. Apply concepts, techniques, and vocabulary of derivatives using numerical, graphical and symbolic techniques to solve problems.

4. Interpret the meaning of the derivative in various contexts.
5. Apply various differentiation techniques, including the product/quotient/chain rules and implicit differentiation to compute derivatives.
6. Determine equations for tangent lines and find the average and instantaneous rates of change.
7. Apply concepts, techniques and vocabulary of derivatives to various contextualized and related rate problems.
8. Apply concepts of functions and their derivatives for curve-sketching, determining maxima and minima, and optimization.
9. Apply concepts of linear approximations, differentials, and the Mean Value theorem for solving non-contextualized and contextualized problems.
10. Use L'Hopital's rule for determining limits of indeterminate forms
11. Use Newton's Method for finding roots of differentiable functions.
12. Calculate antiderivatives.
13. Communicate using mathematical notation and language.

### **MATH& 152 - Calculus II**

#### *5 Credits*

Integral calculus. The definition, interpretation and application of the definite integral. The Fundamental Theorem of Calculus, techniques of integration and definite integrals involving parametrically described curves. Introduction to differential equations. This class is taught either in traditional lecture mode or through individually tailored interactive computer instruction that provides the student's primary method of learning, with the instructor available to assist students on an individual basis during the class period.

**General education distribution area: Quantitative / Symbolic Reasoning.**

**Prerequisite(s):** Completion of MATH& 151 with a 2.0 or higher, or placement by assessment.

#### **Course Outcomes**

1. Compute definite and indefinite integrals.
2. Use integration techniques (including substitution, partial fractions, integration by

parts, trigonometric substitution and tables) to compute definite and indefinite integrals.

3. Evaluate improper integrals.
4. Compute approximations for definite integrals (using left-hand sum, right-hand sum, midpoint rule, trapezoid rule or Simpson's rule) given a function, a graph, or numerical table.
5. Apply the Fundamental Theorem of Calculus.
6. Apply the concept of integrals to various geometric, contextualized, and non-contextualized problems.
7. Model position/velocity/acceleration and exponential growth/decay problems with differential equations and solve those differential equations.
8. Communicate using mathematical notation and language.

### **MATH& 163 - Calculus 3**

#### *5 Credits*

This third course in the calculus sequence covers vectors, series, and multivariable functions, as well as partial derivatives and differentiation.

**Prerequisite(s):** Completion of MATH& 152 with a 2.0 or higher, or equivalent course.

#### **Course Outcomes**

1. Describe lines, planes, cylinders, vector functions, and quadric surfaces in 3D coordinate systems.
2. Compute limits, derivatives, and integrals of vector functions with applications to arc length, curvature, and physics.
3. Find domains and limits of multivariable functions.
4. Compute and interpret partial derivatives, expanding applications of the chain rule from earlier studies.
5. Calculate extrema to optimize multivariable functions, including the use of Lagrange Multipliers.
6. Calculate and apply differentials of multivariable functions.

7. Evaluate and use double integrals: over rectangles, over general regions, and in polar coordinates.
8. Evaluate first-, second- and higher-order Taylor polynomials and series.
9. Communicate using mathematical notation and language.

## **Mechatronics**

### **MEC 101 - Machining Essentials**

#### *4 Credits*

This is a preparatory course for the Mechatronics Programs covering safety, communication, quality, mechanical aptitude, mathematics utilizing fractions, decimals, metric conversions, geometry, materials, blueprint reading, precision measurement, and an introduction to machinery as applied to real-world manufacturing.

### **MEC 102 - Industrial Direct Current**

#### *3 Credits*

This course provides the student with necessary knowledge and skills in the understanding of the Electron and D-C Theory and electrical circuits as related to the Mechatronics field.

### **MEC 103 - Industrial Alternating Current**

#### *3 Credits*

This course covers alternating current and the electrical circuits as they relate to the Mechatronics field.

### **MEC 104 - Pneumatics and Hydraulics Controls**

#### *5 Credits*

This course offers a study of pneumatic, hydraulic and power fluid control theory of electromechanical systems. In this course, students will learn common terms and problem solving techniques along with functional elements including control valves, pumps, actuators, accumulators, reservoirs, fluids, filters, hose, piping, tubing and preventive and predictive maintenance techniques. Part of this course is a hands-on lab featuring components, system construction and interlocks to other types of control systems.

### **MEC 105 - Programmable Logic Controls - Allen Bradley**

#### *3 Credits*

Introduction to programmable logic controllers for industrial control and direct digital controls for industrial automation. Participants will gain an understanding of terminology, components, programming, interfacing and operation of PLC controls,

and be introduced to DDC components, functions, and operation in building automation and energy management. Student will learn the Allen-Bradley PLC system to study software programming, architectures, ladder logic, I/O modules, basic numbering systems, computer terminology, and industrial communication.

### **MEC 106 - Mechanical Prints and Lab**

#### *5 Credits*

This course introduces basic concepts of blueprint reading and schematics. Students will learn to read, manipulate and understand mechanical part print. Participants will be able to recognize, identify, describe and relate the components used in schematics and symbols.

### **MEC 107 - Mechanical Maintenance and Lab**

#### *5 Credits*

This course is designed to acquaint students with maintenance techniques for belts, pulleys, sprockets, gears, and other mechanical parts found in industrial settings. Students will learn industry relevant mechanical maintenance techniques including preventive maintenance, troubleshooting, error codes, general operation and programming.

### **MEC 109 - Programmable Logic Controls - Siemens**

#### *3 Credits*

Introduction to programmable logic controllers for industrial control and direct digital controls for industrial automation. Participants will gain an understanding of terminology, components, programming, interfacing and operation of PLC controls, and be introduced to DDC components, functions, and operation in building automation and energy management. Students will learn the Siemens PLC system to study software programming, architectures, ladder logic, I/O modules, basic numbering systems, computer terminology, and industrial communication.

### **MEC 111 - Programmable Logic Controls I**

#### *4 Credits*

Introduction to programmable logic controllers for industrial control and direct digital controls for industrial automation. Participants will gain an understanding of terminology, components, programming, interfacing and operation of PLC controls, and be introduced to DDC components, functions, and operation in building automation and energy management. Student will learn systems to study software programming, architectures, ladder logic, I/O

modules, basic numbering systems, computer terminology, and industrial communication.

### **MEC 113 - Programmable Logic Controls II**

#### *4 Credits*

Introduction to programmable logic controllers for industrial control and direct digital controls for industrial automation. Participants will gain an understanding of terminology, components, programming, interfacing and operation of PLC controls, and be introduced to DDC components, functions, and operation in building automation and energy management. Student will learn systems to study software programming, architectures, ladder logic, I/O modules, basic numbering systems, computer terminology, and industrial communication.

### **MEC 201 - Computer Fundamentals and Lab**

#### *2 Credits*

This course provides an introduction to the hardware, operating systems and application programs used by individuals working in the industrial and commercial maintenance fields.

### **MEC 202 - Preventive Maintenance and Lab**

#### *4 Credits*

This course covers developing, implementing, and using manual and computerized preventive maintenance programs for electrical, plumbing and HVAC systems found in the industrial and commercial maintenance fields.

### **MEC 203 - Robotics - Mechatronics**

#### *5 Credits*

Robotics and Mechatronics is designed to teach programming, interface and material handling, design, quality control, and production control using robotics. These skills will transfer into integrated technologies across a balance of areas, including mechanical, electrical, electronics, fluid power, and machine programming. The ability to integrate industrial robots into a control process creates great training opportunities for students.

### **MEC 204 - Motor Control Principles and Lab**

#### *5 Credits*

This course includes single phase and multiple phase installations, and repair and maintenance of motor controls as used in industrial applications and hands-on lab featuring the components, wiring and applications of motor control systems as used in industrial applications. Students will learn to troubleshoot/replace/install circuit boards, sensors, and

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become proficient in troubleshooting motors and variable speed drives, interpreting relay logic, and sizing of components for various applications.

### **MEC 205 - Welding Fundamentals**

#### *4 Credits*

This course covers gas cutting, brazing, and soldering and electrical welding (stick, MIG and TIG) used by individuals working in an industrial maintenance environment. Most of this course is a hands-on lab featuring various types of welders and applications.

### **Medical Assistant**

### **MEDA 102 - BLS Provider CPR/AED**

#### *2 Credits*

This course covers one and two person, adult, child and infant CPR. Students practice caring for a person with foreign body airway obstruction (FBAO), personal barrier techniques and use of Automated External Defibrillator (AED). The course teaches to effectively recognize and treat in critical minutes until Emergency Medical Services (EMS) arrive. Topics include: general first aid principles, medical, injury and environmental emergencies. This course is approved by OSHA, WISHA (Labor and Industries) for healthcare providers. An AHA card will be issued upon the successful completion of a written exam and skills evaluation.

### **Course Outcomes**

1. Articulate general rules for emergencies, including treatments, actions and policies'.
2. Execute emergency preparedness in a workplace setting.
3. Complete training and pass written exam in order to obtain an AHA card.
4. Perform required treatment for FBAO, AED techniques, and treat patients while waiting for EMS.
5. Present knowledge on HIV/AIDS and BBP rules and regulations.

### **MEDA 108 - Anatomy and Physiology I**

#### *4 Credits*

This is the first of a two quarter course that provides students with an introduction to the basic concepts of anatomy and physiology. It includes organization, classification and control of anatomical structures and functions and an introduction to the major body systems. This course will also focus on the etiology and symptoms of common diseases and disorders of the

human body as they relate to specific body systems and pathogenic agents. Emphasis is placed on commonly used diagnostic procedures and treatment methods. Students can substitute BIOL& 241 for MEDA 108.

#### **Course Outcomes**

1. Describe the basic concepts of anatomy and physiology.
2. Analyze the structure and function of the human body.
3. Apply critical thinking skills in tasks related to identifying the functions of the human body.
4. Demonstrate respect for diversity in approaching content and content related issues.

#### **MEDA 109 - Anatomy and Physiology II**

##### *4 Credits*

This is the second of a two quarter course that provides students with an introduction to the basic concepts of anatomy and physiology. It includes organization, classification and control of anatomical structures and functions and an introduction to the major body systems. This course will also focus on the etiology and symptoms of common diseases and disorders of the human body as they relate to specific body systems and pathogenic agents. Emphasis is placed on commonly used diagnostic procedures and treatment methods. Students can substitute BIOL& 242 for MEDA 109.

#### **Course Outcomes**

1. Describe the basic concepts of anatomy and physiology.
2. Analyze the structure and function of the human body.
3. Apply critical thinking skills in tasks related to identifying the functions of the human body.
4. Demonstrate respect for diversity in approaching content and content related issues.

#### **MEDA 117 - Medical Terminology and the Human Body**

##### *4 Credits*

This course is the introductory study of medical terminology and basic human anatomy and physiology. The focus is on prefixes, suffixes, word roots and their combining forms by review of each body system and specialty area. It also emphasizes word construction, spelling, usage, comprehension, and pronunciation. In

addition, students gain information regarding anatomy, pathology, and medical abbreviations. This course will also introduce the etiology and symptoms of common diseases and disorders of the human body as they relate to specific body systems and pathogenic agents.

#### **Course Outcomes**

1. Recall the rules that apply in the building of medical terms and how prefixes, suffixes, and combining forms are used.
2. Demonstrate knowledge and application of diagnostic, pharmacologic, and pathology terminology as related to the human body as a whole, as well as the specific body systems.
3. Discuss medical terminology relating to body structure, cells and organs.

#### **MEDA 121 - Administrative Medical Procedures**

##### *4 Credits*

This course focuses on the skills necessary for working in the medical front office including communication, customer service, basic computer skills, and basic administrative duties. Students will practice using an Electronic Medical Record (EMR) and office software to perform these tasks with an emphasis on professional communications, documentation, scope of practice and confidentiality. Emphasis will be on verbal and non-verbal communication, patient interviewing techniques, patient education and cultural sensitivity.

#### **MEDA 122 - Introduction to Medical Insurance and Coding**

##### *5 Credits*

Introduces accurate billing procedures in the medical office and medical coding procedures used to obtain reimbursement for medical procedures or services. Billing topics include different types of health insurance, and preparation of insurance claim form, applying third party payer guidelines and collection procedures. Coding topics will include the proper application of CPT, ICD-10-CM and HCPCS coding.

#### **MEDA 125 - Introduction to Clinical Procedures**

##### *6 Credits*

This is an introduction to the role and scope of practice of a clinical medical assistant. There is a focus on basic rooming and vital signs collection, charting, protective practices, the physical exam, eye and ear exams and an introduction to administration of medications. The course also covers the appropriate protective practices to office safety and office emergencies. Protective

practices training will include blood-borne pathogen training, standard precautions, infectious diseases, infection control, disinfecting and sterilization, isolation precautions, post-exposure plans, and basic microbiology.

#### **MEDA 126 - Clinical Procedures I**

##### *6 Credits*

An introduction to laboratory practices, specimen collection and processing, urinalysis, venipuncture, hematology, chemistry, immunology, medical microbiology, and CLIA-waived tests. Students practice lab procedures in the context of assisting providers, physician orders, patient education and prep, and protocols. Students will practice identifying nonverbal communication, overcoming communication barriers when interacting with patients of different language backgrounds, and use feedback techniques to obtain patient information and properly coach patients.

#### **MEDA 127 - Clinical Procedures II**

##### *6 Credits*

Introduces clinical exams and procedures related to cardio pulmonology, sterilization, female and male reproductive systems, pediatrics and minor office surgeries. Students will continue to hone in on the skills learned in prior clinical procedures classes.

#### **MEDA 130 - Career and National Exam Preparation**

##### *2 Credits*

This course focuses on professional development and preparing students to take the national certification exam for medical assistants. Students will explore continuing education opportunities to maintain medical assistant credentials as well as organizations that offer this training. This course will systematically lead the student through a review of program topics, and impart updated information on topics from the curriculum that may be included in a national certification exam. Students will learn the preparation and test-taking techniques required to complete a certification exam. Students will also work on resumes, cover letters and interview techniques.

#### **MEDA 132 - Introduction to Disease Prevention and Health Promotion**

##### *3 Credits*

This course provides an overview of the major issues in health promotion, personal health and disease prevention. This includes an introduction to strategies for promoting health and wellness, the major causes of premature mortality and morbidity, behavioral and

environmental contributions to illness and injury, as well as strategies for risk reduction.

#### **Course Outcomes**

1. Describe dimensions of health and concepts of wellness.
2. Identify social determinants of health.
3. Describe the importance of health literacy to enhancing health.
4. Assess the quality of a website for health information.
5. Demonstrate an ability to identify, use and critically evaluate different types of health information.
6. Explain the difference between generic drugs and brand-name drugs.
7. Identify the major physical and psychological health concerns of our nation.
8. Describe how personal decisions and behaviors affect health and impact the most common lifestyle diseases.
9. Identify basic principles of nutrition and ways to obtain/maintain a healthy body composition.
10. Describe and discuss the health related components of physical fitness and techniques for developing a personal exercise program.
11. Discuss the stress response, ways the body responds to stress, and how stressful life events can affect health and contribute to disease.
12. Identify healthy ways to cope with stress.

#### **MEDA 133 - Human Health, Disease and Treatment**

##### *3 Credits*

Students learn to recognize human body structure and function in health and disease states. Students explore the causes, signs, and symptoms of communicable and non-communicable diseases as well as the diagnostic procedures, usual treatment, prognosis, and prevention of diseases commonly diagnosed and treated in the medical office setting. They will also cover topics such as: substance abuse and addiction, aging, dying and death, and emotional health and abnormal behavior.

#### **Course Outcomes**

1. Identify preconceived ideas about knowledge, values, and behavior that affect health and



- compare with established research and accepted scientific evidence.
- 2. Recognize and assess public bias towards aging, diabetes, epilepsy, STDs, etc.
- 3. Differentiate the major classifications of communicable and non-communicable diseases.
- 4. Examine and discuss the role of epidemiology in Public Health.
- 5. Identify the major means of transmission for communicable diseases.
- 6. Identify, compare, and discuss normal versus abnormal patterns of behavior.
- 7. Identify and compare the major classifications of drugs.
- 8. Examine patterns of drug abuse.
- 9. Recognize, examine and formulate the importance of immunization.

#### **MEDA 150 - Medical Law and Ethics**

##### *2 Credits*

Caring for patients involves ethical and legal responsibilities which makes knowledge of current trends in medical law, ethics and bioethics fundamental for healthcare workers. This course presents regulations that pertain to professional liability, types of consent, employment practices, medical records and cultural implications. HIPPA laws are discussed in detail. Current bioethical considerations are also explored.

#### **MEDA 171 - Communications and Human Relations in Healthcare**

##### *4 Credits*

This course focuses on medical assistant communication skills including grammar, punctuation and spelling. Development of critical reading abilities, as well as academic writing proficiency through readings, lectures and practice exercises will be explored. This experiential course introduces basic psychology principles as they relate to communicating and critical thinking. Students practice the application of interpersonal skills and human relations required within a healthcare environment. Students are introduced to multiple healthcare delivery Systems, healthcare Industry trends and professional behavior in allied health.

#### **Course Outcomes**

1. Identify and practice different styles and types of communication used in the healthcare profession.
2. Demonstrate proficiency in multiple styles and forms of communication.
3. Demonstrate knowledge in grammar, punctuation, spelling and writing proficiency.
4. Exhibit skills in verbal and non-verbal communication and patient interviewing and documentation while remaining culturally sensitive.
5. Communicate professionally, intelligently and accurately both verbally and non-verbally.
6. Explain why cultural bias can affect the quality of patient care.
7. Discuss examples of cultural differences that could contribute to misunderstandings between a patient and a health care provider.

#### **MEDA 192 - Practicum**

##### *7 Credits*

This practicum is designed to reinforce the accumulation of knowledge acquired in the Medical Assistant Program. The practicum experience affords the student the opportunity to spend 160 hours of directed practice in a medical office setting applying theory to medical practice. Students must successfully complete their practicum experience in order to fulfill requirements for graduation.

#### **MEDA 193 - Practicum Seminar**

##### *3 Credits*

Discussion, problem solving, and evaluation of experience gained in practicum. Continued development of professional communication skills, resume, and job seeking strategies.

### **Machining Technology**

#### **MTEC 100 - Machining Essentials**

##### *7 Credits*

This is a preparatory course for the Machining Technologies or Precision Machining Technologies Programs. Topics include shop safety; quality; mechanical aptitude; materials; blueprint reading; precision measurement; and an introduction to machinery as applied to real-world manufacturing. This course includes CPR & First Aid Certifications. It also explores occupations and related training options

available in the Puget Sound Aerospace & Manufacturing sectors.

### **MTEC 101 - Machine Technology 1**

#### *2 Credits*

This is an introductory manufacturing theory course taught in conjunction with MTEC 121, Machining Fundamentals - Lathe & Mill. The principles and techniques of measurement, cutting tool theory, saw operation, shop safety, and manual lathe and mill set-up and operation are covered.

#### **Course Outcomes**

1. Calculate proper cutting speeds and feeds per text and industry standards.
2. Demonstrate measuring techniques with a variety of machining measuring instruments.
3. Per instructor checklist demonstrate safety & first aid as required by industry standards.

### **MTEC 103 - Machine Technology 2**

#### *2 Credits*

This is the second manufacturing theory course. The principles and techniques of mill set-up and operation and surface and O.D. grinding are covered.

#### **Course Outcomes**

1. Explain the set up and operation of vertical and horizontal mills • Identify common cutters and select a proper cutter for a machining task.
2. Perform and align the workpiece on the table and/or vise.
3. Align the tool head and locate the edges of the workpiece relative to the spindle.
4. Calculate speeds and feeds for milling.
5. Safely set up a workpiece on the machine and mill surfaces flat and square to each other.
6. Use Material Safety Data Sheets (MSDS) to EPA standards in a variety of machining applications.

### **MTEC 105 - Machine Technology 3**

#### *2 Credits*

This is the third manufacturing theory course. This class covers precision grinding and non-traditional machining methods.

#### **Course Outcomes**

1. Explain and identify grinding operations and recognize the effects of common grinding problems and solutions.
2. Explain appropriate materials and properties per industry standards.
3. Explain non-traditional machining processes such as electro discharge (EDM), laser, and water jet machining.

### **MTEC 111 - Blueprint Reading 1**

#### *2 Credits*

This is the first course on the fundamentals of creating and interpreting blueprints and/or engineering drawings. This first course includes basic concepts such as line types, orthographic projection, dimensions, and tolerances.

#### **Course Outcomes**

1. Identify orthographic projections and the alphabet of lines per text and industry standards.
2. Identify dimensioning and tolerancing of specified parts per text and industry standards.

### **MTEC 113 - Blueprint Reading 2**

#### *2 Credits*

This is the second course on the fundamentals of creating and interpreting blueprints and/or engineering drawings. In this course, students apply proper conventions and interpret more advanced drawing layout and specifications.

#### **Course Outcomes**

1. Identify (per text and industry standards) more complex mechanical components, features, and specifications, which may include: gears, splines, threads, drawing revision system, sectional views.

### **MTEC 121 - Machining Fundamentals - Lathe and Mill**

#### *8 Credits*

This is an introductory machine shop class utilizing conventional lathes and mills in a fully equipped manufacturing facility. Skills taught and practiced include inside and outside turning, knurling, parting, drilling, boring, milling, and calculating speeds and feeds.

#### **Course Outcomes**

1. Grind a cutting tool to specified geometry per industry standards.
2. Perform drilling, boring and parting off per drawing and machining industry standards.
3. Perform external and internal turning to specifications per drawing.
4. Perform internal and external threading to specifications per drawing.
5. Perform knurling to specifications per drawing and machining industry standards.

### **MTEC 140 - Geometric Dimensioning and Tolerancing 1**

#### *2 Credits*

This is the first course in a two-course series that deals with basic geometric dimensioning and tolerancing (GD&T) methods as interpreted in *American Society of Mechanical Engineers (ASME) Y14.5M*. Students learn to read and understand geometric tolerancing symbols and terms.

#### **Course Outcomes**

1. Apply material conditions symbols to industry standards.
2. Identify geometric characteristics; straightness, flatness, parallelism, perpendicularity, circularity, cylindricity, profile, runout, and angularity, as described in text and industry standards.
3. Identify position symbols per industry standards.
4. Perform general tolerancing limits, specified dimension, MMC, and LMC applications to industry standards.
5. Recognize and identify datum feature symbols per ASME Y14.5-2009 standards.

### **MTEC 141 - Geometric Dimensioning and Tolerancing 2**

#### *4 Credits*

This is the second course in a two-course series that deals with basic geometric dimensioning and tolerancing (GD&T) methods as interpreted in *American Society of Mechanical Engineers (ASME) Y14.5M*. In this second course, students learn to read and understand more advanced geometric tolerancing symbols and terms.

### **MTEC 161 - Math for Manufacturing**

#### *4 Credits*

In this course, students develop basic math skills that are the foundation for calculations and problem solving in the manufacturing industry. Topics include fractions, decimals, metric conversions, tolerances, and an introduction to basic geometry, angular measure, and dimensional analysis. Mathematics as a form of communication is emphasized.

### **MTEC 171 - Communications 1**

#### *1 Credits*

This is the first course in a three-course series in which students develop effective communication skills for job search and the workplace. This first course emphasizes basic communication skills (reading, writing, listening and speaking) as applied to manufacturing topics.

#### **Course Outcomes**

1. Demonstrate effective written communication skills with clarity and brevity using Standard English to industry standards.
2. Demonstrate effective oral communication skills using Standard English to machining industry standards.
3. Take responsibility for his/her own learning by actively using multiple resources to gather information and develop communication skills.

### **MTEC 172 - Communications 2**

#### *1 Credits*

This is the second course in a three-course series in which students develop effective communication skills for the workplace. Students research, write, and present technical reports. They practice daily interpersonal communication skills through formal and informal oral presentations to the class and instructors. They take responsibility for their own learning by actively using various resources to improve their communication skills.

#### **Course Outcomes**

1. Demonstrate effective written communication skills with clarity and brevity using Standard English to industry standards.
2. Demonstrate effective oral communication skills using Standard English to machining industry standards.
3. Take responsibility for his/her own learning by actively using multiple resources to gather information and develop communication skills.

## **MTEC 173 - Communications 3**

### *1 Credits*

This is the third course in a three-course series in which students develop effective communication skills for job search and the workplace. Students research, write, and present technical reports, and they develop resumes and other job search documents. They practice daily interpersonal communication skills through formal and informal oral presentations to the class and instructors. They take responsibility for their own learning by actively using various resources to improve their communication skills.

### **Course Outcomes**

1. Demonstrate effective written communication skills with clarity and brevity using Standard English to industry standards.
2. Demonstrate effective oral communication skills using Standard English to machining industry standards.
3. Take responsibility for his/her own learning by actively using multiple resources to gather information and develop communication skills.

## **MTEC 185 - Human Relations**

### *2 Credits*

This course emphasizes the importance of working in a team environment and the interpersonal skills required to solve problems. The course familiarizes the student with business and personal ethics, conflict resolution skills, sexual harassment preventive strategies, and meeting employer expectations in a culturally diverse workplace.

### **Course Outcomes**

1. Demonstrate knowledge of ethical standards in the workplace per standard industry practice.
2. Demonstrate knowledge of sexual harassment regulations (federal, state, and college) and prevention strategies per standard industry practice.
3. Work effectively as a team member and leader in a variety of group situations, and demonstrate effective problem-solving and conflict resolution strategies per standard industry practice.
4. Demonstrate understanding of the value of diversity, equity, and inclusion in the workplace per standard industry practice.

## **MTEC 220 - Hazardous Materials**

### *1 Credits*

Students learn safety and environmental issues, including how the EPA, OSHA, and WISHA impact manufacturing; and the liabilities of waste generation. They are also introduced to *Material Safety Data Sheets (SDS/MSDS)* and the Globally Harmonized System (GHS).

### **Course Outcomes**

1. Demonstrate the safe handling and storage of hazardous materials and chemicals per EPA, OSHA, and WISHA guidelines.
2. Identify safety hazards in the workplace per EPA, OSHA and WISHA guidelines.
3. Prevent safety hazards per industry standards and instructor specifications.
4. Properly use protective equipment in the shop and workplace per EPA, OSHA and WISHA standards and current industry practice.
5. Use Material Safety Data Sheets (MSDS) to EPA standards in a variety of machining applications.

## **MTEC 231 - CNC Mill Set Up and Operation**

### *8 Credits*

This is an introductory course in the set-up and operation of CNC Mills. Using offsets, speeds, and feeds are strongly emphasized. General G & M codes are introduced for HAAS and FANUC controls.

## **MTEC 232 - CNC Lathe Set Up and Operation**

### *8 Credits*

This is an introductory course in the set-up and operation of CNC lathes. Using offsets, speeds, and feeds are strongly emphasized. General G & M codes are introduced for HAAS and FANUC controls.

### **Course Outcomes**

1. Program and set up a CNC lathe using hand programming and conversational control.
2. Operate CNC lathe to machine parts.
3. Demonstrate proficiency in the fundamentals of Mastercam CAD/CAM software.

## **MTEC 236 - Machining Projects**

### *8 Credits*

This is a project-based manufacturing lab class in which students apply knowledge and skills from the Machine Technology courses.

## **MTEC 237 - Materials Science**

### *5 Credits*

This is an introductory course in Materials Science and applications. Students learn how to classify materials based on their physical and mechanical properties, what metal alloys are and how they are processed, and the machinability of various materials.

## **MTEC 240 - Manufacturing Trends**

### *1 Credits*

Students learn about current trends in the manufacturing industry. Activities may include field trips, guest speakers, and research reports.

### **Course Outcomes**

1. Define lean manufacturing terminology.
2. Identify current trends in the manufacturing industry.
3. Explain the importance of teamwork in the workplace to streamline production and cooperation.

## **Machining Technology - Supplemental**

## **MTECS 180 - Machining/Lathe**

### *5 Credits*

Learn or upgrade skills in basic machine shop practices. The course is taught on an individual basis emphasizing basic shop and machine operation practices. ALL STUDENTS ARE REQUIRED TO HAVE A LATHE TOOL BIT, SAFETY GLASSES, AND LEATHER SHOES.

## **MTECS 182 - Machining/Milling**

### *5 Credits*

This course is for individuals who have had previous experience or have completed Machining/Lathe and emphasizes advanced shop practices, basic machine and hand tool operation, and the use of industrial milling and grinding machinery. ALL STUDENTS ARE REQUIRED TO HAVE SAFETY GLASSES AND LEATHER SHOES.

## **MTECS 184 - Introduction to SolidWorks**

### *3 Credits*

This course is an introduction to creating 3-D computer-aided design models. SolidWorks is a feature-based, parametric solid-modeling design program. Topics include base, boss, and cut feature creation using extruded, revolved, or simple swept shapes, and sketching techniques for detail and assembly drawing creation.

## **MTECS 186 - Advanced SolidWorks**

### *3 Credits*

This class is the second of the 2-class sequence for creating 3-D computer-aided design models using SolidWorks design software. Topics include, but are not limited to, sheet metal design, advanced swept and lofted shapes, and parametric surfaces generation.

**Prerequisite(s):** MTECS 184 or instructor permission.

## **MTECS 188 - Introduction to Mastercam**

### *3 Credits*

Explore the basics of CNC programming using Mastercam software. Learn geometric construction, write and document programs using contours, drill and pocket functions, tool path as well as file management, editing and post-processing.

## **MTECS 190 - Advanced Mastercam**

### *3 Credits*

Discover advanced programming tools in Mastercam to program complex parts. Learn standard wireframe construction, 2D and 3D, swept surfaces, ruled surfaces, and solids. 3D tool path, 4th axis or rotary axis, parameters, printing and documentation of all NC programs.

**Prerequisite(s):** MTECS 188 or instructor approval.

## **Music**

## **MUSC& 105 - Music Appreciation**

### *5 Credits*

This course helps students develop an understanding of the elements and vocabulary of music while deepening their appreciation of music as a reflection of cultural tradition and innovation. Students gain tools for analysis such as the historical, political and cultural influences on musical traditions. Class activities include lectures, written materials, and a variety of listening experiences.

**General education distribution area: Humanities.**

### **Course Outcomes**

1. Create a description of how to teach a 'non-musician' about the main musical elements and their function in different styles of music.
2. Accurately identify the main musical elements .
3. Articulate how each of the main musical elements relates to a variety of musical genres.

4. Develop awareness of musical elements in combination with one another.

## **Nursing**

### **NURS 103 - Bridge to Nursing**

#### *3 Credits*

This course is designed to assist with the transition into the nursing program. Reading Apprenticeship techniques to facilitate learning and a classroom laboratory component for fundamental nursing skills will be included.

#### **Course Outcomes**

1. Perform fundamental nursing skills.
2. Demonstrate proficiency in basic mathematical skills.
3. Demonstrate proficiency in converting between various units of measurement.
4. Use Reading Apprenticeship techniques to facilitate engagement and achievement across multiple disciplines.
5. Define selected medical terms and abbreviations.
6. Determine personal learning preferences (based on the VARK assessment) and utilize one or more recommended methods of taking in and putting out information based on those learning preferences.
7. Develop awareness of specific test-taking strategies associated with nursing exams and actively incorporate those strategies on all nursing tests.
8. Fill in the uncompleted boxes on the Learning Portfolio pages and refer to the information frequently to help build knowledge base of medical terms, math conversions and equivalencies, learning styles and their related methods of taking in, organizing and putting out information.
9. Construct a well-written, organized, concise report on the contents of the Learning Portfolio.

### **NURS 105 - Reproductive Health**

#### *4 Credits*

This course builds on the foundational concepts previously learned, and applied to the concepts of reproduction, sexuality and development. There is a focus on the holistic care of culturally diverse

childbearing families which includes health risks and problems from preconception through adolescence.

### **NURS 107 - Mental Health/Reproductive Health Clinical**

#### *3 Credits*

Students in this course demonstrate the skills of therapeutic communication, culturally competent patient-focused care, application of the nursing process, organizing & prioritizing care for clients with disorders in mood & affect, self, reproduction, and sexuality across the life span.

#### **Course Outcomes**

1. Utilize therapeutic communication with clients from various backgrounds and cultures.
2. Interact with the health care team by communicating and documenting accurate information in a concise and clear manner.
3. Safely perform assessment of the peripartum mother and newborn, and other basic skills in a professional, safe, and timely manner.
4. Describe nursing care in the intrapartum setting.
5. Describe techniques for developing a safe and therapeutic milieu in the care of clients with mental health disorders.
6. Participate in educational/skills groups with identified clients in the mental health setting.
7. Demonstrate professional behaviors.

### **NURS 108 - Foundations of Nursing Practice**

#### *4 Credits*

This course explores concepts that form the foundation of practice as a registered nurse including communication, cultural diversity, nursing process, pharmacotherapy, legal and ethical aspects of care.

#### **Course Outcomes**

1. Recognize the phases of the nursing process as the framework for clinical reasoning.
2. Describe the application of comfort theory and multiculturalism to nursing practice including: basic pharmacotherapy, legal and ethical responsibilities, and professional and therapeutic communication.
3. Describe basic components of mental health and mental illness.

## **NURS 109 - Foundations of Nursing Practice Laboratory**

### *3 Credits*

Using the concepts of caring and professional behaviors, students learn and practice basic nursing procedures in a lab setting. Physical assessment, perioperative care, and medication administration is introduced. Emphasis is placed on client safety, and maintaining a safe work place environment.

#### **Course Outcomes**

1. Perform and document a focused and head to toe physical assessment.
2. Safely perform administration of non-parenteral medications, and other basic skills.
3. Communicate and document accurate information in a concise and clear manner.
4. Demonstrate professional behaviors.

## **NURS 112 - Mental Health in the Multicultural Community**

### *4 Credits*

The focus of this course is on the nursing care of clients experiencing alterations in mood and affect, self, and grief and loss. Key topics include providing a safe client care environment, therapeutic communication, the nurse-client relationship, and crisis intervention.

#### **Course Outcomes**

1. Recall the principles of therapeutic communication, health promotion, growth and development, legal and ethical principles, and nursing process.
2. Build a therapeutic relationship and maintain a safe and therapeutic environment.
3. Identify the long term effects of mental illness on the individual, family, and the community.
4. Describe the role of the nurse with non-pharmacologic and psychopharmacological therapeutic approaches to common changes in mental health status.
5. Identify techniques for crisis intervention and verbal de-escalation.

## **NURS 114 - Health and Wellness**

### *2 Credits*

This course focuses on the concepts of health and wellness across the lifespan in the areas of health promotion, growth and development, and physical

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assessment.

#### **Course Outcomes**

1. Perform focused and head to toe physical assessment.
2. Explain the role of the nurse in health promotion/maintenance, and prevention of disease, including nutritional needs.
3. Assess the culture, strengths, resources, and needs of the client in the community including: physical, psychosocial, and spiritual.
4. Identify alterations in growth and development across the life span.

## **NURS 117 - Alterations in Health Care Needs**

### *5 Credits*

This course prepares students to provide safe and culturally competent nursing care by focusing on pathophysiologic changes indicating alterations in healthcare needs with an emphasis on the concepts affecting homeostasis, oxygen, and protection.

#### **Course Outcomes**

1. Recall previously learned knowledge of physical assessment, growth and development, and nursing process to client care needs.
2. Describe pathophysiologic changes that move a client from wellness to illness across the life span.
3. Apply basic pharmacotherapeutic principles to alterations in health care needs including pharmacologic classes of medications.
4. Describe evidence-based care management of pathophysiologic changes in client care needs.

## **NURS 118 - Alterations in Health Care Needs Laboratory**

### *3 Credits*

Students demonstrate and apply principles of clinical reasoning by incorporating knowledge of learned concepts in the lab setting related to safe, patient-centered caring interventions of intermediate-level nursing skills.

#### **Course Outcomes**

1. Recall physical assessment skills and safe medication practices.



2. Integrate the nursing process into the performance of intermediate nursing skills.
3. Communicate and document relevant and accurate information in a concise and clear manner.
4. Demonstrate professional behaviors.
4. Safely perform administration of non-parenteral medications, and other basic skills.
5. Demonstrate professional behaviors.

### **NURS 198 - Alterations in Health Care Needs Clinical Practicum**

#### *4 Credits*

Students expand clinical skills of caring interventions in the provision of patient-centered, culturally competent nursing care. There is a focus on clinical reasoning, professional communication, informatics, and safety.

#### **Course Outcomes**

1. Apply physical assessment skills and safe medication practices.
2. Integrate the nursing process into the performance of patient-centered nursing care, including prioritization of client needs.
3. Communicate and document relevant, accurate, and timely information in a concise and clear manner.
4. Demonstrate professional behaviors and build positive relationships with the health care team.

### **NURS 203 - Major Chronic Alterations in Health Care Needs**

#### *5 Credits*

This course examines the management of chronic alterations in health incorporating previously learned pathophysiologic changes with an emphasis on maintaining an optimal level of wellness including caring interventions, pharmacotherapy, collaboration, and teaching & learning.

#### **Course Outcomes**

1. Recall previously learned knowledge of pathophysiologic changes.
2. Examine chronic alterations in health care needs to promote optimal health in the community setting.
3. Provide client education to prevent complications and negative client outcomes related to chronic health care needs.
4. Explain the role of the nurse in the management of clients with chronic health alterations including pharmacotherapeutics.

### **NURS 119 - Reproductive Health Laboratory**

#### *1 Credits*

Students recall previous knowledge and apply the concepts of reproduction, sexuality and development to basic care of women of childbearing age including postpartum and newborn assessment. Emphasis is placed on organizing and prioritizing care of the postpartum client and family.

#### **Course Outcomes**

1. Recall principles of assessment, health promotion, and therapeutic communication.
2. Perform a newborn assessment, and the peripartum assessment of the childbearing family.
3. Identify and prioritize nursing care to address comfort needs for childbearing family.
4. Conduct teaching to address the peripartum needs of the childbearing family including anticipatory guidance.
5. Perform safe pediatric medication administration including oral, topical, and injectable medications based on developmental client needs.

### **NURS 195 - Foundations of Nursing Practice Clinical Practicum**

#### *4 Credits*

Utilizing the nursing process student provide culturally competent, patient centered, nursing care focused on physical assessment, communication, medication administration, and basic skills.

#### **Course Outcomes**

1. Perform and document a complete patient-centered head to toe assessment in a professional, safe, and timely manner.
2. Communicate accurate information in a concise and clear manner.
3. Build therapeutic relationships with clients from various backgrounds and cultures.

## **NURS 207 - Major Chronic Alterations in Health Care Needs Laboratory**

### *2 Credits*

Students continue to incorporate caring interventions in the provision of competent, safe, client-centered care by focusing on advanced nursing skills. There is an emphasis on applying clinical reasoning skills, professional communication, teamwork, and clinical reasoning.

### **Course Outcomes**

1. Recall physical assessment skills and safe medication practices.
2. Integrate the nursing process into the performance of more advanced nursing skills.
3. Use critical thinking to prioritize and implement safe, client-centered nursing care.
4. Communicate and document relevant and accurate information in a concise and clear manner.
5. Collaborate as a member of the health care team.
6. Demonstrate professional behaviors.

## **NURS 208 - Major Acute Alterations in Health Care Needs**

### *5 Credits*

This course focuses on the patient-centered, culturally competent care of clients with major acute alterations in health throughout the lifespan. Focus is placed on a comprehensive understanding of the interrelationship of major concepts as well as accurate, timely provision of evidence-based caring interventions to maintain and support homeostasis.

### **Course Outcomes**

1. Recall previously learned knowledge of pathophysiologic changes and pharmacotherapeutics in the provision of evidence-based client-centered care.
2. Interpret results of diagnostic testing.
3. Interpret assessment findings associated with complications of acute alterations in health.
4. Analyze and utilize assessment and re-assessment data to proactively address complications and safety risks.

## **NURS 209 - Major Chronic Alterations in Health Care Needs Laboratory**

### *3 Credits*

Students demonstrate clinical decision making in the management of common complications related to nursing procedures with an emphasis on quality improvement, client centered care, informatics, and collaboration.

### **Course Outcomes**

1. Recall previously learned knowledge of pathophysiologic changes and pharmacotherapeutics in the provision of evidence-based client-centered care.
2. Analyze results of diagnostic testing.
3. Conduct assessment and interpret findings associated with complications of acute alterations in health.
4. Analyze and utilize assessment and re-assessment data to proactively address complications and safety risks.

## **NURS 210 - Complex Multi-Systems Acute Alterations in Health Care Needs**

### *5 Credits*

This course focuses on the care management of complex alterations in physiological concepts in critically ill clients. There is an emphasis on integration of previous learning, collaboration, teaching & learning, communication, clinical decision making, advocacy, and safety.

### **Course Outcomes**

1. Analyze culturally responsive nursing care with the application of Comfort Theory for critically ill clients across the life span facing complex alterations in health care with a focus on professionalism in high acuity areas.
2. Analyze nursing care in high acuity areas with a focus on safety and quality improvement strategies.
3. Analyze the role of informatics in the application of nursing care to clients in high acuity areas.
4. Integrate evidence-based practice into nursing care to critically ill clients experiencing complex alterations in health care needs across the life span.

5. Identify personal learning needs and knowledge gaps in nursing knowledge base and create a plan for successful NCLEX-RN completion.
6. Practice nursing care with the application of comfort theory for critically ill clients across the life span facing complex alterations with a focus on communication and teamwork in high acuity areas.

### **NURS 281 - Leadership and Management**

#### *2 Credits*

This course focuses on performing professional behaviors related to the concepts of accountability, advocacy, collaboration, ethics, health care systems, health policy and quality improvement.

#### **Course Outcomes**

1. Delegate aspects of client care to qualified assistive personnel and evaluate outcomes.
2. Adapt the provision of client care to changing healthcare settings and management systems.
3. Assess the client and significant support person(s) ability to access available resources and services.
4. Outline interventions for crucial conversations including conflict resolution and problem solving techniques.
5. Predict the role of the nurse while identifying staff development needs toward the goal of quality improvement.
6. Analyze the National Patient Safety Goals to determine interventions to meet the goals, and evaluate effectiveness of the interventions.
7. Describe the role of the nursing manager in acute and long-term care.

### **NURS 294 - Major Chronic Alterations Clinical**

#### *5 Credits*

Students apply learned concepts using proactive clinical reasoning in the provision of legal, ethical, culturally competent, safe, client-centered nursing care using effective professional communication. There is an emphasis on best practice and quality improvement in the clinical area.

#### **Course Outcomes**

1. Recall physical assessment skills and safe medication practices.
2. Integrate clinical reasoning in the performance of safe, prioritized, client-centered nursing care.
3. Communicate and document relevant and accurate information in a concise and clear manner.
4. Collaborate as a member of the health care team.
5. Demonstrate professional behaviors.

### **NURS 295 - Major Acute Alterations Clinical**

#### *5 Credits*

Students expand on previous knowledge to demonstrate clinical decision making in the management of client-centered, culturally competent care with an emphasis on teaching & learning, accountability and informatics.

#### **Course Outcomes**

1. Recall assessment skills and safe medication practices.
2. Utilize the principles of the teaching learning process to implement the teaching plan for clients and significant other(s), and evaluate the progress toward achievement of identified learning outcomes.
3. Coordinate the decision process with the client, significant other(s), and other members of the health care team.
4. Evaluate the intended goals for client care and revise the plan of care on a continuing basis.
5. Make clinical judgments and management decisions to ensure accurate and safe care.
6. Demonstrate verbal and written ability to apply theory to clinical situations and state scientific rationales.
7. Interact creatively and openly with others to solve problems to achieve client goals and outcomes in acute situations.
8. Integrate clinical reasoning in the performance of safe, prioritized, client-centered nursing care.

### **NURS 296 - Complex Multi-Systems Alterations Preceptorship**

#### *4 Credits*

The student has multiple opportunities to synthesize

and demonstrate the role of a beginning registered nurse under the supervision of the preceptor and monitoring by faculty. This includes authentic work tasks in the area of clinical decision-making, collaboration, evidence-based practice, informatics, life-long learning, teaching & learning, and quality improvement.

### **Course Outcomes**

1. Recall assessment skills, professional behaviors, therapeutic communication, collaboration, and safe medication practices.
2. Communicate patient values, preferences and expressed needs to other members of the healthcare team.
3. Engage patients or designated surrogates in active partnerships that promote health, safety and well-being.
4. Correctly evaluate the intended goals and revise the plan of care on a continuing basis.
5. Make clinical judgments and management decisions to ensure accurate and safe care.
6. Analyze the role of informatics in the application of nursing care and consult with clinical experts before deciding to deviate from evidence-based protocols.
7. Interact creatively and openly with others to solve problems to achieve client goals and outcomes in client care situations.

## **Nursing Assistant**

### **HLTH 100 - Tools for Success**

#### *2 Credits*

This course provides the foundational tools for successful completion of the Nursing Assistant program.

### **Course Outcomes**

1. Identify the role of a Nursing Assistant in the healthcare system.
2. Explain safety and proper body mechanics.
3. Describe components of effective communication.
4. Use library and computer to perform a basic content search.
5. Accurately perform basic math skills, including conversion of AM-PM time to military time.

6. Demonstrate proficiency on written/skills testing for CPR (BLS for Healthcare Providers) including use of AED, and First Aid.
7. Identify basic medical terms associated with body systems and common pathophysiological conditions.

### **NA 101 - Fundamentals of Nursing Assistant**

#### *2 Credits*

Students learn about the role of the Nursing Assistant in meeting the basic needs of the client, including legal and ethical implications. The mandatory HIV/AIDS content is covered.

### **Course Outcomes**

1. Describe the chain of infection and methods used by Nursing Assistants to prevent transmission of viruses and bacteria, including the standards of the Occupational Safety and Health Administration (OSHA).
2. Discuss the impact of the Omnibus Budget Reconciliation Act (OBRA) to the role of the Nursing Assistant.
3. Explain legal and ethical implications related to the role of the Nursing Assistant.
4. Describe the role of the Nursing Assistant.

### **NA 103 - Basic Technical Skills**

#### *2 Credits*

Students will learn all the skills necessary in the role of a Nursing Assistant to provide for an optimal level of functioning of the client. Also included is a mock NACES written and skills exam.

### **Course Outcomes**

1. Provide accurate verbal and written communication.
2. Accurately document findings.
3. Perform the Mock NACES written and skills exam with 90% or higher accuracy on 5 randomly assigned skills within 25 minutes.
4. Demonstrate within the legal and ethical standards for Nursing Assistants the correct technique for skills.

### **NA 105 - Principles of A&P, Restorative Care, and Related Procedures**

## *2 Credits*

The student gains basic knowledge of anatomy and physiology related to care given by Nursing Assistants. Students learn to recognize and report abnormal signs and symptoms of common diseases and conditions. Principles and skills of rehabilitation and restorative care are discussed.

### **Course Outcomes**

1. Identify anatomy and physiology related to the skin, musculoskeletal, respiratory, cardiovascular, nervous, endocrine, digestive, urinary, and reproductive body systems.
2. Discuss the effects of normal aging on various body systems.
3. Explain the effects of common disorders related to various body systems.
4. Describe risk factors for the development of common complications related to various body systems.
5. Describe the role of the Nursing Assistant in caring for clients with common diseases and conditions.
6. Identify common mental illness conditions that may be encountered in the health care environment.
7. Explain the role of the Nursing Assistant with clients needing rehabilitation and restorative care.

## **NA 131 - Nursing Assistant Practicum**

### *2 Credits*

The student demonstrates the knowledge, skills, and abilities for safe and effective care as a Nursing Assistant under the direction and supervision of a LPN/RN.

### **Course Outcomes**

1. Provide culturally sensitive, holistic, and appropriate nursing care within the legal and ethical standards for Nursing Assistants.
2. Comply with school, program and agency policies and procedures.
3. Demonstrate accountability for own actions and comprehensive client care.
4. Inform the instructor and nursing staff of changes in client's status.

5. Identify own learning needs based on clinical objectives.
6. Demonstrate professional communication.
7. Establish and maintain effective working relationship with peers, faculties, nursing staff, and other health professionals.

## **Nutrition**

### **NUTR& 101 - Human Nutrition**

#### *5 Credits*

This course provides students with information pertaining to the functions of nutrients in the body and the physiologic processes involved in digestion and absorption. Topics covered include anatomy and physiology of digestion and absorption; specific utilization of carbohydrates, protein, and fats; and vitamin and mineral supplements. Other topics include factors that govern nutrient requirements, and the impact of diet on health and disease. Basic principles of chemistry, biology, and physiology are applied to the study of nutrition. This course is suggested for students majoring in nursing or other health-related areas.

**General education distribution area: Natural Science.**

### **Course Outcomes**

1. Identify the key nutrients and food components, their basic functions in the body and foods or groups of food that provide a significant source.
2. Recognize that foods must be digested into nutrient components and presented to the cell for utilization.
3. Interpret information found on food labels and recognize differences between reliable and unreliable sources of nutritional information.
4. Explain the origin, meaning, and use of Dietary Reference Intakes as established by the National Academy of Sciences and demonstrate understanding of their use for healthy adults.
5. Identify changes in the nutritional requirements for persons in various stages of the life cycle.
6. Develop the ability to work both independently and with others and draw appropriate conclusions from team activities.
7. Develop an information base for making personal health decisions in regard to food choices.

8. Analyze and evaluate a diet record for nutritional content and energy balance using a computer database.

### **Office Assistant/Receptionist**

#### **ASST 095 - Clerical Skills Review**

##### *3 Credits*

This course provides a review of the basic business English, math, and computer skills required for clerical work.

##### **Course Outcomes**

1. Operate a ten-key calculator keyboard rapidly and accurately by "touch".
2. Operate a computer ten-key keypad rapidly and accurately by "touch".
3. Perform addition, subtraction, multiplication and division calculations.
4. Find the fraction, decimal and percent equivalents.
5. Solve problems using business formulas to solve business problems.
6. Solve business math applications using Microsoft Excel.
7. Use the special functions available on most electronic calculators and computer keypads.

#### **ASST 110 - Introduction to Business Writing**

##### *3 Credits*

Students are introduced to the basics of business writing.

##### **Course Outcomes**

1. Develop and compose business letters and memorandums per industry standards.
2. Provide well-constructed sentences to specified instructions.
3. Create text that flows smoothly while handling good news, bad news, and persuasive messages.
4. Develop resumes per industry standards.
5. Generate reports with title pages to specified instructions.
6. Create fax cover sheets to specified instructions.

7. Use email etiquette while creating and send emails per specified instructions.
8. Develop a professional portfolio including: resume, cover letter, letter of introduction, thank you letter, fax cover sheet, reference list, 60 second commercial.

#### **ASST 120 - Keyboarding/Data Entry**

##### *3 Credits*

Students develop speed and accuracy on an electronic keyboard through skill development activities and data entry applications.

##### **Course Outcomes**

1. Type the alphabet, numbers, and symbols using the proper touch typing technique.
2. Use a computerized keyboarding program.
3. Use a word processing program and formatting features to produce documents.
4. Format and produce block and modified block business letters.
5. Format and produce standard memorandums.
6. Format and produce business and academic reports with internal citations, quoted material, reference listings, and title pages.
7. Format tables with a title, a subtitle, and column headings with left/centered/right column formatting.
8. Recognize and interpret proofreading marks while working from rough draft copy.
9. Proofread and edit material accurately.

#### **ASST 144 - Computer Applications**

##### *5 Credits*

Students receive training on basic business computer applications using Windows and Microsoft applications, including word processing, spreadsheets, data bases, and graphics.

##### **Course Outcomes**

1. Demonstrate the ability to perform basic administrative tasks using common features within the Office Suite per industry standards.
2. Use a word processing application to produce a variety of basic correspondence including letters and memos to industry standard.

3. Using a word processing program, perform basic desktop publishing tasks per industry standards
4. Apply newly acquired skills using a spreadsheet application for data entry, automatic calculations and formatting of financial information per supplied specifications.
5. Demonstrate ability using Excel to create charts for graphical displays of data to industry standards.
6. Use PowerPoint to develop a presentation with slides to current business industry standards.
7. Demonstrate ability using PowerPoint to add transitions, sound and animation to existing slides per industry standards.
8. Demonstrate ability to share information between Office applications per supplied specifications.
9. Manage contacts, schedule development, appointment and task management, create and organize email using Outlook.
10. Create databases, input and display information using Access.

### **ASST 181 - Human Relations/Career Readiness**

#### *5 Credits*

This course helps students develop skills to assist in their personal and professional growth. Students learn the fundamentals of human relations in a professional environment, including the basic tools to better understand co-workers, colleagues, customers and supervisors. Job- seeking skills, including developing resumes, cover letters and portfolios are covered, as are interviewing techniques. The importance of self-image, self-esteem and business etiquette is also discussed.

#### **Course Outcomes**

1. Demonstrate entry-level customer service skills.
2. Articulate and carry out steps for a job search in your area.

### **Pharmacy Technician**

#### **PHAR 101 - Pharmacy Technician Fundamentals and Ethics**

#### *4 Credits*

This course introduces the student to the role and ethics of pharmacy assistant. Various employment opportunities in pharmacy are covered. Students will

learn the importance and benefits of professional organizations as well as national certification. Included is an overview of professional work habits, standards, the curriculum, and the ASHP standards for the development of the pharmacy assistant under the pharmacy technician curriculum for an accredited program. Students will apply for a pharmacy assistant license under the Department of Health/Board of Pharmacy for Washington state (provided student passes our required Castle Branch). A certificate as a pharmacy assistant will be issued. This course covers Healthcare Provider First Aid/CPR, and AED, which is approved by OSHA, WISHA (labor and industries) for healthcare providers. Upon successful completion of the AHA written exam and skills evaluation, an AHA card will be issued to students.

#### **Course Outcomes**

1. Identify the professional roles involved in a pharmacy.
2. Identify the foundational skills required for a Pharmacy Assistant.
3. Practice ethics involved in pharmacy (application).
4. Identify state and federal professional pharmacy organizations.
5. Articulate the ASHP Standards for the development of the pharmacy assistant/technician curriculum for an accredited program.
6. Apply for a Pharmacy Assistant License from the Washington State Board of Pharmacy.
7. Identify the purpose and requirements of the PTCB National Certification Exam.
8. Identify various pharmacy environments for pharmacy assistant employment.
9. Comply with HIPAA standards (comprehension).
10. Demonstrate an understanding of HIV standards in healthcare.
11. Interpret the US Constitution, the Bill of Rights, and the Patient's 5 Rights.

#### **PHAR 103 - Top 200 Drugs I**

#### *3 Credits*

Students learn the Top 200 most commonly prescribed drugs in the United States related to the integumentary, skeletal, muscle and joints, nervous, blood and



lymphatic, cardiovascular, respiratory, digestive, and endocrine systems. Emphasis is on learning the generic and brand names, therapeutic class, dosage forms, and appropriate patient information labels for prescriptions.

### **Course Outcomes**

1. Look up information for weekly assigned drugs.
2. Identify required drug information.
3. Complete drug chart information for assigned drugs.
4. Check information on drug chart against the master drug charts.
5. Identify therapeutic class of drugs.
6. Identify the uses of drugs.
7. Identify proper patient warning information labels of drugs.
8. Identify manufactured dosage forms of drugs.
9. Document pregnancy category with 100% accuracy.
10. Document and correctly spell brand versus generic drug names studied to 100%.
11. Perform matching game activities.
12. Make flashcards or other study tools for weekly assigned drugs.
13. Chant accurate pronunciations of brand and generic drug names assigned.

### **PHAR 104 - Pharmacology II**

#### *5 Credits*

Students continue to learn the basic mechanisms of drug action and routes of administration. Emphasis is on learning the uses, effects, and side effects of the major classes of drugs affecting the special senses, urinary, male and female reproductive, obstetrics, child health, oncology, and mental health systems.

### **Course Outcomes**

1. Select the appropriate storage and handling conditions for different pharmaceutical preparations.
2. Explain common drugs and medical devices used to treat disease conditions discussed in class.
3. Identify whether a given product is by prescription or is available OTC.

4. Describe the dispensing requirements for REMS drugs.
5. Recognize error-prone drugs and unusual directions in pharmacy practice to prevent common dispensing mistakes.
6. Develop and integrate course knowledge into community, hospital and LTC pharmacy practice settings.
7. Demonstrate the ability to work as a pharmacy technician from data processing to final dispensing within the work flow plan.

### **PHAR 105 - Outpatient Pharmacy Preparations & Record Keeping I**

#### *5 Credits*

This course provides students instruction and performs practical application prescription order entry, counting, packaging, stocking, and labeling of pharmaceutical preparations using proper equipment and techniques. Students will be guided and perform hands-on methods in patient profile, inventory ordering, and Point-of-Sale applications, including standard operational pharmacy protocols. Additionally, students will learn and perform pharmacy calculations in a community pharmacy through the use of a standard calculator such as fractions, decimals, strengths, roman numerals, days' supply (how long will a prescription last once filled), ratio and proportions. Emphasis covered is on metrics, and apothecary applications, symbols, specific gravity, NDC numbers, and other specialized operational pharmacy calculations.

### **Course Outcomes**

1. Demonstrate interpretation of the legal parameters (requirements) of a Pharmacy Assistant working in a community pharmacy.
2. Knowledge of the element parts of a prescription, medication package inserts and legal requirements.
3. Demonstrate counting, filling and/or mixing with 100% accuracy.
4. Demonstrate and understand the difference in auxiliary labels.
5. Knowledge and describe various types of inventory management PAR levels and record keeping.
6. Knowledge and perform pharmacy calculations as practiced in the community pharmacy.

7. Navigate through pharmacy-like software to enter prescription orders, adding patient profiles, drugs ordered, prescriber information, and insurance plans.

### **PHAR 106 - Outpatient Pharmacy Preparations & Record Keeping II**

#### *4 Credits*

This course continues to provide instruction and experience in the compounding, counting, packaging, stocking, and labeling of pharmaceutical preparations using proper equipment and techniques. Students are provided with instruction and practical methods in patient profile applications, third party billing, and filing requirements including special requirements for scheduled drugs. Emphasis is given to increasing speed and accuracy in filling pharmaceutical preparations.

#### **Course Outcomes**

1. Demonstrate familiarity with Retail/Community, including outpatient environments.
2. Interpret written prescriptions.
3. Enter prescriptions, fill and produce through the patient profile information to 100% accuracy .
4. Differentiate between RX prescription vs. OTC.
5. List different medical supplies, equipment and medications processed through Medicare B and D or OTC.
6. Describe various OTC products and DSHEA Act that may be not require prescriptions.

### **PHAR 107 - IV Admixture Advanced Techniques**

#### *3 Credits*

Students apply advanced preparation techniques in mixing chemotherapy products. Emphasis is on the risks and precautions, and Safety Standards associated with these agents.

#### **Course Outcomes**

1. Define Chemotherapy and understand the importance of mastering the special handling of these agents.
2. Identify the risks associated with handling and preparing chemotherapy agents.
3. Identify and correctly use personal protective equipment for chemotherapy preparation.

4. Demonstrate precaution that should be taken when preparing, handling and disposing of chemotherapy agents to reduce exposure.
5. Stimulate mixing chemotherapy agents safely, accurately and aseptically.
6. Define Total Parenteral Nutrition and understand its use under USP <797> and USP <800>.
7. Understand TPN orders and be able to interpret them under USP <797> and USP <800>.
8. Stimulate mixing TPN's accurately and aseptically under USP <797> and USP <800>.

### **PHAR 108 - Inpatient & Home Healthcare Pharmacy Preparation and Record Keeping**

#### *8 Credits*

In this course, students will gain advanced knowledge, instruction, and perform duties for Long/Short-Term Care, Inpatient Hospital, and IV preparation. Students learn and demonstrate the basic aseptic techniques for CSPs as well as the safety standards under USP 797. Also, students will practice unit-dose drug distribution, compounding, packaging, labeling, floor stock, and pharmacy inventory PAR levels, and inventory ordering and how it applies to record-keeping in LTC, Hospital, and IV. Students will learn and understand the various inpatient pharmacy settings, the emergency department (includes Med-Recon), emergency medications, the use of home infusion administration devices. Additionally, students will learn and perform pharmacy calculations used in LTC, Hospital, and IV pharmacies through the use of a standard calculator. Special pharmacy calculations are the use of fractions, decimals, percent solutions, percent strength, roman numerals, ratio proportions, metric and apothecary applications and symbols, specific gravity, v/v, w/v, w/w, size and types of containers, flow rate, allegation method, NDC numbers, and other specialized pharmacy calculations associated to the practice of hospital pharmacies are covered.

#### **Course Outcomes**

1. Demonstrate and apply aseptic techniques under USP 797 and non-sterile compounding.
2. Utilize Total Parenteral Nutrition solutions and other IV orders.
3. Demonstrate knowledge learned from LTC and Hospital Inpatient orders and inventory.

4. Assist pharmacists in collecting, organizing, and recording demographic and clinical information for direct patient care and medication-use review.
5. Prepare non-patient-specific medications for distribution (e.g., batch, stock medications).
6. Distribute medications in a manner that follows specified procedures with different facilities.
7. Practice effective infection control procedures, including preventing transmission of blood-borne and airborne diseases and complete CPNW modules.
8. Assist pharmacists in preparing, storing, and distributing medication products requiring special handling and documentation [(e.g., controlled substances, immunizations, chemotherapy, investigational drugs, drugs with mandated Risk Evaluation and Mitigation Strategies (REMS) if any.]
9. Assist pharmacists in identifying and describing the monitoring of medication therapies.
10. Prepare patient-specific medications for distribution.
11. Maintain pharmacy facilities and equipment, including automated dispensing equipment.
12. Use material safety data sheets (SDS) to identify, handle, and safely dispose of hazardous materials.
13. Procurement, Billing, Reimbursement and Inventory Management.
14. Apply accepted procedures in purchasing pharmaceuticals, devices, and supplies.
15. Apply standard procedures in inventory control of medications, equipment, and devices.
16. Explain pharmacy reimbursement plans for covering pharmacy services and credits.
17. Apply patient- and medication-safety practices in all aspects of the pharmacy technician's roles.
18. Verify measurements, preparation, and/or packaging of medications produced by other healthcare professionals (e.g., tech-check-tech).
19. Explain pharmacists' roles when they are responding to emergencies and how pharmacy technicians can assist pharmacists.
20. Demonstrate skills required for effective emergency preparedness and crash carts.
21. Assist pharmacists in medication reconciliation.
22. Describe the use of current technology and informatics in the healthcare environment to ensure the safety and accuracy of medication dispensing.
23. Compare and contrast the roles of pharmacists and pharmacy technicians in ensuring pharmacy department compliance with professional standards, regulatory rules, TJC, and relevant legal, regulatory, formulary, contractual, and safety requirements.
24. Maintain confidentiality of patient information.
25. Apply quality assurance practices to pharmaceuticals, durable, and non-durable medical equipment, devices, and supplies.
26. Explain procedures and communication channels to use in the event of a product recall or shortage, a medication error, or identification of another problem.

## **PHAR 109 - Top 200 Drugs II**

### *3 Credits*

Students continue to learn the Top 200 most commonly prescribed drugs in the United States related to the special senses, urinary, male and female reproductive, obstetrics, child health, oncology, and mental health systems. Emphasis is on learning the generic and brand names, therapeutic class, dosage forms, and appropriate patient information labels for prescriptions.

### **Course Outcomes**

1. Look up information for weekly assigned drugs.
2. Identify required drug information for weekly assigned drugs.
3. Complete drug chart information for assigned drugs.
4. Identify therapeutic class of drugs.
5. Identify the uses of drugs.
6. Identify proper patient warning information labels of drugs.
7. Identify and know manufactured dosage forms of drugs studied.
8. Document pregnancy category with 100% accuracy.

9. Document and correctly spell brand vs generic drug names studied to 100%.
10. Perform matching game activities.
11. Make flashcards or other study tools for weekly assigned drugs.
12. Chant accurate pronunciations of brand and generic drug names assigned.

### **PHAR 110 - Pharmacology I**

#### *5 Credits*

This course reviews the history of pharmacy and drug development. Students are introduced to the basic mechanisms of drug action and routes of administration. Students learn the uses, effects, and side effects of the major classes of drugs affecting the integumentary, skeletal, muscle and joints, nervous, blood and lymphatic, cardiovascular, respiratory, digestive, and endocrine systems.

#### **Course Outcomes**

1. Explain the practical use of pharmacology knowledge in the clinical settings.
2. Discuss various dosage forms used in drug chemistry.
3. Articulate various factors affecting drug absorption, action, metabolism, interaction, and elimination.
4. Select the appropriate storage and handling conditions for different pharmaceutical products.
5. Apply course materials to integrate insurance billings and drug therapeutics.
6. Identify a given pharmaceutical product that is by prescription or OTC.
7. Know the rules and regulations governing the restricted sales of certain OTC products.
8. Recognize inappropriate prescribing and signs of drug misuse.
9. Describe common vaccines administered through the pharmacy.
10. Articulate the technician's role and responsibility to ensure safe, accurate, and legitimate delivery of pharmaceutical care in retail, institutional, LTC, and home health care settings.

11. Pass the PTCB national certification exam prior to license application.

### **PHAR 130 - Medical Terminology/Anatomy and Physiology for Pharmacy Technicians I**

#### *3 Credits*

Students learn medical abbreviations and terminology. Students survey structure and function of the human body with emphasis on learning the major organs and processes related to cells. Nervous, blood, lymphatic, cardiovascular, respiratory, muscular-skeletal, and endocrine systems.

#### **Course Outcomes**

1. Explain the purpose of the medical terminology.
2. Define the terms, root, suffix and prefix of vocabulary covered in course.
3. Pronounce words according to the pronunciation guide used.
4. Define medical terms commonly used in the range of patient care settings.
5. Demonstrate knowledge of basic anatomy and physiology.
6. Explain therapeutic effects and adverse effects of prescription and nonprescription medications and alternative therapies used to treat diseases.
7. Identify brand and generic names of medications commonly used to treat conditions that typically affect the system and their usual dosage forms, route(s) of administration, and doses.
8. Identify the correct medical term for given abbreviations.
9. Explain the use and side effects of prescription and non-prescription medications, and alternative therapies (e.g., herbal products, dietary supplements, homeopathy, lifestyle modification) used to treat common disease states.

### **PHAR 131 - Pharmacy Law and References I**

#### *1 Credits*

Students examine legal terms, state, and federal laws as well as review references necessary to the practice of pharmacy.

### **PHAR 134 - Business Office Machines**

### *6 Credits*

Students learn to operate a computer keyboard with a number pad function, telephone, scanners, fax and computer accessories. Emphasis is to increase typing speed with at least 35wpm or more with accuracy required in all pharmacies. This course provides essential training in the application of computers in pharmacies, including the development of patient profiles, filling of prescriptions, order entry, and label preparation.

#### **Course Outcomes**

1. Demonstrate proficiency in English in written and oral communication skills with clarity using Standard English to the industry healthcare standards.
2. Take responsibility for learning using multiple resources to gather information to develop and improve communication skills.
3. Enter and retrieve with 100% accuracy, patient profiles, prescription, med orders, filling, and labeling information using the computer and pharmacy software.
4. Create a staffing scheduling chart and MedRec MAR.
5. Practice RX keyboarding to pick up speed and accuracy.
6. Compose emails, memos, and incident reports with 100% accuracy using proficient English that is clear and understandable to others.

### **PHAR 136 - Medical Terminology/Anatomy and Physiology for Pharmacy Technicians II**

#### *3 Credits*

Students continue to learn basic medical abbreviations and terminology. Students survey structure and function of the human body with emphasis on learning the major organs and processes related to the special senses, urinary, male and female reproductive, obstetrics, child health, oncology, and mental health systems.

#### **Course Outcomes**

1. Identify basic medical abbreviations and terminology.
2. Demonstrate an understanding of the structure and function of the human body.

3. Identify the major organs and processes related to the respiratory, digestive, urinary, endocrine, nervous, senses, skeletal, muscular and dermatologic systems.

### **PHAR 137 - Pharmacy Law and References II**

#### *2 Credits*

Students continue to examine legal terms, state, and federal laws as well as review references necessary to the practice of pharmacy.

#### **Course Outcomes**

1. Understand the pharmacy law and regulations regarding prescribers, controlled substances, drug preparation/distribution standards, and pharmacy licensing.
2. Describe the dispensing requirements for REMS drugs.
3. Explain the work flow from medication order entry to final dispensing process.
4. Describe the ambulatory and institutional pharmacy settings and their functions.
5. Delineate the roles and duties of technicians in pharmacy inventory management, billings and reimbursement.
6. Understand the role of the pharmacy technician in medication safety in the delivery of pharmaceutical care in retail, institutional, LTC, and home health care settings.

### **PHAR 180 - Leadership, Human Relations and Customer Service**

#### *5 Credits*

Students learn to communicate in English proficiently and effectively with customers such as physicians, nurses, and other medical specialists, including colleagues, and patients, both orally and in writing. Students learn to present a professional image in appearance and behavior according to the pharmacy technician and certification code of conduct, incorporated as the industry standards. Students will practice and demonstrate a mutual respect attitude when interacting and communicating orally and in writing in a diverse environment and with diverse personalities. Also, students will be trained to apply interpersonal skills as a lead, a human relations manager in the pharmacy. Such practices including negotiation skills, conflict resolution, disciplinary actions, and teamwork, which require the use of critical thinking, creativity, and innovative ways of solving

problems. Practice methods from a management point-of-view and professional e-mail. Students will learn how to interact with professionals from TJC, accreditation, executive management, the board of trustees, or government personnel.

### **PHAR 189 - Pharmacy Pre-Externship**

#### *1 Credits*

This externship provides additional skills to learn, training, and professional development experience in the field. Under the supervision of a pharmacist, you will perform duties as allowable by state and federal laws. You will also learn to manage the workflow of the pharmacy, inventory, and customer service, most importantly, patient safety first. At the completion and passing of this pre-externship, these skills will move you forward into the next quarter whereby you will advance as a pharmacy technician.

### **PHAR 190 - Pharmacy Practice-Internship I**

#### *8 Credits*

Students experience practical applications of their knowledge and skills by working five weeks in a retail pharmacy and five weeks in a hospital or other pharmacy settings that provide intravenous admixture training. Students learn job search skills as well as develop a resume for an entry-level position as a pharmacy technician.

### **PHAR 191 - Pharmacy Practice-Internship II**

#### *9 Credits*

This course is a continuation of PHAR 190, Pharmacy Practice-Internship I.

## **Philosophy**

### **PHIL 481 - Ethical Issues in Information Technology**

#### *5 Credits*

This course covers current legal issues in information technology such as: privacy, identity theft, copyright law, hacking, and fraud. An overview of related international laws and state and local regulations is also included. The students will study the difference between laws and ethics and examine ethical issues encountered in the business world to arrive to appropriate ethical choices.

**Prerequisite(s):** Acceptance into a BAS program, or permission of the instructor.

#### **Course Outcomes**

1. Understand the ethical implications of information and technology.

2. Identify and navigate real-world problems encountered in IT.
3. Acquire knowledge of the history of moral philosophy and the various schools of philosophizing.

### **PHIL& 101 - Introduction to Philosophy**

#### *5 Credits*

Presents well-known problems and concepts in philosophy and introduces students to some of the works of great philosophers. Students develop skills in critical thinking and analysis.

**General education distribution area: Humanities.**

#### **Course Outcomes**

1. Explain the ideas behind philosophy.
2. Articulate the main elements in the history of Western philosophy.
3. Demonstrate basic "philosophizing".

## **Phlebotomy**

### **PHLEB 101 - Fundamentals of Phlebotomy**

#### *6 Credits*

Students learn the role, responsibilities, work flow and safe practices required in a clinical laboratory. This intense program provides computer-based education along with lectures and hands-on interactive training needed to provide a high level of expertise. Students will demonstrate knowledge of the health care setting, legal and ethical issues, HIPAA regulations, safety precautions and preventions against BBP's related to phlebotomy practice. Students will apply medical terminology and anatomy and physiology in the healthcare setting. Students will choose appropriate blood collection tubes for tests, perform venipuncture procedures and assess for complications of phlebotomy for special procedures such as ABO, B/C, GTT and PKU. Students will prepare themselves for the workforce by modeling professional appearance, valuing diversity in the workplace and communicating effectively and professionally with patients and staff.

**Prerequisite(s):** Completion of CastleBranch requirements and successfully completed background check.

#### **Course Outcomes**

1. Fulfill the basic functions of a phlebotomist in a professional work environment.

## **PHLEB 102 - Phlebotomy Laboratory Skills**

### *4 Credits*

Students interpret laboratory requisitions, select proper tubes and order of draw, and demonstrate the ability to evaluate the patient for ability to withstand venipuncture procedure. Perform basic phlebotomy procedures, articulate the venipuncture procedure and answer patient questions. Perform point-of-care testing, such as glucose levels on patients, prepare blood, urine and other body fluids specimens for testing according to established protocol.

**Prerequisite(s):** Must be enrolled in PHLEB 101 to participate in Lab Skills Cohort, with no longer than one quarter between completion of PHLEB 101 and PHLEB 102.

### **Course Outcomes**

1. Correctly identify patients.
2. Demonstrate safety procedures in the phlebotomy lab setting.
3. Correctly and safely draw blood into proper tubes.

## **PHLEB 103 - Healthcare Provider First Aid/CPR, AED and Bloodborne Pathogens**

### *2 Credits*

This course covers one and two person, adult, child and infant CPR. Students practice caring for a person with foreign body airway obstruction (FBAO), personal barrier techniques and use of Automated External Defibrillator (AED). The course teaches to effectively recognize and treat in critical minutes until Emergency Medical Services (EMS) arrive. Topics include: general first aid principles, medical, injury and environmental emergencies, and Bloodborne pathogens. This course is approved by OSHA, WISHA (Labor and Industries) for healthcare providers. An AHA card will be issued upon the successful completion of a written exam and skills evaluation. In addition, the mandatory seven hours of HIV/AIDS education for healthcare providers is included.

### **Course Outcomes**

1. Pass the American Heart Association first aid exam at health care provider level.
2. Pass the American Heart Association CPR exam at health care provider level.

## **PHLEB 104 - National Exam Certification Prep**

### *1 Credits*

Students review the core concepts of the Phlebotomy Technician program. Emphasis is placed on preparation and strategies for success on the national certification exam.

### **Course Outcomes**

1. Pass the Certified Phlebotomy Technician National Exam.

## **PHLEB 191 - Phlebotomy Technician Practicum**

### *3 Credits*

Students will collect blood specimens from on campus clinical setting or off campus at a healthcare facility using various techniques such as, ETS, butterfly, syringe or capillary methods. Students will practice live-draws on a variety of patients.

**Prerequisite(s):** Completion of PHLEB 101 , PHLEB 102 , and PHLEB 103 or Castlebranch accepted CPR & First AID with a 2.0 or better and permission from the instructor, with no longer than one quarter between completion of PHLEB 101 and PHLEB 102.

### **Course Outcomes**

1. Apply safe phlebotomy skills in a professional clinical environment.
2. Communicate with diverse patients and co-workers in a clinical setting.
3. Manage patient needs in a professional manner.

## **Physics**

## **PHYS& 114 - General Physics I**

### *5 Credits*

Algebra-based physics for students majoring in technically oriented fields not requiring a calculus based physics course. This course provides an introduction to mechanics, kinematics, energy, and conservation principles. Computer interfaced laboratory investigations, technical writing, problem solving using both physical and mathematical reasoning strategies and the scientific method of inquiry skills will be emphasized.

**General education distribution area: Natural Science, with lab.**

**Prerequisite(s):** Completion of MATH& 141 with a 2.0 or higher.



## Course Outcomes

1. Demonstrate a thorough understanding at a non-majors-level of the basic principles of mechanics, dynamics, equilibrium, rotational motion, work, energy and momentum.
2. Develop a clear understanding of the scientific method and its application to these principles.
3. Apply quantitative measures to situations involving these principles and develop a strong facility for working problems based on these principles.
4. Analyze physical systems to decide what information and principles are relevant to understanding the behavior of the systems.
5. Clearly communicate fundamental knowledge particular to physics with their peers using appropriate vocabulary.
6. Use scientific methods, work in groups to study and analyze physical systems, apply quantitative measures to answer questions, and solve problems through experiments and hands-on activities.

## Plasterer Apprentice

### PLAST 100 - Journeyman Upgrade - OSHA 30

#### 3 Credits

OSHA 30-hour training for the construction industry teaches health and safety awareness, and helps workers reduce the risk of job-site hazards. This 30-hour training includes up-to-date OSHA standards and compliance requirements.

## Course Outcomes

1. Explain the importance of working safely.
2. Identify sources of safe work practices by OSHA standards.
3. State the responsibilities of employees according to OSHA.
4. Understand the employers responsibilities to the employees.
5. Recognize hazards on the job site and how to correct them.
6. Follow rules according to 1926 OSHA standard.

### PLAST 101 - Plasterer's Apprenticeship

#### 0 Credits

The Plasterers' Apprentice will learn the math, science and terminology related to the plastering trade. The apprentice will also learn basic plastering skills and techniques.

### PLAST 103 - Venetian Plaster

#### 1 Credits

Students learn application of Venetian plaster techniques.

## Political Science

### POLS 150 - Contemporary World Issues

#### 5 Credits

Topics will include currently relevant issues such as the rise of Islamic Fundamentalism and American defense policy, the debate between free market and socialist economic theories, globalization and the role of oil and energy technologies, the rise of China and its relations with other Asian countries and the U.S., the ongoing crises in Africa, nuclear proliferation and other weapons of mass destruction. Immigration and demographics will be covered. The role of the United Nations and international law are examined within the framework of evolving ideas about national sovereignty. This course will maintain some flexibility to prioritize emergent issues as the quarter develops.

**General education distribution area: Social Science.**

## Course Outcomes

1. Demonstrate a variety of academic skills: independent and critical reading, analytical essay writing, research and referencing, investigative reporting, public speaking, effective discussion, and debate.
2. Recognize and analyze issues of importance in the world today.
3. Utilize research techniques in order to discover information on the chosen topics.

### POLS& 202 - American Government

#### 5 Credits

This course explores the structure and dynamics of American national government. The course provides a broad-based introduction to the ideas and institutions that have shaped politics in the contemporary United States. Special areas of focus will include: the Constitution and the debates of the founding era, the institutions of modern American government, and the political behavior of the American mass public. The

course will draw inspirationally on documents from America's Revolutionary and Civil War periods as well as on key historical and contemporary Supreme Court opinions, Congressional laws, and Presidential policy papers. This course will also analyze how the dynamics of regional and global forces have impacted on domestic politics and American government, informing the shaping of its attitudes and policies to the rest of the world.

**General education distribution area: Social Science.**

### **Course Outcomes**

1. Demonstrate basic knowledge about the functions of government.
2. Utilize analytical skills to evaluate political arguments.

### **Professional Baking**

#### **BAK 101 - Ovens I**

##### *3 Credits*

It is essential for the baker to understand the 12 steps in the baking process. Students participate in proofing and baking a variety of products using this process. Discussion and practical exploration on the cause and effects of proper baking methodologies, temperature and times will be reviewed. This station covers safety procedures associated with operating a bakery proofbox and ovens.

### **Course Outcomes**

1. Operate all equipment and tools utilized in the baking process.
2. Demonstrate the twelve steps of the baking process.
3. Understand the proper operation of all equipment and tools utilized in the baking process.
4. Have knowledge and comprehension of the twelve steps of the baking process while practicing them in your daily production.

#### **BAK 102 - Ovens II**

##### *3 Credits*

In this advanced oven station the student has the opportunity to show progressive skill and understanding of the chemical and physical changes that occur to products in the baking process. The student is responsible for the management of the ovens, ensuring that there is space at the right temperature for the

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day's production.

### **Course Outcomes**

1. Identify daily production needs; communicate with stations to coordinate efficient bake off of product.
2. Develop advanced finishing techniques associated with breads, pastries, tarts, cookies and cakes.

#### **BAK 103 - Doughnuts**

##### *3 Credits*

Students develop skills needed to produce a variety of doughnuts: yeast-raised, soft dough, crullers and cake doughnuts. Fillings, glazes and toppings are produced and a variety of finishing techniques are used. Organization, timing, speed, safety and cleanliness are important factors on this station. Fryer safety and a cost analysis of doughnut production is a necessary component of this station.

### **Course Outcomes**

1. Operate the doughnut fryer according to the manufacturer's manual and RTC standards.
2. Use the glazer table to handle the glaze and icings according to industry and RTC standards.
3. Demonstrate different cutting techniques for yeast raised doughnuts.

#### **BAK 104 - Scaling**

##### *3 Credits*

Students have the opportunity to learn the baker's balance beam scale, dry measurements, and liquid measurements. Students are introduced to US and metric systems of measurement. Students begin to scale and learn the importance of *mise en place* which requires a great deal of care and accuracy. Students gain skills needed for simple mixing methods for yeast dough, various batters from mixes and the creaming method for muffin and quick breads.

### **Course Outcomes**

1. Demonstrate knowledge of balance scales, liquid and dry measurements to 100% accuracy.
2. Demonstrate knowledge of the metric system and ability to convert US standard units of measure to metric units and the reverse.

#### **BAK 105 - Mixing I**

### *3 Credits*

Many professional bakers consider mixing to be the most important step in the baking process. Although not overly complicated, it does require a great deal of care and accuracy. Mixing dough involves four distinct stages: scaling, ingredient incorporation, dough development and checking temperature after mixing.

#### **Course Outcomes**

1. Demonstrate knowledge and functions of ingredients used in production of yeast doughs, cookies and cakes.
2. Identify the effects of different mixing methods.

#### **BAK 106 - Mixing II**

### *3 Credits*

In this advanced mixing station students continue to utilize all forms of measurement. Students have the opportunity to plan and manage daily production based on retail needs and special orders; they prioritize their schedules to allow all stations involved enough time to complete their tasks.

#### **Course Outcomes**

1. Understand and demonstrate the use of sponges and preferments in yeast doughs.

#### **BAK 107 - Cookies**

### *3 Credits*

In this introductory station students prepare a variety of cookies. The student will learn the role of each ingredient, detail different mixing methods, and describe the 8 classifications of cookie types. Knowledge of these basic foundations of cookie making allows the student to produce consistent results, troubleshoot formulas and process and create new formulas.

#### **Course Outcomes**

1. Describe the functions of each ingredient in cookies.
2. Identify the effects of different mixing methods used to make cookies.

#### **BAK 108 - Pies and Tarts**

### *3 Credits*

Students have the opportunity to prepare and work with a variety of pie and short dough. Fruit, cream and chiffon filling preparations will be made. Students make up and produce a wide range and variety of traditional

and contemporary tarts and individual tartlets with appropriate finishes and garnishes. Students will have the opportunity to showcase natural and vibrant flavors of fruits and nuts as well as the sweetness and texture of cheeses and dairy products used to make creams and custards.

#### **Course Outcomes**

1. Prepare a variety of pies, tarts and fillings.

#### **BAK 109 - Pastries**

### *3 Credits*

Students have the opportunity to work with puff pastry, pate au choux and various short doughs. Pastry cream, Bavarian, mousses, curds, ganaches and whipped cream fillings are made to produce a variety of individual pastries that include: éclairs, napoleons, towers, meringue and macaroon pastries. The cutting, filling and final finishing are all important skills covered toward the final presentation of the product. Students continue to develop and use new vocabulary in regard to the industry and demonstrate knowledge about the different ingredients in a retail bakery. This station covers safety procedures associated with operating bakery operating bakery equipment as well as the practice of proper sanitation and food handling techniques in accordance with the King County standards.

#### **Course Outcomes**

1. Prepare and produce a variety of pastries according to RTC and industry standard.
2. Cook "Pate a Choux".
3. Demonstrate knowledge of ingredients and techniques used to produce pastries.
4. Demonstrate pastry bag handling with different mediums, accurate cutting techniques, measuring, retail presentation, good housekeeping, cleanliness, a variety of finishing techniques to RTC bakery standards.

#### **BAK 110 - Yeast Doughs I**

### *3 Credits*

Students have the opportunity to prepare yeast-raised dough for daily production. The 10 steps of the yeast dough process are followed as well as proper mixing methods for yeast dough. The student has the opportunity to learn the importance of organized bench work and the effects it has on the finished product. The relationship of time and temperature as it relates to

fermentation, bench handling, retardation, and proofing. Various forming and make-up and finishing techniques applied to yeast raised dough.

#### **Course Outcomes**

1. Demonstrate different ways to make up a variety of yeast breads and rolls, lean and rich.

#### **BAK 111 - Yeast Doughs II**

##### *3 Credits*

Students have the opportunity to prepare yeast-raised dough, for croissants, Danish pastries and various loaves. Students practice bench work, the make-up of advanced breads and the shaping of rolls. Learning to shape, twist, cut and fill the dough pieces properly are important parts of the art and craft of fine baking. Good housekeeping and organization are important to be able to produce good laminated dough and to roll or mechanically sheet the different doughs to a specific thickness and prepare a variety of saleable pastries.

#### **Course Outcomes**

1. Identify the twelve steps in the bread dough production according to the text.
2. Make up variety of yeast doughs, rich and lean, to include the make-up of doughs made with natural starters and preferment's.

#### **BAK 112 - Puff Pastries**

##### *3 Credits*

Students have the opportunity to work with puff pastry and other laminated doughs, developing the fine motor skills associated with their preparation from the initial enrobing to the finished baton. Laminated doughs require the advanced knowledge gained from the previous yeast dough station. Learning to work with this classic dough, the student has the opportunity to produce classic and contemporary pastries that play an integral part of fine baking. Good housekeeping and organization are important to be able to produce good laminated doughs, to roll or mechanically sheet these different doughs to a specific thickness, and to prepare a variety of saleable pastries. Students continue to develop and use new vocabulary in regard to the industry and demonstrate knowledge about the different ingredients used in a retail bakery. This station covers safety procedures associated with operating bakery equipment as well as the practice of proper sanitation and food handling techniques in accordance with King County standards.

#### **Course Outcomes**

1. Produce puff paste dough to industry standards.
2. Prepare a daily work schedule and demonstrate the ability to perform all assignments in a reasonable amount of time according to industry standards.
3. Manage daily stock of puff items, rotating pastry inventory to maintain established par.
4. Prepare fillings associated with stations production according to text and RTC formulas.
5. Demonstrate different make up techniques to industry standards according to text and RTC formulas.

#### **BAK 113 - Cakes I**

##### *3 Credits*

Students have the opportunity to learn how to split, fill and ice cakes in preparation for decorating, top icing techniques for cakes and cupcakes for retail. Students work with a variety of butter creams and decorating mediums and begin to practice the basics piping techniques. Being prepared with proper mise en place and having a solid understanding of all cake components and equipment functions are required for success in cake assembly.

#### **Course Outcomes**

1. Prepare a variety of cakes and cupcakes for decoration, properly split, fill and ice the layers using simple piping and decorating techniques.

#### **BAK 114 - Cakes II**

##### *3 Credits*

Students have the opportunity to learn more decorating techniques that include writing and figure piping. Demonstrations and hands-on practice include finishing of single layer cakes, advanced cupcakes, poured cakes and simple decorations on special order cakes for the RTC retail bakery. Students express their artistry, imagination and an eye for color combinations to produce a variety of flowers and writing techniques. Many different mediums are used including: rolled fondant, marzipan, and chocolate work. Experience and learning from others are extremely valuable in learning the subtle techniques that can make the difference between a good cake and a great cake.

#### **Course Outcomes**

1. Prepare a variety of cakes and cupcakes for decoration, properly split, fill and ice the layers using simple piping and decorating techniques.

### **BAK 115 - Artisan Bread I**

#### *3 Credits*

Students will have the prospect of learning the artisan bread industry basics. The art and science of traditional artisan baking will be demonstrated and reviewed. The opportunity to prepare a variety of hand-made breads using the time-honored production methods will be offered. Students will be exposed to breads such as; ciabatta, focaccia, pizza dough and baguettes. This station covers safety procedures associated with operating bakery equipment as well as the practice of proper sanitation and food handling techniques in accordance with King County Public Health Department standards.

#### **Course Outcomes**

1. Demonstrate proper scaling, forming and proofing of artisan breads and rolls.
2. Identify and complete the twelve steps in the bread baking process.

### **BAK 116 - Artisan Bread II**

#### *3 Credits*

Students will have the opportunity to build on their skills in preparing traditional artisan breads. The making of a sourdough culture, flat breads, and decorative bread shaping will be reviewed. The students will have the opportunity to produce a variety of preferments and naturally leavened dough will also be used to produce crusty artisan loaves.

#### **Course Outcomes**

1. Explain the different ways to use fermentation and how to control it to ensure consistent quality product in baking process.
2. Put into practice several retarding techniques.

### **BAK 117 - Bakery Operations I**

#### *3 Credits*

Through the RTC retail bakery venue the students have the opportunity to learn the importance of skills associated with a successful retail establishment. They practice customer service and product management skills that include appropriate positioning, placement, seasonal and tie in displays. Students have the opportunity to learn opening and closing duties associated with daily service and related storeroom

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duties. This station covers safety procedures associated with operating bakery equipment as well as the practice of proper sanitation and food handling techniques in accordance with King County Public Health Department standards.

#### **Course Outcomes**

1. Perform retail bakery operations.

### **BAK 118 - Bakery Operations II**

#### *3 Credits*

This course provides an opportunity to become student leaders in the bakery industry. Concentrating on the multi-tasking associated with running a bakery the student has the opportunity to gain knowledge in the development of production lists, delegating assigned tasks, time management associated with production, and is able to fill-in at stations as needed throughout the day. The student gains experience working with vendors and stations to ensure a smooth running facility. Students continue to develop and use new vocabulary in regard to the industry and demonstrate knowledge about the different ingredients used in a retail bakery. This station covers safety procedures associated with operating bakery equipment as well as the practice of proper sanitation and food handling techniques in accordance with King County Public Health Department standards.

#### **Course Outcomes**

1. Demonstrate leadership skills working effectively and cooperatively in multicultural groups and teams.
2. Demonstrate ability to handle customer complaints and comments, courteously and professionally.

### **BAK 119 - Cakes III**

#### *3 Credits*

The accumulation of skills in previous stations prepares the student for advanced specialty and wedding cakes. Students express their artistry, imagination and an eye for color combinations to produce a variety of flowers, writing techniques, figure piping, airbrushing and drawings. Many different mediums are used including: rolled fondant, marzipan, and tempered chocolate. Students continue to develop and use new vocabulary in regard to the industry and demonstrate knowledge about the different ingredients used in a retail bakery. This station covers safety procedures associated with operating bakery equipment as well as the practice of

proper sanitation and food handling techniques in accordance with the King County standards.

#### **Course Outcomes**

1. Take a cake order from a customer using the RTC order form.
2. Prepare a variety of specialty cakes.
3. Demonstrate skill in drawing, air brushing, figure piping and color mixing.
4. Prepare a wedding cake according to RTC and industry standards.
5. Create a variety of fruits or animals using marzipan as a decorative medium.
6. Demonstrate knowledge of how to "temper" chocolate according to the text and industry standards.

#### **BAK 120 - French Pastries**

##### *3 Credits*

Students have the opportunity to use a variety of techniques and methodologies learned in previous stations to produce classic and contemporary French pastries, petit fours and simple truffles. Students' attention to detail creates these fanciful individual pastries. Students continue to develop and use new vocabulary in regard to the industry and demonstrate knowledge about the different ingredients used in a retail bakery. This station covers safety procedures associated with operating bakery equipment as well as the practice of proper sanitation and food handling techniques in accordance with the King County standards.

#### **Course Outcomes**

1. Prepare a variety of small cakes and French pastries.
2. Prepare a variety of petit fours.
3. Prepare a variety of chocolates and candies.
4. Work with a variety of finishes, fondants, chocolate creams and butter creams.

#### **Property Maintenance**

##### **PROP 102 - Professionalism in Property Maintenance**

##### *1 Credits*

Students are introduced to the workplace expectations for property maintenance workers. Topics in the course include customer service and tenant relations, basic

budget considerations, and handling emergency situations in multi-residential housing units.

##### **PROP 104 - Basic Plumbing Repairs**

##### *3 Credits*

Repair toilets, sinks, faucets, hot water heaters, and drains, and use tools and materials safely including soldering.

##### **PROP 112 - Basic Electrical Repairs**

##### *6 Credits*

Learn electrical repair with an emphasis on apartment units. Read and interpret basic electrical meters and use tools and materials safely.

##### **PROP 122 - Painting and Drywall Repairs**

##### *6 Credits*

Practice painting techniques such as surface preparation, color schemes, and cleanup. Apply coatings in a safe and proper manner, practice basic drywall procedures and patching techniques.

##### **PROP 196 - Cooperative Work Experience (Optional)**

##### *2 Credits*

A cooperative work experience option may be available to qualified, approved students, allowing them to receive credit for work experience appropriate to their training. Through cooperative work experience, students have the opportunity to apply learned skills and gain actual on-the-job experience while completing their course of study.

#### **Psychology**

##### **PSYC& 100 - General Psychology**

##### *5 Credits*

General Psychology surveys the knowledge and methods of the discipline of psychology. Emphasis is placed upon application of psychological knowledge to daily situations, and upon accessing and assessing information from a variety of sources about behavior. Skills in scientific reasoning and critical thinking are developed during this course. Areas of psychology to be included are: research methods, neuroscience, human development, sensation, perception, consciousness, learning, memory, cognitive processes, intelligence, motivation, emotion, personality, psychological disorders, psychotherapy, stress and health, and social psychology. Basic computer and keyboarding skills strongly recommended.

#### **General education distribution area: Social Science.**

#### **Course Outcomes**

1. Demonstrate knowledge of the philosophical and historical foundations of psychology as an empirical science.
2. Demonstrate critical thinking skills in the evaluation of psychological research methods and findings.
3. Demonstrate an understanding of physiology as it relates to psychology and human behavior.
4. Discuss human memory as it relates to behavior, problem solving, human relations, and learning.
5. Identify the primary differences between the various theoretical schools of psychology. Describe the cause, symptomology, and course of treatment of the major psychopathologies as well as various therapeutic approaches.
6. Summarize the various aspects of character development.
7. Explain the ways in which cultural variations effect the perception of self and other.
8. Infer an increased appreciation of yourself and those around you.

### **PSYC& 200 - Lifespan Psychology**

#### *5 Credits*

This course covers the concepts of human life span development in psychology and research from the prenatal stage to end of life experiences. Life span development includes socio-emotional, cognitive, and physiological development. Included are the influences on human development by such factors as biology, life experiences, family, and culture. Each individual, although unique follows a process that is affected by primary caregivers, siblings, extended family, teachers, friends, partners, and events. Emphasis is on understanding human development and the influences of family and culture that includes ethnicity, beliefs, family structure, traditions, and gender.

**General education distribution area: Social Science.**

#### **Course Outcomes**

1. Demonstrate knowledge of the philosophical and historical foundations of human development.
2. Illustrate critical thinking skills in the evaluation of psychological research regarding lifespan

development as it pertains to cognitive, physical, emotional, and social skills.

3. Explain how life span development relates to psychology and human behavior.
4. Summarize basic theories of development as it relates to behavior, physiology, individuals, and families.
5. Demonstrate an understanding of how psychological principles are applicable to your personal and professional life.

### **Sociology**

#### **SOC& 101 - Introduction to Sociology**

#### *5 Credits*

Sociology is the study of human interaction. Students study modern society and the influences of culture, socialization, inequality and power. Topics include gender, class, race and ethnicity, conflict, and marriage and the family.

**General education distribution area: Social Science.**

#### **Course Outcomes**

1. Develop and use a sociological imagination to analyze the world from a sociological perspective.
2. Gain and demonstrate an understanding of basic sociological concepts, distinguish between sociological theories, and evaluate social problems to see how they apply to everyday life and pressing social issues in our rapidly changing world.
3. Demonstrate strengthened critical thinking and analytical skills through reading and writing, while integrating ideas and concepts from course materials (including textbook, articles, videos, and discussion boards).

### **Spanish**

#### **SPAN& 121 - Spanish I**

#### *5 Credits*

This is the first course of a series of classes that teaches the fundamentals of Spanish as a second language. While the course focuses on speaking and verbal comprehension, reading, writing and hispanic culture are also integral to the class.

**General education distribution area: Humanities.**

#### **Course Outcomes**



1. Identify the general topic and some basic information in both very familiar and everyday contexts by recognizing practiced or memorized words, phrases, and simple sentences in texts that are spoken or written.
2. Communicate in spontaneous spoken or written conversations on both very familiar and everyday topics, using a variety of practiced or memorized words, phrases, simple sentences, and questions.
3. Present information on both very familiar and everyday topics using a variety of practiced or memorized words, phrases, and simple sentences through spoken or written language.
4. Identify products and practices in different cultures to understand perspectives.
5. Interact at a survival level in some familiar, everyday contexts.

### **SPAN& 122 - Spanish II**

#### *5 Credits*

This is the second course of a series of classes that teaches the fundamentals of Spanish as a second language. While the course focuses on speaking and verbal comprehension, reading, writing and hispanic culture are also integral to the class.

**General education distribution area: Humanities.**

**Prerequisite(s):** Completion of SPAN& 121 with a 2.0 or higher, or placement by assessment.

### **SPAN& 123 - Spanish III**

#### *5 Credits*

This is the third course of a series of classes that teaches the fundamentals of Spanish as a second language. While the course focuses on speaking and verbal comprehension, reading, writing and hispanic culture are also integral to the class.

**General education distribution area: Humanities.**

**Prerequisite(s):** Completion of SPAN& 122 with a 2.0 or higher, or placement by assessment.

### **Surgical Technologist**

#### **SURG 101 - Surgical Techniques**

#### *5 Credits*

The purpose of this course is to introduce the principles and practice of Aseptic Technique, surgical instrumentation, the creation, maintenance and safety

related to the operating room. This course describes the economy of motion and supply use. The student will be introduced to physics, information technology, transferring, moving, handling and positioning the surgical patient. This course will also cover surgical skin prepping, draping, case planning, intra operative routines, and care of the surgical wound.

#### **SURG 102 - Healthcare Provider First Aid/CPR, AED and Bloodborne Pathogens**

#### *2 Credits*

This course covers one and two person, adult, child and infant CPR. Students practice caring for person with foreign body airway obstruction (FBAO), pocket mask, bag valve mask, personal barriers techniques and use of Automated External Defibrillator (AED). The course teaches to effectively recognize and treat in critical minutes until Emergency Medical Services (EMS) arrive. Topics include: general first aid principles, medical emergencies, injury, environmental emergencies, and bloodborne pathogens. This course is approved by OSHA, WISHA (Labor and Industries) for healthcare providers. An AHA card will be issued upon the successful completion of a written exam and skills evaluation. In addition, the mandatory seven hours of HIV/AIDS education for health care providers is included.

#### **SURG 103 - Operating Room Environment**

#### *3 Credits*

The purpose of this course is to introduce the principles of the health care facility, which includes the perioperative environment, facility department functions and health care administration. The student will become familiar with operating room design, team approach to the surgical patient, staffing roles and environmental hazards such as technical risks, chemical risks and musculoskeletal risks.

#### **Course Outcomes**

1. Compare and contrast the roles of team members in the operating room.
2. Discuss location of the surgical services within the healthcare facility.
3. Describe disasters or public health emergencies that impact public health.

#### **SURG 106 - Surgical Procedures I**

#### *3 Credits*

The student will gain practical knowledge of surgical specialties, indications/diagnoses, relevant anatomy,

terminology, patient preparation and possible complications. The student will also be introduced to relevant equipment, instrumentation, supplies and how to properly set up for procedures.

### **Course Outcomes**

1. INTRODUCTION TO SURGICAL PROCEDURES - Identify common abdominal incisions and exposures, layers, laparotomy instruments, set up, complications and laparotomy procedure.
2. OBSTETRICS - Identify procedures, indications, anatomy, patient preparation, possible complications, instruments, equipment, and set up.
3. GYNECOLOGY - Identify procedures, indications, anatomy, patient preparation, possible complications, instruments, equipment, and set up.
4. OPHTHALMOLOGY - Demonstrate knowledge of surgical procedures including indications, anatomy, physiology and pathophysiology. Discuss specific factors unique to each surgical procedure including supplies, equipment and instrumentation. Discuss pre-operative, intra operative and post-operative steps specific to each surgical procedure.
5. GENERAL SURGERY - Demonstrate knowledge of surgical procedures including indications, anatomy, physiology and pathophysiology. Discuss specific factors unique to each surgical procedure including supplies, equipment and instrumentation. Discuss pre-operative, intra operative and post-operative steps specific to each surgical procedure.
6. LAPAROSCOPIC/ENDOSCOPIC - Demonstrate knowledge of surgical procedures including indications, anatomy, physiology and pathophysiology. Discuss specific factors unique to each surgical procedure including supplies, equipment and instrumentation. Discuss pre-operative, intra operative and post-operative steps specific to each surgical procedure.

### **SURG 107 - Surgical Procedures II**

#### *13 Credits*

The student will gain a practical knowledge of surgical specialties, indications/diagnoses, relevant anatomy, terminology, patient preparation and possible complications. The student will also be introduced to

relevant equipment, instrumentation, supplies and how to properly set up for procedures.

### **Course Outcomes**

1. PLASTICS/RECONSTRUCTION - Demonstrate knowledge of surgical procedures including indications, anatomy, physiology and pathophysiology. Discuss specific factors unique to each surgical procedure including supplies, equipment and instrumentation. Discuss pre-operative, intra operative and post-operative steps specific to each surgical procedure.
2. ORAL MAXILLOFACIAL - Demonstrate knowledge of surgical procedures including indications, anatomy, physiology and pathophysiology. Discuss specific factors unique to each surgical procedure including supplies, equipment and instrumentation. Discuss pre-operative, intra operative and post-operative steps specific to each surgical procedure.
3. GENITOURINARY - Demonstrate knowledge of surgical procedures including indications, anatomy, physiology and pathophysiology. Discuss specific factors unique to each surgical procedure including supplies, equipment and instrumentation. Discuss pre-operative, intra operative and post-operative steps specific to each surgical procedure.
4. ENT - Demonstrate knowledge of surgical procedures including indications, anatomy, physiology and pathophysiology. Discuss specific factors unique to each surgical procedure including supplies, equipment and instrumentation. Discuss pre-operative, intra operative and post-operative steps specific to each surgical procedure.
5. CARDIOTHORACIC - Demonstrate knowledge of surgical procedures including indications, anatomy, physiology and pathophysiology. Discuss specific factors unique to each surgical procedure including supplies, equipment and instrumentation. Discuss pre-operative, intra operative and post-operative steps specific to each surgical procedure.
6. PERIPHERAL VASCULAR - Demonstrate knowledge of surgical procedures including indications, anatomy, physiology and pathophysiology. Discuss specific factors unique to each surgical procedure including supplies,

equipment and instrumentation. Discuss pre-operative, intra operative and post-operative steps specific to each surgical procedure.

7. **NEUROLOGY** - Demonstrate knowledge of surgical procedures including indications, anatomy, physiology and pathophysiology. Discuss specific factors unique to each surgical procedure including supplies, equipment and instrumentation. Discuss pre-operative, intra operative and post-operative steps specific to each surgical procedure.

### **SURG 109 - Skills Laboratory I**

#### *6 Credits*

This course is designed for students to learn and demonstrate their ability to correctly apply the principles and practices of surgical techniques. Laboratory experience is focused on the students developing a satisfactory level of performance of safety and aseptic technique to enter into the clinical setting. Students will learn the proper sequence of the surgical scrub, gowning and gloving, establishing and maintaining a sterile field, draping materials, needles, sutures, basic instrumentation and transporting patients. Students will also learn to function in the first scrub role.

#### **Course Outcomes**

1. Create sterile field and open sterile packages onto sterile field. Wrap sterile packages using envelope wrap and peel pouches with appropriate sealing methods.
2. Demonstrate the steps of a hand wash. Identify the preliminary preparations for the surgical scrub. Demonstrate the steps of the surgical scrub. Employ sterile technique during the surgical scrub.
3. Create a sterile field and set up the back table and Mayo stand without instruments per standard RTC setup. Practice roles of the surgical technologist, circulator and surgeon.
4. Set up sterile field with instruments per RTC standard setup.
5. Set up, count and set up Mayo stand with basic instruments. Apply knowledge of basic surgical instrumentation to specific surgical procedures.
6. Set up back table adding suture, including counts, setting up Mayo stand. Practice passing

instruments at the field to include suture per community practice.

7. Perform basic position, prep and draping positions for various types of surgical procedures.
8. Identify preoperative procedures to include standard identification of the patient, validation of consent, NPO status, and others per list. Transport patient on stretcher, transfer to OR table and back to stretcher utilizing lift sheet, backboard, and roller board.
9. Apply acquired skills to General, Laparoscopic, and OBGYN in both the scrub and circulator role as described and/or demonstrated by the instructor.

### **SURG 112 - Professional Preparation I**

#### *1 Credits*

Students participate in Part I of the Certification Exam Review, including lecture, worksheets and graded practice quizzes.

#### **Course Outcomes**

1. Recall prior program course information in preparation for the Certified Surgical Technologist Exam.

### **SURG 113 - Professional Preparation II**

#### *1 Credits*

Students participate in Part II of Certification Exam Review, including lecture, worksheets, graded practice quizzes and a final exam. A two-day review session before the Certification Exam is also included.

#### **Course Outcomes**

1. Recall prior program course information in preparation for the Certified Surgical Technologist Exam.

### **SURG 115 - Skills Laboratory II**

#### *5 Credits*

Students participate in all basic activities involved in the use of the lab including case preparation, scrubbing, gowning and gloving, preparation of the sterile field, basic instrumentation, sharps safety and procedural processes involved in scrubbing advanced surgical specialties.

#### **Course Outcomes**

1. Demonstrate and practice acquired skills in both the scrub and circulator role in the mock operating room.
2. Perform selected procedures of Genitourinary, ENT, Neurology, Peripheral Vascular, Thoracic Pulmonary, Cardiac and Orthopedics.
3. Perform the roles and duties of various operating room team members during the surgical procedures.

### **SURG 130 - Medical Terminology**

#### *3 Credits*

This course offers an opportunity to learn and apply basic and advanced medical terminology with particular relevance to the operating room. The course introduces the learner to the structure of medical language, word building skills and deconstructive analysis of medical terms. The course describes the body systems including relevant procedure tests and diagnostic terms in medical language. Students are asked to develop rationale and to use medical terminology routinely in the classroom. The course reinforces commonly used acronyms and abbreviations that will be part of the daily language within their profession.

#### **Course Outcomes**

1. Recall the rules that apply in the building of medical terms and how prefixes, suffixes, and combining forms are used.
2. Discuss medical terminology relating to body structure, cells and organs.

### **SURG 131 - Microbiology**

#### *3 Credits*

In this course the learner will correlate the impact of microbiology in relationship to the practice of sterile technique and infection control in the operative setting in regards to decontamination, sterilization and disinfection. The learner will identify the name and function of various parts of the compound microscope. The learner will also compare and contrast the structure and characteristics of different microorganisms. The student will analyze the various immune responses that occur in the body as defenses and relate the infectious process to surgical practice.

#### **Course Outcomes**

1. Correlate the impact of microbiology in relationship to the practice of sterile technique and infection control in the operative setting.

2. Identify the name and function of various parts of the compound microscope.
3. Compare and contrast the structure and characteristics of different microorganisms.
4. Analyze the various immune responses that occur in the body as defenses against invasion by pathogens.
5. Relate the infectious process to surgical practice.

### **SURG 132 - Pharmacology**

#### *3 Credits*

The learner will analyze the principles of anesthesia administration. Students will compare and contrast method agents and techniques of anesthesia administration, and preparation. In addition the students will calculate medications, conversions and dosages, to prepare and manage medications for the surgical patient.

### **SURG 170 - Communications**

#### *4 Credits*

The learner will participate in online and class discussions of communication techniques including written, verbal, and nonverbal communications. They will also demonstrate the understanding of communications with diverse populations and cultures during emergent and stressful situations unique to health care. Preparation of resumes, cover letters, references, professional email and job interview skills will be covered.

#### **Course Outcomes**

1. Acquire the skills necessary to complete a successful job search in the field of surgical technology. Including all job opportunities for the surgical technologist.
2. Compare and contrast the different types of employment correspondence including job search, employment, and resignation components.
3. Discuss and practice interview skills, preparation and what to expect in the interview. Including self-evaluation and development of personal behaviors that lead to responsible, accountable, positive personality qualities expected of the surgical technologist.

4. Identify skills required for the job market and prepare a resume, using instructor and peer feedback.

### **SURG 180 - Human Relations**

#### *3 Credits*

This is a professionalism class involving students in the basic aspects of professional management, risk management, communication skills, teamwork, legal, ethical and moral issues. The student will also learn about documentation and health care facility organization and management. Skills specific to the surgical technology profession are emphasized.

#### **Course Outcomes**

1. Discuss the basic physical and biological needs required to sustain life.
2. Compare and contrast various spiritual and cultural needs of the surgical patient.
3. Demonstrate appropriate behavior in response to the needs manifested by the surgical patient.
4. Analyze and describe the potential psychological needs of the surgical patient and family.
5. Describe potential sources of anxiety and fears of the surgical patient.
6. Evaluate attitudes, beliefs and classifications regarding death and dying.
7. Compare and contrast responses to the process of death and various coping strategies and mechanisms.
8. Debate quality of life and quantity of life.
9. Identify and discuss the specific needs of the special populations.
10. Describe, compare, and contrast characteristics, professional organization and credentialing regarding the profession of surgical technology.
11. Discuss, evaluate and develop employability skills within the profession of Surgical Technology.
12. Trace the steps that are implemented when a patient death occurs in the operating room.

### **SURG 194 - Operating Room Clinical Practicum I**

#### *11 Credits*

The learner will gain practical experience in an operating room, surgery center or other surgery based

clinical experience. The student will demonstrate clinical skills, work ethic and desirable employee traits.

#### **Course Outcomes**

1. Demonstrate the ability to perform the duties of the Surgical Technologist in the perioperative setting, to industry and CAAHEP standards.
2. Demonstrate the desirable work force skills, including attendance, punctuality, teamwork and flexibility, to industry standards.
3. Improve performance and skills in the scrub role through repetition, continuing to move to more complex surgical procedures, advancing toward the skills of an entry level Surgical Technologist, to industry and CAAHEP standards.
4. Perform the scrub role during surgical procedures of selected surgical specialties, under the supervision of a qualified preceptor, to industry and CAAHEP standards.

### **SURG 195 - Operating Room Clinical Practicum II**

#### *5 Credits*

The learner will gain practical experience in an operating room, surgery center or other surgery based clinical experience. The student will demonstrate clinical skills, work ethic and desirable employee traits.

#### **Course Outcomes**

1. Demonstrate the ability to perform the duties of the Surgical Technologist in the perioperative setting, to industry and CAAHEP standards.
2. Demonstrate the desirable work force skills, including attendance, punctuality, teamwork and flexibility, to industry standards.
3. Improve performance and skills in the scrub role through repetition, continuing to move to more complex surgical procedures, advancing toward the skills of an entry level Surgical Technologist, to industry and CAAHEP standards.
4. Perform the scrub role during surgical procedures of selected surgical specialties, under the supervision of a qualified preceptor, to industry and CAAHEP standards.

### **Surveying**

#### **SUR 101 - Control Surveying**

#### *4 Credits*

This course introduces maps, field survey measurement and mathematical concepts. Students learn theory of surveying calculations and errors in measurements with emphasis on horizontal and vertical controls.

### **SUR 102 - Topographic Surveying**

#### *4 Credits*

A continuation of SUR 101, this course is an introduction to the concepts of gathering and compiling topographic survey data, and the and their presentation using GIS, CAD, and paper.

#### **Course Outcomes**

1. Identify common survey control points and interpret their recovery notes
2. Develop contours from point elevations, land features and break lines.
3. Make measurements for an annotated, scaled planimetric and topographic drawing.
4. Gather and reduce written and electronic field notes in the course of a topographic survey.
5. Upload control and download data from survey controllers, and produce a model space drawing therefrom.
6. Properly locate and describe utilities over, on and under the ground.

### **SUR 103 - Construction Surveying**

#### *4 Credits*

Students learn the theory of route and construction staking and boundary staking using traditional and modern techniques. This course introduces field staking techniques and reporting and includes lot corner staking, pipeline, route and slope staking, building and site staking, and blue-topping. Students use tapes, total stations, data collectors, and GNSS to achieve their goals.

#### **Course Outcomes**

1. Demonstrate construction and boundary staking using traditional and modern techniques.
2. Utilize related tools and equipment to achieve your goals

### **SUR 145 - Public Land System I**

#### *3 Credits*

This course covers the historical methods and  
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framework of the American systems of land division, with an emphasis on the Public Land System.

#### **Course Outcomes**

1. Understand and describe the procedures used in the surveys of the Public Land System in the Western United States.
2. Describe the concepts for the restoration of lost and obliterated corners.
3. Create monument recovery notes for Public Lands corners, control points and other monuments.
4. Describe systematically the methods of defining locations using the terminology of the Public Land System.

### **SUR 150 - CAD for Surveying I**

#### *4 Credits*

This course introduces students to the AutoCAD software for the drawing and editing of figures, text, blocks, paperspace, and plotting. It also introduces Autodesk Civil 3D for the preparation of simple surveying drawings and data collector interface.

#### **Course Outcomes**

1. Open Autocad and start a drawing from a standard template of choice.
2. Demonstrate use thirty common CAD drawing and editing commands
3. Demonstrate knowledge of concepts such as layers, symbols and hatching.
4. Create and prepare correctly scaled paper plots of layouts in CAD.
5. Make Use of text-based PC survey software if it is available.

### **SUR 164 - Field Survey Calculations**

#### *4 Credits*

Students learn the practical application of mathematical theory to the solution of grades, horizontal and vertical curves, coordinate geometry, intersection problems, volumes, and the practical use of complex numbers.

#### **Course Outcomes**

1. Create coordinates for plats, including bearings, distances and curves, using coordinate geometry

2. Describe and calculate the several elements of horizontal and circular curves as found in transportation design drawings.
3. Calculate the coordinate solutions of Intersection problems (bearing-bearing, etc.) and describe the resolution of double solutions, if any.
4. Calculate the grade elevations of standard and unsymmetrical vertical curves as found in transportation design drawings.
5. Describe and calculate the basic elements of Spiral Curves as found in transportation design drawings.
6. Compute areas of land in two dimensional space to statistically appropriate precisions using double area and other standard geometric formulas.
7. Compute volumes of material in three dimensional space to statistically appropriate precisions using average end area and other standard geometric formulas.
8. Compute conformal transformation (scale, rotate & translate) using trigonometry and matrix formulas.

#### **SUR 174 - Office Computer Applications**

##### *2 Credits*

An introduction to microcomputers, word processing spreadsheets, utilities, and the Internet, providing a basis for the Communications course as well as the reporting and presentation of information required throughout the rest of the program.

#### **SUR 175 - Communications**

##### *3 Credits*

Emphasis is on written forms in the Land Surveying profession. Students research and gather data and complete projects in resume writing, business letters and technical reports. Students gain proficiency in English usage as it pertains to professional communications and appropriate presentation of information and concepts.

#### **Course Outcomes**

1. Create or Update a resume suited for a surveying professional job.
2. Write a business letter, using proper business standards.

3. Outline a small research project and write and edit drafts of a short paper.
4. Properly document sources used in a research paper.
5. Prepare and present a slideshow and/or video presentation using Power Point or similar utility.

#### **SUR 181 - Human Relations**

##### *2 Credits*

Students cover teamwork and conflict resolution techniques. They study methods to recognize and effectively deal with discrimination and sexual harassment, and the associated legal considerations in the workplace. They study practical cooperation techniques needed for effective field work and quality assurance.

#### **SUR 205 - Survey Adjustments**

##### *3 Credits*

This course covers the concepts of random error theory and adjustment algorithms, the mathematical application of simple error propagation formulas and compass rule adjustments. The course uses computer applications to perform least squares adjustments of survey networks and interpret the results.

#### **Course Outcomes**

1. Recognize and assess random errors with respect to standard tolerances.
2. Explain standards and specifications' application to various surveys.
3. Apply the Compass rule and describe the purposes of Transit and Crandall rules.
4. Explain and describe conformal and best fit transformations and localizations.
5. How to use and apply Least Squares in survey adjustments using profession's software.

#### **SUR 235 - Boundary Law**

##### *4 Credits*

This course is an overview of the legal aspects of surveying and the responsibilities of the surveyor. Topics include excesses and deficiencies, occupation vs. title, encroachments, records of survey, ALTA surveys, boundary law, water boundaries, monuments, streets and easements.

#### **Course Outcomes**



1. Identify and describe the principle statutes governing boundary surveying in the state of Washington.
2. Describe how boundaries are created and retraced
3. Identify the principles of ownership, transfer, and descriptions of real property
4. Determine the boundaries of sequentially versus simultaneously created titles.
5. Describe the essential elements in the law of adverse possession and easements by prescription
6. Describe the principles of locating boundaries of seabed, lakebed, riverbed ownerships and water rights.

#### **SUR 242 - Legal Descriptions**

##### *4 Credits*

This course covers the analysis, interpretation and writing of legal descriptions, proper form, controlling elements, metes and bounds, sectionalized land descriptions, special shapes, easements and rights-of-way.

##### **Course Outcomes**

1. Define the several different types of legal land Descriptions
2. Identify the controlling elements in a Legal Description
3. Compose simple Metes and Bounds and other types of Descriptions
4. Make correct reference to angles and the Basis of Bearings in interpreting and writing descriptions.
5. Describe lands with water boundaries and 3-dimensional spatial shapes.

#### **SUR 245 - Public Land System II**

##### *5 Credits*

This course covers the historical methods and framework of the American systems of land division, with an emphasis on the Public Land System. The topics covered include monumentation, area computation, section retracement, corner restoration and subdivision of sections.

##### **Course Outcomes**

1. Read and explain the elements of GLO Cadastral plats.
2. Determine whether a corner is existent, obliterated, or lost.
3. Correctly calculate the restoration of lost corners.
4. Calculate the breakdown of regular and lotted sections.
5. Recount the major events in the history of the PLSS, including Manuals and times when methods and technologies were used, including fraud and inadequate methods.

#### **SUR 247 - Emerging Technologies**

##### *3 Credits*

This course provides an overview of the toolkit of technologies used for the gathering and management of spatial information, whose open-ended list includes but is not limited to terrestrial and mobile scanning, machine-control, underground detection, aerial lidar, and satellite imaging, with special emphasis on modern photogrammetry.

##### **Course Outcomes**

1. Describe major new measurement technologies since EDM
2. Work with Point Cloud data in Autodesk environment.
3. Demonstrate knowledge of computations related to perspective projections used in photogrammetry and related fields.
4. Describe three-dimensional transformations such as the Helmert adjustment and their application to surveying and mapping.
5. Use judgment to determine the best technologies for survey projects based on data quality, map scale, customer specifications, and field conditions.

#### **SUR 248 - Introduction to Geographic Information Systems**

##### *3 Credits*

This course provides an introduction to the concepts and uses of Geographic Information Systems for Land Surveyors. Students are familiarized with the science and technology of GIS. Students consider the unique role of surveyors in the creation and maintenance of GIS's. They are given hands-on laboratory introduction

to the use of leading GIS software.

### **Course Outcomes**

1. Demonstrate an understanding of GIS theory and data quality.
2. Find and access a variety of existing and published GIS data from online sources.
3. Identify raster, vector, and attribute data.
4. Load small sets of data from canned and raw sources into a GIS in a standard software platform.
5. Define basic 1 & 2 dimensional topologies and make analysis and query GIS data.
6. Identify the distinctive role of the surveyor in GIS and opportunities for service.

### **SUR 249 - Survey Research and Project Planning**

#### *3 Credits*

Students learn to do research at county, state and federal offices, title companies, and private sources for boundary, control and utilities. Several field trips provide exposure and opportunities to do individual research and plan survey projects.

### **Course Outcomes**

1. Identify real property and its attributes from tax maps and other cadastral indices.
2. Locate publicly recorded documents and maps, including those that are not on-line.
3. Explain the importance of unrecorded and parcel survey data and how to obtain it.
4. Obtain complete BLM plats and notes in preparation for a survey.
5. Obtain boundary, geodetic, and engineering data from a variety of sources.
6. Compile and correlate survey data in a drawing in preparation for field work.
7. Report on findings in a professional manner.

### **SUR 251 - Advanced Computer Applications**

#### *5 Credits*

This course is a continuation of SUR 150 CAD for Surveying I, with further applications of Autodesk Civil 3D or other popular packages. Labs include productivity training and preparation of finished drawings, with an emphasis on survey documents, topographic reduction,

and route layout.

### **Course Outcomes**

1. Make use of intermediate features--XREFs, raster images, paper space and plot styles and annotative text.
2. Download field data collection files and process point and line codes.
3. Create Survey boundary drawing with survey solution from legal description.
4. Create surfaces using points, break lines & other input features & calculate volumes.
5. Create topo survey map, semi-final draft.
6. Lay out a road corridor with alignment, profile, and cross-sections.
7. Layout Lots in a subdivision on an existing site.
8. Organize drawing features according to standard drawing templates.

### **SUR 255 - Global Navigation Satellite Systems**

#### *3 Credits*

This course is an overview of the Global Navigation Satellite Systems (GNSS) with emphasis on the Global Positioning System (GPS) and their principles as applied to land surveying for centimeter accuracy measurement: position and vector observations, project planning, network design static and kinematic techniques.

### **Course Outcomes**

1. Explain GNSS uses in surveying and history.
2. Demonstrate an understanding to dynamic techniques including Network GNSS.
3. Differentiate between precise positioning and standard positioning.
4. Use the datum.
5. Plan a GNSS survey.
6. Create static measurements and quality assurance.
7. Utilize industry software for processing.
8. Acquire elevations.

### **SUR 256 - Land Development**

### *3 Credits*

This course covers the many aspects of land development from legal requirements, urban planning, zoning, project planning and subdivision geometry to the engineering design of grading, drainage, streets and earthwork.

#### **Course Outcomes**

1. Describe the major steps of a land development process and critical aspects of the laws governing land development.
2. Apply design standards for the correct geometric design of subdivisions.
3. Describe the environmental considerations and regulations that apply to land development.
4. Explain the legal exemptions from subdivision application requirements.
5. Draw and show the required elements of a preliminary plat or other project.

#### **SUR 257 - Geodetic Surveying**

### *4 Credits*

Geodetic Surveying relates surveying principles to the spheroidal earth. Students are exposed to slope distance reductions, ellipsoids and datums, two-dimensional coordinate transformations. Labs are related to GNSS survey data and triangulation data. Students are instructed in the use of State Plane Coordinates and Least Squares Adjustments. Spherical trigonometry is applied to the use of Astronomic observations.

#### **Course Outcomes**

1. Make EDM Slope reductions over geodetically significant ranges.
2. Relate the ellipsoid to the geoid and make correct elevation conversions.
3. Describe the purposes and uses of several map projections.
4. Use State Plane coordinates, local, and geographic coordinates interchangeably.
5. Relate spherical trigonometry principles to surveying on the ground.
6. Describe the concepts of geodesy and datums at the level to pass licensing exams.

#### **SUR 281 - Business Fundamentals and Ethics**

### *2 Credits*

This course covers basic accounting, project accounting, estimating, contract basics, licensing requirements, small business management, customer relations, marketing, professional organizations and professional ethics.

#### **Course Outcomes**

1. Estimate project pricing using chargeout rates.
2. Define the major elements of a work order contract on both private industry model and public agency model.
3. Describe the purposes and roles of several professional organizations.
4. Demonstrate an understanding of professional ethics to be able to respond to case studies for major industry issues.
5. Demonstrate understanding of employer and employee relationships and employee rights.

#### **Surveying - Supplemental**

#### **SURS 110 - Basic Surveying I**

### *4 Credits*

Learn basic surveying principles: distance measurement, leveling, datums, angles and directions, right angle trigonometric functions, total stations, traversing, and traverse calculations. Calculator with trigonometric functions required. Field lab time is included.

#### **Teaching & Learning**

#### **EDUC 170 - Technology for Teaching and Learning**

### *3 Credits*

This online course is designed to familiarize you with useful technology for your course modality and subject matter. You will have the chance to explore and collaborate with your colleagues as well as utilize social networks to access tools and tech teaching approaches.

#### **Course Outcomes**

1. Articulate several ways that technology can increase student engagement and learning.
2. Demonstrate use of technology relevant to your subject matter and modality.
3. Utilize the internet as a learning tool and collaborative platform for continued learning.

#### **EDUC 200 - Introduction to Course Instruction**

### 3 Credits

This online course focuses on the first steps of organizing a class and getting ready to teach. By successfully planting the right seeds - understanding adult learners, how to write outcomes, assignments a syllabus, and less plans - you can create the beginnings of a successful class.

#### Course Outcomes

1. Demonstrate knowledge of adult learning theories.
2. Write measurable student learning outcomes.
3. Develop and write a clear course syllabus in student-centered language.
4. Create a transparent assignment.
5. Write lesson plans for your course.

### EDUC 231 - Managing the Learning Environment

#### 3 Credits

This online course covers the next steps in teaching: the basics of classroom management and student engagement and assessment, covering various issues and practices, making use of scenarios and real-life situations.

#### Course Outcomes

1. Articulate a variety of strategies for teaching effectively.
2. Differentiate and utilize various types of assessment to optimize learning.
3. Integrate basic Reading Apprenticeship (RA) and Universal Design for Learning (UDL) methodologies in your instruction.
4. Align assessments with learning outcomes.

### EDUC 282 - Integrating Cultural Diversity into Curriculum

#### 3 Credits

This online course focuses on awareness of diversity and equity issues; to develop skills in teaching diverse students to ensure that all are treated equitably and to help students interact with one another with an understanding and appreciation of fundamental similarities while celebrating diversity.

#### Course Outcomes

1. Analyze diversity, along with equity and inclusion practices, at your own institution.

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2. Articulate the importance of diversity awareness in the college classroom.
3. Evaluate strategies for developing and maintaining a cooperative classroom community.

### Valley Medical Center

#### VMC 101 - Health Coaches

#### 2 Credits

The Health Coach Program class is taught by a variety of staff members from Valley Medical Center including physicians, administrators, a Registered Nurse, Social Worker and Registered Dietician. Each faculty member brings expertise from his or her individual field.

The course explores the impact of chronic conditions common to high risk patients and equips the student to develop the skills necessary to help coach the patient toward successful self-management of their chronic illness(es) and progress toward health-related goals. Every week, students will engage in activities that foster critical thinking, empathy, resourcefulness and communication skills. Students will gain understanding about the health coach support team, the primary care team, and how these teams will communicate with each other and with the patient.

Students will have 1-2 weekly readings specific to the topic area. Students are required to participate in an online discussion with their classmates about the reading assignments each week. These reading assignments and online discussions prepare the students to actively engage in conversation with the faculty and to prepare a case study by the end of the term.

**Required text:** Lorig, K., Holman, H., Sobel, D., Laurent, D., Gonzalez, V., & Minor, M. (2012). *Living a healthy life with chronic conditions: Self-management of heart disease, arthritis, diabetes, depression, asthma, bronchitis, emphysema, and other physical and mental health conditions* (4<sup>th</sup> ed.). Boulder, CO: Bull Publishing Company.

Additional reading assignments will be posted within each module as a PDF. Students may read these articles online or may print them on their personal or public computer.

Computer access and class attendance are required for successful completion of this class. There will be NO tests or quizzes.

#### Course Outcomes

1. Explain key concepts related to medical, psychosocial, behavioral and economic factors and challenges that adversely impact the continuum of healthcare at the community level.
2. Discuss a series of evidence-based strategies for optimizing the healthcare outcomes and patient experiences of individuals with manageable risk factors and ambulatory care sensitive conditions.
3. Integrate a comprehensive series of bio-psycho-social insights into strategies for promoting positive self-health behaviors.
4. Work with an interdisciplinary team of health professionals that identifies/assesses obstacles and care gaps and provides suggestions/support for improving care coordination.
5. Serve as health coaches within an interdisciplinary care coordination healthcare team.

## **Veterinary Assistant**

### **VET 100 - Veterinary Assisting I**

#### *6 Credits*

This course presents an introduction to the essentials of veterinary assisting. Topics include an introduction to medical terminology, anatomy and physiology, dissection, beginning animal restraint, reading body language, physical exam, patient care and other related topics. Students work individually and in groups to develop skills associated with patient handling and care.

#### **Course Outcomes**

1. Identify basic anatomy of dog and cat.
2. Develop a medical terminology vocabulary including acronyms, symbols and abbreviations.
3. Recognize the legal rights, responsibilities and limitations of a Veterinary Assistant.
4. Develop patient care skills, including restraint, positioning, monitoring and transporting animals.
5. Distinguish animal body language signs for everyone's safety

### **VET 104 - Veterinary Assisting II**

#### *5 Credits*

This course is a continuation of VET 100. Topics include continuing medical terminology and restraint

techniques, laboratory procedures, including sample collection and analysis, parasitology, hematology, microbiology, disinfection and nutrition. Students work individually and in groups to develop skills associated with animal care and laboratory.

#### **Course Outcomes**

1. Demonstrate a basic understanding of laboratory procedures.
2. Summarize knowledge of environmental issues as they relate to infection control.
3. Determine patient and occupational hazards, including electrical, radiation, chemical and biological.
4. Demonstrate proper sterilizing and disinfecting technique to meet industry standards.

### **VET 105 - Veterinary Assisting III**

#### *5 Credits*

This course is a continuation of VET 100 and VET 104. Topics include more advanced medical terminology and restraint techniques, surgical preparation, instrument identification and care, anesthesia, aseptic techniques, radiology, dentistry, nursing care and alternative therapies. Students work individually and in groups to continue development of the skill required in veterinary assisting.

#### **Course Outcomes**

1. Determine patient and occupational hazards, including electrical, radiation, chemical and biological.
2. Summarize knowledge of environmental issues as they relate to infection control.
3. Demonstrate proper sterilizing and disinfecting technique to meet industry standards
4. Infer knowledge and skills using oral, written and non-verbal communication.
5. Utilize critical thinking skills to prioritize, anticipate and analyze problems and evaluate solutions.
6. Generate an understanding of medical and surgical nursing principles.

### **VET 106 - Veterinary Pharmacology and Medical Dosage**

#### *3 Credits*

This course covers the necessary concepts involved in

mathematics used in veterinary medicine. Topics include dosage calculations, metric conversion, percentages, ratios, medication classifications and prescriptions. Medical terminology and medical abbreviations and other related topics. Students practice and prepare for the Veterinary Medical Clerk requirements.

#### **Course Outcomes**

1. Demonstrate basic mathematical competency including addition, subtraction, multiplication and problem solving.
2. Develop a medical terminology vocabulary including acronyms, symbols and abbreviations.
3. Interpret drug classifications and usage.
4. Infer knowledge and skills using oral, written and non-verbal communication.

#### **VET 181 - Human Relations/Workplace Skills**

##### *3 Credits*

Topics include assertiveness, customer relations, teamwork, problem solving/conflict resolution, business and work ethics, organizational skills, employment rights and responsibilities, equity and cultural issues, decision making and self-esteem. Students will prepare a resume and cover letter in preparation for employment.

#### **Course Outcomes**

1. Infer knowledge and skills using oral, written and non-verbal communication.
2. Utilize critical thinking skills to prioritize, anticipate and analyze problems and evaluate solutions.
3. Illustrate knowledge and skill in first aid procedures as recognized by the American Red Cross.
4. Illustrate knowledge and skill in animal first aid and CPR as recognized by Pet Emergency Education.

#### **VET 193 - Veterinary Assisting Practicum**

##### *1 Credits*

Students visit various veterinary and animal based work settings to explore typical work assignments, analyze work climates, expand and observe possible future work opportunities. Students further develop skills and knowledge through observation and practice of hands-on techniques in the classroom and other settings.

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#### **VET 197 - Veterinary Assisting Internship**

##### *4 Credits*

Student Internship. During this course, students will work with a veterinary facility, observing and participating in the medical treatment of patients. Students will have a chance to work with individual animals under the guidance and supervision of the veterinarian. As a student, you will be applying the various techniques and skills learned in the previous courses. The site supervisor will evaluate you on your performance, providing suggestions, guidance, and constructive critique of your skills. The Vet Assisting Internship is 132 hours.

#### **Course Outcomes**

1. Demonstrate basic skills necessary as a veterinary assistant in a professional team environment.

#### **Welding**

#### **WELD 101 - Thermal Cutting**

##### *3 Credits*

Learn to use personal protective equipment, understand welding processes and methods of application. Instruction in track burning includes both straight and beveled cuts on mild steel. Plasma arc cutting includes manual cutting of sheet and plate steel and other alloys. Air carbon arc cutting includes back gouging and weld removal.

#### **Course Outcomes**

1. Analyze the basic welding processes.
2. Recognize specific process safety hazards and precautions necessary to operate each process safely.
3. Weld with SMAW, GMAW, FCAW and GTAW in the flat position per workmanship standard following all current ANSI/ASC Z49.1 safety standards.

#### **WELD 102 - Oxyacetylene Welding and Brazing**

##### *7 Credits*

Includes oxyacetylene welding in multiple positions on mild steel sheet metal and brazing in the flat position on mild steel plate and sheet. Learn to use personal protective equipment, understand welding processes and methods of application. Instruction on the safe use of an oxyacetylene torch.

#### **Course Outcomes**

1. Safely set up and shut down oxy-acetylene apparatus and equipment following all current ANSI/ASC Z49.1 safety standards.
2. Weld the five basic joints; butt, lap, tee, corner and edge in all positions F,V,OH, H per workmanship standard following all current ANSI/ASC Z49.1 safety standards.
3. Braze weld sheet metal lap and tee joints. Braze weld 1/4" plate butt joint, per workmanship standard following all current ANSI/ASC Z49.1 safety standards

#### **WELD 104 - Introduction to Arc Welding**

##### *3 Credits*

Students will interpret the fundamentals of welding: basic joints, the welding processes & methods of application, welding electricity, welding safety and physics basics.

##### **Course Outcomes**

1. Recognize the basic arc welding processes used in industry.
2. Set up and dismantle power sources, feeders, shielding gas apparatus and control cables for the different welding processes.
3. Differentiate between the different processes and chose the correct process for different applications.

#### **WELD 105 - Shielded Metal Arc Welding I**

##### *7 Credits*

Students receive individualized instruction in shielded metal arc welding in multiple positions on mild steel plate with E6010 and E6011 electrodes. Learn to use personal protective equipment, understand welding processes and methods of application, and welding electricity and physics basics.

##### **Course Outcomes**

1. Use Shielded Metal Arc Welding E6010 to weld fillet welds in all positions.
2. Demonstrate the safety hazards, use of personal protective equipment and take the necessary precautions with all welding processes.

#### **WELD 106 - Shielded Metal Arc Welding II**

##### *7 Credits*

Individualized instruction continues in shielded metal

arc welding in multiple positions on mild steel plate with E7018 electrodes. Practice good safety habits, understand welding processes and methods of application, and welding electricity and physics basics.

##### **Course Outcomes**

1. Use Shielded Metal Arc Welding E7018 to weld fillet welds in all positions.
2. Demonstrate the safety hazards, use of personal protective equipment and take the necessary precautions with all welding processes.

#### **WELD 110 - Flux Cored Arc Welding**

##### *7 Credits*

This course includes individualized instruction in both gas shielded and self-shielded flux cored arc welding with E71T-1 and E71T-6 electrodes on mild plate in multiple positions. Learn to use personal protective equipment, understand welding processes and methods of application, and welding electricity and physics basics.

##### **Course Outcomes**

1. Use Flux Cored Arc Welding E70T-1 fillet welds in all positions.
2. Use Flux Cored Arc Welding E70T-8 fillet welds in all positions.
3. Use Flux Cored Arc Welding E70T-6 fillet welds in all positions.
4. Demonstrate the safety hazards, use of personal protective equipment and take the necessary precautions with all welding processes.

#### **WELD 111 - Gas Metal Arc Welding**

##### *7 Credits*

This course includes individualized instruction in the following types of gas metal arc welding: short circuited arc with E70S-3 on mild steel sheet in multiple positions; spray arc with E70S-3 electrodes on mild steel plate in multiple positions, and spray arc with aluminum 5356 electrodes in multiple positions. Use personal protective equipment, understand welding processes and methods of application, and welding electricity and physics basics.

##### **Course Outcomes**



1. Use of Gas Metal Arc Welding Short Circuit Transfer to weld sheet metal in flat and vertical positions.
2. Use Gas Metal Arc Welding E70S-6 to weld fillet welds in all positions.
3. Demonstrate the safety hazards, use of personal protective equipment and take the necessary precautions with all welding processes.

#### **WELD 114 - Gas Tungsten Arc Welding I**

##### *7 Credits*

Receive individualized instruction in gas tungsten arc welding on mild steel plate and sheet with ER70S-X rod in multiple positions; on stainless steel in multiple positions using 308, 309 and 316 filler rod; and on aluminum sheet in multiple positions using 4043 and 5356 filler rod. Use personal protective equipment, understand welding processes and methods of application, and welding electricity and physics basics.

##### **Course Outcomes**

1. Weld the five basic joints; butt, lap, tee, corner and edge in all positions F,V, OH, H on 1/4" mild steel plate per workmanship standard following all current ANSI/ASC Z49.1 safety standards.

#### **WELD 115 - Gas Tungsten Arc Welding II**

##### *6 Credits*

Continue individualized instruction in gas tungsten arc welding on mild steel plate and sheet with ER70S-X rod in multiple positions; on stainless steel in multiple positions using 308, 309 and 316 filler rod; and on aluminum sheet in multiple positions using 4043 and 5356 filler rod. Use personal protective equipment, understand welding processes and methods of application, and welding electricity and physics basics.

##### **Course Outcomes**

1. Weld vee groove open root 3/8" plates in all positions F,V, OH, H per workmanship standard following all current ANSI/ASC Z49.1 safety standards.
2. Weld the five basic joints; butt, lap, tee, corner and edge in all positions F,V, OH, H on aluminum sheet and plate per workmanship standard following all current ANSI/ASC Z49.1 safety standards.
3. Weld the root and hot pass on 6" pipe in the 6G welding position per workmanship standard

following all current ANSI/ASC Z49.1 safety standards.

#### **WELD 120 - MIG Aluminum**

##### *5 Credits*

This course includes individualized instruction in the following types of gas metal arc welding: spray arc with aluminum 5356 electrodes in multiple positions, and pulse spray arc with aluminum. Use personal protective equipment; understand welding processes and methods of application, and welding electricity and physics basics.

#### **WELD 130 - Blueprint Reading**

##### *3 Credits*

This course prepares students to read shop drawings and blueprints. The course covers lines, views, notes, specifications, dimensions, bills of materials, structural shapes, structural prints, detail prints, assembly prints, general symbols, welding symbols, pipe layouts, pipe symbols, and weld testing symbols.

##### **Course Outcomes**

1. Interpret all elements of a blueprint.
2. Translate all elements of the AWS standard welding and Non Destructive Testing Symbols (NDT).
3. Add, subtract, multiply and divide whole numbers, decimals and fractions while calculating dimensions, tolerances and scales on a blueprint.
4. Use a tape measure to cut and fabricate a welded fabrication from a blueprint.
5. Demonstrate the safety hazards, use of personal protective equipment and take the necessary precautions with all welding and fabrication processes.

#### **WELD 135 - Welding Processes and Application**

##### *3 Credits*

Learn process theory and equipment needs for the non-consumable electrode welding processes and the consumable electrode processes: electrodes, filler metals, gases, power sources and related equipment.

##### **Course Outcomes**

1. Analyze the basic welding processes.

2. Recognize specific process safety hazards and precautions necessary to operate each process safely.
3. Weld with SMAW, GMAW, FCAW and GTAW in the flat position per workmanship standard following all current ANSI/ASC Z49.1 safety standards.

### **WELD 136 - Welding Metallurgy**

#### *3 Credits*

Students learn the basics of welding metallurgy and inspection: steel properties, identification, specifications, hardenability and weldability and weld inspection.

#### **Course Outcomes**

1. Analyze the physical and mechanical properties of steel and other metals.
2. Identify the elements used to change the properties of steel.
3. Differentiate between welding metallurgy and foundry metallurgy.
4. Recognize the physical changes that take place in steel during the heating and cooling cycles of welding.
5. Name the discontinuities that will ultimately lead to weld failure.

### **WELD 138 - Certification SMAW**

#### *7 Credits*

This course provides practice time for the SMAW process. The goal is to fine-tune welding skills in order to gain welding certifications.

**Prerequisite(s):** Instructor permission is required for entry into this class.

#### **Course Outcomes**

1. Become certified in the SMAW welding process.
2. Demonstrate the safety hazards, use of personal protective equipment and take the necessary precautions with all welding processes.

### **WELD 140 - Certification GMAW/FCAW**

#### *6 Credits*

This course provides practice time for the GMAW and FCAW processes. The goal is to fine-tune welding skills in order to gain welding certifications.

**Prerequisite(s):** Instructor permission is required for entry into this class.

#### **Course Outcomes**

1. Become certified in the GMAW welding process.
2. Demonstrate the safety hazards, use of personal protective equipment and take the necessary precautions with all welding processes.

### **WELD 142 - Pipe Welding I**

#### *6 Credits*

This advanced course is an option within the day time Welding program. The course includes SMAW and/or GTAW to weld various diameters of pipe to WABO standards. WABO testing is optional

**Prerequisite(s):** WELD 105, WELD 106, WELD 114, and WELD 115. Instructor permission is required for entry into this class.

#### **Course Outcomes**

1. Weld the root, hot pass, fillers and cover passes on 8" pipe in the 6G welding position per workmanship standard following all current ANSI/ASC Z49.1 safety standards using the GTAW/GMAW.FCAW welding process.
2. Weld the root, hot pass, fillers and cover passes on 6" pipe in the 6G welding position per workmanship standard following all current ANSI/ASC Z49.1 safety standards use the SMAW process.

### **WELD 143 - Pipe Welding II**

#### *6 Credits*

This advanced course is an option within the day time Welding program. The course includes SMAW and/or GTAW to weld various diameters of pipe to WABO standards. WABO testing is optional.

**Prerequisite(s):** WELD 142. Instructor permission is required for entry into this class.

### **Welding - Supplemental**

#### **WELDS 180 - Introduction to Welding**

#### *4 Credits*

Students receive individualized instruction to learn basic welding processes, oxy-fuel safety and cutting, plasma

cutting, base metal preparation, equipment and setup, and weld quality. Students will have the opportunity to weld with one or more processes including gas welding, stick and MIG. This course is designed for hobbyists as well as individuals interested in career exploration or advancements. If you have a welding machine in your garage, this course will teach you to use it! This course may be repeated.

### **WELDS 182 - Intermediate Welding**

#### *4 Credits*

The student will learn welding vocabulary, welding theory, safe handling practices and set-up of all related welding equipment with individualized instruction. Students will weld using one or more welding processes used in industries such as manufacturing, structural, automotive, and artistic sculpture work. Welding processes include stick, MIG, Flux Core, TIG and Oxy-fuel welding. An introduction to torch and plasma cutting is included. Preparation for WABO certification is an option. This course may be repeated.

### **WELDS 184 - Advanced Welding I**

#### *4 Credits*

This course is designed for an experienced welder to continue building their skill set with individualized instruction. This course focuses on all position welding and weld quality and appearance. Students will learn common welding tests and techniques. WABO certification is available in all welding processes. This course may be repeated.

### **WELDS 186 - Advanced Welding II**

#### *4 Credits*

This course is designed for an experienced welder to improve skills with individualized instruction. Options in this course include pipe welding and certifications as well as stainless steel and aluminum in any process and all positions. WABO certification is available in all welding processes. This course may be repeated.

### **WELDS 188 - Welding Fabrication I**

#### *5 Credits*

This course provides fabrication instruction to those who are proficient in at least one arc welding process. The instruction includes project planning, trade math, welding blueprints, layouts, joint design, rolling, bending, plasma cutting, grinding, polishing, finishing and other various fabrication methods. Students are required to purchase their own materials for projects.

**Prerequisite(s):** Instructor permission

### **WELDS 190 - Welding Fabrication II**

#### *5 Credits*

This course provides fabrication instruction to those who are proficient in at least one arc welding process. In this class students design, plan, layout, cut and fabricate their own welding projects. Students are required to purchase their own materials for projects.

**Prerequisite(s):** WELDS 188

### **WELDS 192 - Certified Welding Inspector Training**

#### *5 Credits*

This course will provide the enrollees with the opportunity to apply the principles involved in welding inspection. The students will know the duties of the welding inspector, as well as the responsibilities. The students will be prepared to take the AWS, QC-1 test for CWI certification.

### **Warehouse - Forklift**

### **WHFRS 101 - Forklift Training**

#### *1 Credits*

Students demonstrate skill, safety and efficiency in operating a sit-down, counterbalance forklift. Certification is available to students who qualify. However, current safety regulations require that an employer must review an employee's ability and provide training on any machinery, attachments, or working conditions specific to a particular job site. Ives Certification. This class is limited to 25 students. A student must have experience driving a car or truck.

### **WHFRS 201 - Forklift Recertification**

#### *0 Credits*

This class is designed for individuals with a valid (non-expired) forklift card who are interested in renewing their certification. Ives Certification. This class is limited to eight (8) students. A student must have experience driving a car or truck.

### **Workforce, Trades and Economic Development**

### **WTD 109 - Safety, Tool and Equipment Certification**

#### *3 Credits*

Participants receive state approved training in the safe operation of a traffic control (flagging) and powder-actuated tools. Students can receive certification in each of these areas. Students earn the Industrial First Aid/CPR & AED certification, which includes general principles of first aid, medical emergencies, injury emergencies, environmental emergencies, blood borne

pathogens and safety precautions. This course includes OSHA 10 certifications. Upon completion of written exam and skills evaluation an AHA card is issued. The Industrial First Aid/CPR & AED certification is approved by OSHA and WISHA (Labor and Industries).

#### **WTD 168 - Trades Math I**

##### *4 Credits*

This course is taught with a vocational emphasis to develop and deepen students' conceptual understanding of mathematics by their chosen pathway, and to develop proficiency in problem-solving with whole numbers, fractions, decimals, and percents. Students are introduced to Ohm's Law and basic electrical math principles. Students study ratio and proportion, geometry, and basic algebra as applied to the construction trades.

#### **WTD 175 - Communications for the Trades**

##### *1 Credits*

Introduction to the communication skills needed in the construction, maintenance, and manufacturing trades. Students will develop team work and industry communication skills.

#### **WTD 180 - Human Relations for the Trades**

##### *2 Credits*

Introduction to the communication skills needed to locate, interview for, and negotiate employment in the construction, maintenance, and manufacturing trades. Human relations in the workplace are covered under such topics as goal setting, time management, sexual harassment prevention, and effective communication. Students develop a job search plan, resume, and cover letter.

# Faculty & Administration

## Executive Staff

### **McCarthy, Kevin**

President  
PhD, American History  
University of Mississippi

### **Corigliano, Paul**

Chief Information Officer  
Bachelors, Information Technology  
American Intercontinental University

### **Delaney, Stephanie**

Vice President, Instruction  
PhD, Higher Education Leadership & Distance Learning  
University of Nebraska

### **Gilmore-English, Jessica**

Vice President, Student Services  
Masters, Higher Education, Leadership and Policy Studies  
University of Washington

### **Hogan, Lesley**

Vice President, Human Resources  
Masters, Leadership Management  
Western Governors University

### **Rodriguez, Eduardo**

Vice President, Administrative and Finance  
Masters, Business Administration Management  
Western Governors University

## Deans

### **Ali, Yasmin**

Dean, Nursing  
PhD, Doctor of Nursing Practice  
Walden University

### **Carter, Christopher**

Dean, Allied Health  
Masters, Educational Leadership  
Argosy University

### **Jackson, Jacob**

Executive Dean, Workforce, Trades & Economic Development  
Masters, Business Education / Economics  
Central Washington University

### **Koshi-Lum, Jessica**

Associate Dean, Library  
Masters, Library & Information Science  
University of Hawaii

### **Marshak, Sofia**

Associate Dean, College & Career Pathways  
EdD, School Administration and Policy  
George Washington University

### **Medbury, Douglas**

Dean, Culinary Arts / Director of Food Service  
Bachelors, Business Management  
University of Phoenix

### **McIrvin, Stefanie**

Associate Dean, Information Technology Programs  
EdD, Educational Leadership  
University of Washington

### **Novotny, Jodi**

Dean, College & Career Pathways  
Masters, Applied Linguistics and TESOL  
University of South Florida

### **Wakefield, Sarah**

Dean, General Education & Transfer  
PhD, Department of English  
University of Texas, Austin

### **Vacant**

Dean, Student Success

## Administration

### **Baker, Barry**

Capital Projects / Special Plan  
Director  
Masters, Architecture  
University of Texas, Arlington

### **Chin, Dennis**

Deputy Chief, Information  
Technology  
Bachelors, Communications  
University of Washington

### **Covington, Anthony**

Director, Outreach and Entry  
Services  
Masters, Curriculum and  
Instruction  
University of Nevada

### **Daniels, Mark**

Director, Facilities & Grounds  
Services  
Professional-Technical Classes

### **Falconer, Elizabeth**

Director, Innovative Teaching &  
Learning  
PhD, International Education  
University of Iowa

### **Grassman, Kristi**

Director, Construction Center of  
Excellence  
Associates  
Corban University

### **Hansen, Katherine**

Director, College Relations and  
Marketing  
Bachelors, Communication Arts in  
Journalism  
Pacific Lutheran University

### **Jacobs, Morenika**

Director, Enrollment  
Services/Registrar  
Bachelors, Human Services  
University of Phoenix

### **Kim, Jichul**

Director, Institutional Research  
PhD, Administration for Higher  
Education  
Auburn University

### **Nelson, Samantha**

Director, I-BEST and Civics  
Masters, Education  
Antioch University Seattle

### **Rable, Tami**

Director, Workforce Education  
Bachelors, Professional Technical  
Education Design  
South Seattle College

### **Shaw, Carrie**

Director, RTC Foundation  
Bachelors, Communication /  
Political Science  
Washington State University

### **Swanke, Jake**

Director, Disability Services and  
Testing  
Masters, Student Affairs  
Administration in Higher  
Education  
Western Washington University

### **Sykes, Kimberley**

Director, Accounting Services  
Professional-Technical Classes

### **Vielbig, Matt**

Director, Safety & Security  
Masters, Criminal Justice  
Seattle University

### **Weldu, Rahel**

Director, Financial Aid  
Bachelors, Technology  
Management  
George Fox University

### **Vacant**

Director, Student Programs and  
Engagement

## Full-Time Faculty

### **Abbott, Gabrielle**

Anesthesia Technologist  
Certificate, Anesthesia  
Technologist  
Renton Technical College

### **Al-Kinani, Hussein**

Mechatronics  
Associates, Industrial Engineer  
Renton Technical College

### **Ali, Nizar**

College & Career Pathways/ELA  
Masters, MATESOL  
University of Washington

**Allen, Dawn**

College & Career Pathways/ELA  
Masters, Teaching English as a  
Second Language  
Portland State University

**Barquet, Aaron**

College & Career Pathways  
Masters, Education  
Universidad del Sur

**Bassham, Colleen**

Academic/Career Counselor  
Masters, Business Administration  
University of Phoenix

**Berrysmith, Connie**

Dental Assistant  
Masters, Education  
University of Washington

**Biell, Michael**

Engineering Design Technology  
Professional-Technical  
Certification

**Burrell, De Etta**

College & Career Pathways/GED  
Masters, Business Administration  
City University

**Choi, Donmee**

College & Career Pathways  
PhD, Interdisciplinary Studies  
Union Institute and University

**Cooksey, Martin**

Mathematics  
Masters, Applied Mathematics  
California State University

**Day, Colleen**

Computer Network Technology  
Bachelors, Technology  
University of Puget Sound

**Douthit, Martin**

Custodial Training  
Professional-Technical  
Certification

**Ervin, Shawn**

Autobody Repair & Refinishing  
Bachelors, Psychology  
California State University

**Favre, Beatrice**

Early Childhood Education  
Masters, Child Development &  
Family Studies  
Seoul National University

**Flanagan, Elizabeth**

College & Career Pathways  
Masters, Adult Education  
Seattle University

**Fobes, Michael**

Automotive Technology  
Professional-Technical  
Certification  
Renton Technical College

**Ganska, Jessica**

Band Instrument Repair  
Technology  
Bachelors, Music Education  
West Chester University of  
Pennsylvania

**Geist, Rick**

Welding  
Associates, Welding  
Renton Technical College

**Gill, Dimpy**

Computer Science  
Masters, Software Engineering  
Seattle University

**Good, Chelsea**

Academic/Career Counselor  
Masters, Adult and Higher  
Education  
Western Washington University

**Graham, Megan**

Surgical Technologist  
Certificate, Surgical Technology  
Renton Technical College

**Higgins, Kathleen**

English  
Masters, English  
Arizona State University

**Hoaglin, Ryan**

Automotive Technology  
Associates, Applied Science and  
Technology  
Renton Technical College

**Hoaglin, Sarah**

Academic Counselor/Behavioral  
Health  
Masters, Marriage and Family  
Therapy  
Brandman University

**Hoffman, Lea**

Medical Assistant  
Bachelors, Human Development  
Washington State University

**Holland, Robert**

Professional Baking  
Associates, Culinary Arts  
PA Institute Culinary Arts

**Hortman, Melvin**

Engineering Design Technology  
Masters, Engineering Design  
Technologies  
Central Washington University



**Hudson, Earnest**

Commercial Building Engineering  
Masters, English & Creative  
Writing  
Southern New Hampshire  
University

**Jang, Kayla**

Computer Science  
Masters, Computer Science  
University of York, York  
International

**Kimani, Batholomew**

Machining Technologies  
Masters, Material Science  
Engineering  
Washington State University

**Knight, Laura**

Academic/Career Counselor  
Masters, Education & Leadership  
in Higher Education  
University of Washington

**Lee, Bradley**

Registered Nurse  
Masters, Nursing - Informatics  
Grand Canyon University

**Lesmeister, Michele**

College & Career  
Pathways/ABE/GED  
Masters, English  
University of Arizona

**Lewark, Dan**

Culinary Arts  
Certified Executive Chef (CEC)  
American Culinary Federation

**Maher, Donna**

Medical Administrative Programs  
Masters, Nutrition/Home  
Economics  
Washington State University

**May-Farley, Sheila**

Medical Administrative Programs  
Masters, Education  
University of Washington

**McKinnon, Steven**

Contemporary Business  
Administration  
PhD, Organizational Leadership  
Walden University

**Melton, Faye**

Academic/Career Counselor  
Masters, Social Work  
University of Washington

**Meza, Alma**

College & Career Pathways/ELA  
Masters, Computer Science  
Independent University of Baja  
California

**Mohibullah, Huma**

Social Sciences and Cultural  
Studies  
PhD, Anthropology  
University of British Columbia

**Mullins-Sussex, Kathleen**

Advanced Manufacturing  
Programs  
Masters, Adult Education  
University of British Columbia

**Murray, Amy**

Registered Nurse  
Masters, Nursing-Leadership  
Gonzaga University

**Newcome, John**

Accounting  
Jurist Doctor, Law  
University of Puget Sound

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Intensive Entry Construction  
Bachelors, General  
WSU

**Nicholls, Richard**

College & Career Pathways/ELA  
Masters, English  
California State University

**Oyler, Melvin**

Mechatronics  
Masters, Computer Engineering  
University of California

**Paquette, Martin**

Field/Land Surveying  
Masters, Civil Engineering  
California State University

**Parker, Tony**

Culinary Arts  
Associates, Hospitality and Food  
Cost Management  
South Seattle Community College

**Partain, William**

Computer Network Technology  
Bachelors, Computer  
Visualization Technology  
ITT Technical Institute

**Phillips McLellan, Vincent**

Aerospace & Industrial  
Production Technologies  
Aerospace Assembly Mechanic  
US Navy Aviation School

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College & Career Pathways/ABE  
Bachelors, Spanish & Journalism  
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Bachelors, Translation,  
Interpreting and Language  
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Construction Management  
Masters, Project Management  
Western Carolina University

**Redd, Sarah**

Science  
Masters, Zoology  
Washington State University

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Registered Nurse  
Masters, Nursing  
Masters, Health Administration  
University of Phoenix

**Robinson, James**

Medical Assistant  
Masters, Educational Psychology  
Touro University Worldwide

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Computer Network Architecture  
PhD, Computer Engineering -  
Human-Computer Interaction  
University of California, Santa  
Cruz

**Sanderson, William**

Computer Network Technology  
PhD, Business Information  
Systems & Information  
Utah State University

**Schoenmakers, David**

Machining Technologies  
Professional Certification  
Everett Community College, WA

**Serba, Aj**

Surgical Technologist  
Associates, Psychology  
University of Phoenix

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Academic/Career Counselor  
Masters, Social Work  
University of Washington  
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Massage Therapy Practitioner  
Masters, Traditional Chinese  
Medicine  
Northwest Institute of  
Acupuncture and Oriental  
Medicine

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Academic Counselor/Behavioral  
Health  
Masters, Marriage and Family  
Therapy  
Central Connecticut State  
University

**Spaniel, Travis**

Automotive, Ford ASSET  
Professional-Technical  
Certification

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Pharmacy Technician  
Associates, Paralegal  
Kaplan University

**Staley, Laura**

Librarian  
Masters, Library of Science  
University of Washington

**Stover, Cheryl**

Natural Sciences  
Masters, Biology  
University of Washington

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Welding  
Associates, Welding / Fabrication  
Renton Technical College

**Takata, Warren**

Automotive Technology  
Masters, Curriculum Studies  
University of Hawaii, Manoa

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Computer Network Technology  
Bachelors, Social Science  
Washington State University

**Terrell, Simone**

Medical Assistant-Phlebotomy  
Certificate, Phlebotomy  
North Seattle Community College

**Thompson, Brian**

Automotive, Ford ASSET  
Professional-Technical  
Certification

**Tran, Connie**

College & Career Pathways/ELA  
Masters, Adult Education-ESL  
Seattle University

**Uryash, David**

Automotive Technology  
ASE Certified Master Automobile  
Technician

**Vikhnovskiy, Oleg**

Commercial Refrigeration  
Technology/MART  
Certificate, MART  
Renton Technical College

**Wang, Victoria**

Academic/Career Counselor  
Masters, Human Development  
Pacific Oaks College

**Wilson, Celinda**

Medical Assistant  
Bachelors  
Southern Illinois University

**Zerrouki, Lhoucine**

Computer Science  
Masters, Education  
Central Washington University

# Statements & Disclaimers

## Diversity Statement

Renton Technical College is committed to creating an inclusive environment where all are celebrated and welcome and to nurturing an equitable academic and work environment that promotes fairness and removes systemic and institutional barriers. We respect and value humanity and the diversity of people, perspectives, and ideas.

## FERPA Statement

The Family Educational Rights and Privacy Act (FERPA) affords students certain rights with respect to their educational records. They are:

- The right to inspect and review the student's educational records.
- The right to request the amendment of the student's educational records to ensure that they are not inaccurate, misleading, or otherwise in violation of the student's privacy or other rights.
- The right to consent to disclosures of personally identifiable information contained in the student's educational records, except to the extent that FERPA authorizes disclosure without consent.
- The right to file a complaint with the U.S. Department of Education concerning alleged failures by Renton Technical College to comply with the requirements of FERPA.
- The right to obtain a copy of Renton Technical College's student records policy. The policy is available in the Registrar's Office, Robert C. Roberts Campus Center (Building I).

For information regarding the Student Records Policy, please contact the Registrar's Office at (425) 235-2352, ext. 5537.

## Non-Discrimination Statement

Renton Technical College provides equal opportunity in education and employment and does not discriminate on the basis of race, color, national origin, age, perceived or actual physical or mental

disability, pregnancy, genetic information, sex, sexual orientation, gender identity, marital status, creed, religion, honorably discharged veterans or military status, or use of a trained guide dog or service animal, as required by Title VI of the Civil Rights Act of 1964, Title VII of the Civil Rights Act of 1964, Title IX of the Educational Amendments of 1972, Sections 504 and 508 of the Rehabilitation Act of 1973, the Americans with Disabilities Act and ADA Amendment Act, the Age Discrimination Act of 1975, the Violence Against Women Reauthorization Act and Washington State Law Against Discrimination, Chapter 49.60 RCW and their implementing regulations.

The following college official has been designated to handle inquiries regarding this policy:

- Lesley Hogan, Title IX Coordinator and Vice President of Human Resources
- Office: Human Resources, J Building, Room 202
- Address: 3000 NE 4th Street Renton, WA 98056
- Phone: (425) 235-7873
- Email: lhogan@rtc.edu or titleix@rtc.edu
- Website: Title IX

## Student Rights & Responsibilities

<https://www.rtc.edu/student-rights-and-responsibilities>

### Statement of Student Rights

As members of the academic community, students are encouraged to develop the capacity for critical judgment and to engage in an independent search for truth. Freedom to teach and freedom to learn are inseparable facets of academic freedom. The freedom to learn depends upon appropriate opportunities and conditions in the classroom, on the campus, and in the larger community. Students should exercise their freedom with responsibility. The responsibility to secure and to respect general conditions conducive to the freedom to learn is shared by all members of the college community.

The following enumerated rights, academic freedom and due process, are guaranteed to each student within the limitations of statutory law and college policy which are deemed necessary to achieve the educational goals of the college.

### **Statement of Student Responsibilities**

The college may impose disciplinary sanctions against a student who commits, or aids, abets, incites, encourages or assists another person to commit, an act(s) of misconduct, which include, but are not limited to the following prohibited conduct as outlined in the Student Handbook.

### **Student Code of Conduct & Hearing Procedures**

- Student Code of Conduct
- Hearing Procedures

### **Limitation of Liability**

The college's total liability for claims arising from a contractual relationship with the student in any way related to classes or programs shall be limited to the tuition and expenses paid by the student to the college for those classes or programs. In no event shall the college be liable for any special, indirect, incidental, or consequential damages, including but not limited to, loss of earnings or profits.

### **Publication Disclaimer**

Renton Technical College has made reasonable efforts to ensure the accuracy of the information throughout this Catalog. Although every effort is made to ensure accuracy at the time of publication, this catalog shall not be construed to be an irrevocable contract between the student and Renton Technical College. The College reserves the right to make appropriate changes in procedures, policies, calendars, requirements, programs, courses and fees listed in the Catalog at any time. When feasible, changes will be announced prior to their effective dates, but the College assumes no responsibility for giving any particular notice of any such changes. Changes may apply not only to prospective students, but also to those who are currently enrolled. We encourage readers to contact the appropriate office at RTC to obtain current

information. Be advised that professional or technical program offerings and course requirements listed in this Catalog may be altered by the College to reflect the needs of industry, student interests and availability of resources.