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# PERRY TECHNICAL INSTITUTE

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COURSE CATALOG | 2015-2016



A photograph of a campus scene featuring a large green lawn in the foreground, a brick building in the background, and several trees in full bloom with pink cherry blossoms. The sky is clear and blue.





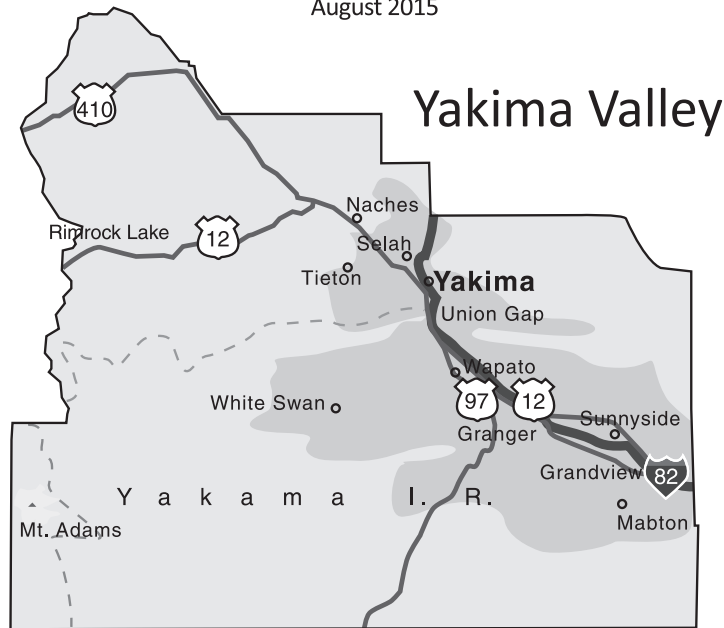
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# ACCSC

Accrediting Commission of Career Schools and Colleges

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Career Schools and Colleges  
(ACCSC)

Date of Publication  
August 2015



Perry Technical Institute is authorized by the Washington Student Achievement Council and meets the requirements and minimum educational standards established for degree-granting institutions under the Degree-Granting Institutions Act. This authorization is subject to periodic review and authorizes Perry Technical Institute to offer specific degree programs. The Council may be contacted for a list of currently authorized programs. Authorization by the Council does not carry with it an endorsement by the Council of the institution or its programs. Any person desiring information about the requirements of the act or the applicability of those requirements to the institution may contact the Council at P.O. Box 43430, Olympia, WA 98504-3430.

This school is licensed under Chapter 28C, 10 RCW. Inquiries or complaints regarding this private vocational school may be made to the: Workforce Training and Education Coordinating Board • 128 Tenth Ave. SW • Box 43105 • Olympia, WA 98504 • [wtb.wa.gov](http://wtb.wa.gov) • 360.753.5662 • [wtecb@wtb.wa.gov](mailto:wtecb@wtb.wa.gov)

For more information about our graduation rates, the median debt of students who completed the program, and other important information, please visit our website at: <http://www.perrytech.edu/programs/disclosures/>

Perry Technical Institute does not discriminate on the basis of race, color, religion, national origin, ancestry, sex, sexual orientation, disability, or age in its programs and activities. The following person has been designated to handle inquiries regarding the non-discrimination policies:

Title IX Coordinator/Director of HR for Faculty & Staff Development  
Perry Technical Institute | 2011 W. Washington Ave. | Yakima, WA 98903  
509.453.0374 or 888.528.8586

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## ❖ message from the president

Thank you for trusting your future to Perry Technical Institute. As a Perry student, you are part of our proud tradition – 75 years of putting people to work.

The training you receive at Perry Tech is founded on the same principles that led Harriet I. Perry to establish the school in 1939 as a lasting memorial to her late husband, J.M. Perry. She had a vision for a school that would provide hard-working, dedicated individuals with progressive training to fill the growing needs of industry.

Over the years, we have remained committed to her vision. In 2012, Perry Technical Institute was one of 10 schools out of more than 800 nationwide to be named a 2012 School of Excellence by the Accrediting Commission of Career Schools and Colleges.

The road to success is full of challenges, but if you commit yourself to your education, you will find what generations of Perry graduates have discovered: a life well-lived in a career you love.

Welcome to Perry. We look forward to sharing in your future success.



Christine Coté, President  
Perry Technical Institute

Catalog certified as true and correct for content and policy.  
August 2015



Christine Coté

## ❖ mission statement

Perry Technical Institute will provide industry with well-trained people who are motivated to work as team members to meet the needs of industry in our rapidly evolving technological world.

## ❖ vision statement

Perry Technical Institute will provide the resources and guidance required to allow students to acquire the knowledge, attitudes and skills to achieve employment and success in their chosen career field.

## ❖ purpose of the harriet i. perry trust

“The purpose of this trust is the creation, establishment, erection, equipment, maintenance, and endowment of an educational institution to be located on or near the vicinity of Yakima, Washington, to be known as THE J.M. PERRY INSTITUTE OF TRADE, INDUSTRIES AND AGRICULTURE, to provide courses of instruction and training of a practical nature and confined to the technical area of such trades, industries, and branches of agriculture as shall qualify and prepare the students to enter a gainful occupation and fill working positions in respective fields of trade, industry, and agriculture in which courses of instruction and training shall be given by the Institute. All applicants for admission to the Institute shall be not less than sixteen (16) years of age, and shall possess a high school education or the equivalent thereof, and shall be admitted upon such terms or payment, not to be prescribed with a view to profit, as may be determined by the trustees in the case of each applicant for admission, depending on the merits, fitness, and qualifications to benefit by the courses of instruction given by the Institute, PROVIDED, HOWEVER, that said Institute shall be open to all persons upon equal terms who possess the qualifications established for admission thereto.” (Trust Deed dated December 20, 1939)

## ❖ history of perry technical institute

Harriet I. Perry founded Perry Technical Institute in 1939 as a lasting memorial to her husband, the late John M. Perry, a noted pioneer business leader in the Yakima Valley. Although his interests were varied, Mr. Perry's main enterprise was J.M. Perry and Company, a commission house dealing in fruit packing, shipping, cold storage, and ice manufacturing.

In an unfortunate turn of events in 1938, Mr. Perry suddenly became seriously ill while on a business trip to Fairbanks, Alaska. He needed immediate surgery and was flown to Seattle. The flight was delayed by bad weather and Mr. Perry died at Maynard Hospital in Seattle on October 1, 1938. He was 77 years old.

One year later, Mrs. Perry announced that she was creating a trust fund to establish J.M. Perry Institute of Trades, Industries and Agriculture. She named three community members to the Board of Trustees: Arthur S. Coffin, Roy A. Matson and Harcourt M. Taylor. Mrs. Perry outlined plans to create a technical school that would train ambitious people in skilled occupations. Curriculum would be streamlined to eliminate non-essentials and enrollment would be open to beginners as well as those students with previous training or experience.

The trustees researched technical schools throughout the United States, gathering information about curriculum, shop construction, and equipment. The trustees also searched for a suitable site to build the school. They selected a 54-acre parcel of land adjacent to the Yakima Airport. Four small farms and houses were located on the property, which was purchased for \$23,000, or approximately \$426 per acre.

Construction of the school's main building began in 1939 and was completed the following year. The total cost of constructing and equipping the building was approximately \$650,000. The building included shops, classrooms, administrative offices, and an auditorium. The school opened its doors to 211 students on January 2, 1941. The original course offerings were: Aircraft Mechanic; Aircraft Engine Mechanic; Aircraft Radio Mechanic; Automotive Mechanic; Automotive, Body and Fender; Carpentry; Inside Electrical Wiring; Machine Shop Practice; Machine Shop Practice-Tool Making; Painting, Paper Hanging and Decorating; Plumbing and Heating Sheet Metal; Welding-Electric AC and DC; Welding-Oxyacetylene; and General Shop. On July 5, 1950, Mrs. Perry died at the age of 91. She had remained active in school affairs, attending graduation ceremonies and other school events until her death.

In 1969, Perry Technical Institute became the first private technical school in Washington to be accredited by the Accrediting Commission of Career Schools and Colleges of Technology, now known as the Accrediting Commission of Career Schools and Colleges.

Unprecedented growth in the late 1970s and early 1980s created the need to build and equip three additional buildings on campus – Bond Instrumentation Laboratory, Harvey L. Smith Electrical Technology Building, and Burnham Prince Agriculture Mechanics Building. In 1996, the main building was remodeled, adding new classrooms for the Telecommunications Program. A women's restroom was added in the main corridor to accommodate the growing number of women enrolling at the school.

In 1998, crews began constructing a 14,360 square foot building to house the Instrumentation & Industrial Automation Technology Program. The Bond Building, which had housed the program since 1945, continued to be used for two classes. The new Instrumentation Building was dedicated on October 16, 1999, and the first students trained in the building in January 2000.

In July 2004, a fire severely damaged the Bond Building. A new building was constructed to replace the fire-damaged Bond Building. The new building housed a portion of the Instrumentation Program and allowed the Precision Machining and Manufacturing Program to relocate to the new building and move out of its outdated shop on the west end of campus. The 17,580 square foot building was dedicated on June 23, 2006.

The hangar building on the west end of campus was completely renovated in the late 2000s. The building houses the Heating, Ventilation, Air Conditioning & Refrigeration Technology Program and the Business Technology & Accounting Program. The state-of-the-art facility was dedicated as the Eugene Shields Technical Training Center on July 18, 2009.

To accommodate the addition of the Office Administration Programs, new classrooms were added on the south side of the main corridor in 2007 and again in 2010. The latest expansion also included the addition of a Student Services area which includes Career Services, Learning Resources, the Dean's Offices, and a campus store. A multipurpose meeting room and staff lounge, complete with a kitchen, was also added at this time.

In 2012, the 16th Avenue building was renovated as the Medical Annex. The annex houses the Medical Office Administration & Coding Program and the Medical Assistant Program.

In the fall of 2014, Perry Tech celebrated its 75th anniversary by breaking ground on a 36,176-square foot, two-story building to house the Instrumentation Program. The building, located northeast of the main campus, is named Plath Hall in honor of longtime Perry supporters Dorothy and the late Fred Plath.

Over the years, Perry Technical Institute has grown, adding programs and adapting its curriculum to meet the changing needs of industry. The school's mission, however, has remained unchanged. Perry Technical Institute serves industry by preparing workers with both technical skills and positive work habits. The school serves students of all ages and walks of life by equipping them with the knowledge and skills they need for careers that offer family-supportable wages, job security, benefits, and opportunities for advancement.

## ❖ facilities

The Perry Technical Institute campus is located at 2011 W. Washington Ave. on approximately 35 acres of land on the southwest edge of Yakima, Washington, across the street from the Yakima Air Terminal.

The school's facilities include the main building, which houses the Administration Office; a 626-seat auditorium; the Information Technology & Communication Systems Program; and Student Services which include, Academic Support, Career Services, the Campus Store, the Copy Center, and the Deli. The Eugene Shields Technical Training Center on the west end of campus houses the Heating, Ventilation, Air Conditioning & Refrigeration Technology Program and the Business Technology & Accounting Program. The Welding Technology Program is located behind the main building. The Precision Machining & Manufacturing Program and the Electrical Technology Program are located east of the main building and the Burnham Prince Automotive Technology Building is on the northwest end of campus. Plath Hall, located east of the main campus, houses the Instrumentation & Industrial Automation Technology Program. The Medical Annex, adjacent to campus on South Sixteenth Avenue, houses the Medical Office Administration & Coding Program and the Medical Assistant Program.

## ❖ academic calendar 2015-2016

**AUTO, BTA, ELECTRICAL, HVAC/R, ITCS, INSTRUMENTATION, MACHINE, MED, MOAC, AND WELDING**

**OFFICE HOURS: MONDAY-THURSDAY, 6:30AM - 5:30PM**

<b>SUMMER QUARTER 2015</b>	June 23 July 2 July 3 August 3-14 September 7 September 24 September 24	Summer Quarter Begins Independence Day Observed, No Day Classes Independence Day Observed, No Night Classes Summer Break Labor Day, No Classes Graduation Summer Quarter Ends
<b>FALL QUARTER 2015</b>	September 29 November 11 November 26 December 16 December 16 Dec. 21, 2015 - Jan. 1, 2016	Fall Quarter Begins Veteran's Day, No Classes Thanksgiving, No Classes Fall Quarter Ends Graduation Winter Break
<b>WINTER QUARTER 2016</b>	January 4 January 18 February 15 March 23 March 23	Winter Quarter Begins Martin Luther King, Jr. Day, No Classes President's Day, No Classes Winter Quarter Ends Graduation
<b>SPRING QUARTER 2016</b>	March 28 April 4 - 8 May 30 June 22 June 22	Spring Quarter Begins Spring Break Memorial Day, No Classes Spring Quarter Ends Graduation

## ❖ enrollment

Perry Technical Institute welcomes prospective applicants who are seeking education in one of the school's 10 training programs. Perry Technical Institute admits students of any race/color, sex, sexual orientation, creed, marital status, national origin, age, and disability to all rights, privileges, programs, and activities generally accorded or made available to students at the school. The school does not discriminate on the basis of race/color, ancestry, sex, sexual orientation, creed, marital status, national origin, age, or disability in administration of its educational policies, admissions policies, scholarship and loan programs, and other school administered activities. All applicants must be high school graduates or have earned a General Education Development Certificate (GED), and be at least 16 years of age.

### ENROLLMENT PROCEDURES

To apply for admission, applicants should contact an Admissions representative at Perry Technical Institute to request program information and to take a tour of the school facilities. Once applicants have made a decision to apply they should contact Enrollment Services to complete the following requirements in order to be enrolled into the program of their choice. Candidates will confirm they have already received a catalog or will receive one at the time of acceptance to Perry Technical Institute. Enrollment Services will review the application for enrollment and notify the applicant in writing the status of enrollment to the school.

### ENROLLMENT REQUIREMENTS

- 1) Proof of satisfactory completion of high school or equivalent education and valid state-issued photo ID or driver's license
- 2) Completed application for enrollment submitted to Perry Technical Institute with \$45 registration fee
- 3) Successful completion of the entrance exam for the appropriate program
- 4) Payment of \$500 tuition deposit to ensure a starting date
- 5) Signed enrollment contract and attendance at mandatory student orientation

Applicants to the HVAC/R and Automotive programs must have a valid driver's license and Automotive students must provide a three- year driving abstract. Precision Machining & Manufacturing applicants must interview with the Department Head. Medical Assistant Program applicants must successfully pass a criminal background check.

Perry enrolls students based on the date on which their enrollment requirements are complete. When classes reach capacity, students are automatically enrolled in the next available start date. Students requesting to be placed on the waiting list will also be automatically enrolled for the next available start date. Students who request a change in enrollment date will be charged a \$45 registration fee at the time of the third request.

## ❖ academic information

### ATTENDANCE POLICY

Attendance is mandatory. The scheduled start and end times are as follows:

Addendum: pg. 1

Automotive	Monday – Thursday	7:30 – 4:00
ITCS	Monday – Thursday	7:30 – 4:00

Instrumentation	Monday – Thursday	7:30 – 4:00
BTA	Monday – Thursday	7:30 – 4:30
HVAC/R	Monday – Thursday	7:15 – 4:10
Electrical	Monday – Thursday	6:50 – 4:05
Machining	Monday – Thursday	7:00 – 3:30
MOAC and MED	Monday – Thursday	7:30 – 4:00
Welding	Monday – Thursday	7:30 – 4:00
Evening Programs	Monday – Friday	4:30 – 10:00
	Variable Saturdays	9:00 – 5:00

### INSTRUCTOR NOTIFICATION

Students are required to notify the instructor before the scheduled start time each day they are absent or late. Failure to notify the instructor on the day of a tardy will result in a written advising (1st occurrence), and probation (2nd occurrence). Failure to notify the instructor on the day of an absence will result in immediate probation.

### CLOCKING-IN

Students are required to clock-in when arriving and clock-out when leaving, at any given time of the day, other than at stated break periods. Student attendance is recorded by using an electronic time management system. The time displayed on the time clock is the time that will be accounted for. Students are provided with an ID scan card and are required to scan in and out each day. The cost to replace the ID scan card is \$5. Note: If the scanner does not read a card, the student is required to manually punch in his/her assigned student ID number.

### POINTS

If a student misses up to three hours of scheduled class time in a day, the student will accrue one point. If a student misses more than three hours of scheduled class time in a day, the student will accrue three points. Once a student has accrued eight or more points in a term, the student is placed on attendance probation for the remainder of the term. If a student amasses additional points while on attendance probation, he or she may be subject to immediate dismissal.

Students are limited to two one-point infractions in a month. For example, if a student misses one hour of scheduled class time (accruing one point) on the 16th day of a given month, the student will only be allowed one more one-point infraction until the 16th day of the following month. At the third one-point infraction in a month, the student will be placed on probation for one month or the end of the term, whichever comes first, and may not accrue any points during the probation period. If additional points are amassed during that month, the student's probation will be extended to the end of the term. Any points accumulated after the probation has been extended may result in immediate dismissal.

If a student misses scheduled class time without clocking-out, the student's instructor will notify the Attendance Coordinator, who will document the missed time and add one point to the student's attendance record.

### CLASS CUT

Defined as not being present during scheduled class time at other than stated break periods, or leaving class prior to the end of the scheduled instruction period without instructor permission. This will result in immediate probation.

Following three consecutive days of absences without notification, a student will be dismissed.



Scanning or keying another student's card/ID number will result in dismissal of all parties involved. Grades, financial aid, and Department of Veterans Affairs agencies sponsoring students are dependent on accurate records of attendance.

*Addendum: pg. 2*

#### **LEAVE OF ABSENCE**

A leave of absence is defined as an officially excused period of time, while maintaining the status of student. A leave of absence request must meet one of the following conditions:

- 1) Military service
- 2) Medical restriction
- 3) Funeral for immediate family member
- 4) ER visit for student or immediate family member

A leave of absence will not be granted for failure to make satisfactory progress.

A request for leave must be made to the Dean/Associate Dean, or time away from school will be subject to point accrual. The written request to the Dean of Education must include dated third-party verification of the reason for the leave of absence as well as a typed letter outlining the reason for the request. The School Certifying Official and the Financial Aid Office will be notified immediately when the student is granted a leave of absence. A leave of absence will be for a maximum of 16 school days, not to exceed 30 calendar days. Failure to return to class following the leave of absence may result in dismissal. Leave requests must be submitted within five school days of returning to class. Only one leave of absence may be granted per term for each student.

#### **SATISFACTORY ACADEMIC PROGRESS (SAP) POLICY**

##### **DEFINITION**

The student must be making satisfactory academic progress in order to remain eligible for continuous enrollment under regular student status. Students not making satisfactory academic progress will be placed on probation. A student is graded not only on test scores, but also on participation in class, attendance, performance in lab, and conduct.

Students must: Complete each quarter with a minimum GPA of 2.0, and the minimum grades established for each subject within the department.

##### **PROBATION**

Faculty members will regularly monitor their students' performance in class and provide advising as necessary or requested. If a student has not met the criteria of satisfactory progress in the areas of conduct, attendance, or academics at any point during the term, the following hierarchy will be observed:

- 1) Verbal warning
- 2) Advising
- 3) Probation

A student is encouraged to meet regularly with his or her instructor while on probation. A copy of the signed document will be given to the student, the program counselor (if applicable), the Financial Aid Office, and the original will be filed in the student's file. While on probation, a student remains eligible to receive Title IV funding. If the student has not achieved satisfactory academic progress by the end of the probation term, he/she may be dismissed.

Exceeding three probations: The school reserves the right to dismiss students who have exceeded three probations. Repeated terms: Financial aid programs do not typically pay for repeated terms.

#### **REPEATING QUARTERS**

A student failing to successfully complete the quarter may petition to repeat the quarter. Upon successful completion of the repeated quarter, the student will be granted the grade for the quarter successfully completed in lieu of the previous grade.

No student will be allowed to repeat quarters that result in a total time of enrollment exceeding 1.5 times the specified time for the program. Repeating quarters may affect financial aid eligibility.

All failures requiring the retake of courses will be charged the current academic year quarterly rate.

#### **TERMINATION OF ENROLLMENT**

##### **WITHDRAWAL**

Students who voluntarily withdraw from school must complete a Withdrawal Form and have it signed by specified school officials in order to officially close their records.

##### **DISMISSAL**

The school reserves the right to dismiss students for any of the following reasons:

- 1) Violation of probation
- 2) Violation of a last chance agreement
- 3) Exceeding three probations
- 4) Three consecutive days of unexcused absences
- 5) Scanning or keying another student's card/ID number for attendance
- 6) Exceeding five combined absences (unexcused and/or excused)
- 7) Aggressive, harassing, or discriminatory acts against other students or employees
- 8) Failure to pay tuition, fees, books, or tools
- 9) Failure to meet Satisfactory Academic Progress (SAP)
- 10) Failure to follow school procedures and policies
- 11) Acts of theft or dishonesty
- 12) Failure to comply with safety regulations
- 13) Malicious damage to school property
- 14) Insubordinate acts against staff or other Perry Technical Institute employees
- 15) Drug/alcohol abuse
- 16) Disruption of the learning environment

The Dean/Associate Dean of Education will conduct a full hearing of the facts and make a recommendation to the President. The authority to dismiss a student is vested only in the President and the President's decision following a review of the facts is final.

##### **APPEAL PROCEDURE**

A student who has been dismissed and wishes to appeal that decision must submit a letter to the school President within three business days of the dismissal. The letter must describe any and all circumstances deserving of further consideration. The President will convene an appeal committee consisting of the Department Head, instructor, and designated representatives of the school in order to review the appeal. The student will be notified within one week of the official appeal decision.

**CLASS/PROGRAM CANCELLATIONS**

Perry Technical Institute makes every effort to meet the needs of its students; however, special circumstances may require the school to cancel classes or programs due to the changing needs of industry, insufficient enrollment, or funding. The school reserves the right to make such decisions, as warranted.

For more information regarding admission requirements and policies, please contact the Enrollment Office in writing, by telephone, or through the website: Perry Technical Institute, 2011 W. Washington Ave., Yakima, WA 98903, 509.453.0374, toll-free 888.528.8586, or perrytech.edu.

**CLOCK HOUR/CREDIT HOUR CONVERSION SYSTEM  
DEFINITION OF A CLOCK HOUR**

A clock hour is defined as 50 minutes of instruction in a 60-minute period of time.

**DEFINITION OF A CREDIT HOUR**

A credit hour is a unit that gives weight to the value, level, or time requirements of an academic course. A credit hour is a proxy measure of student learning.

One quarter credit hour equals 30 units comprised of the following academic activities:

- One clock hour in a didactic (lecture) learning environment = 2 units
- One clock hour in a supervised laboratory setting of instruction = 1.5 units
- One clock hour of externship = 1 unit

For Financial Aid and Veterans Affairs purposes, the above conversion factors do not apply.

**COURSE IDENTIFICATION SYSTEM**

Courses have titles represented by letters and numbers. The first few letters refer to the program, and the first number of the following three numbers represents the year. Note: Course crossover may occur in some programs.

**LETTERING SYSTEM**

AU	Automotive Technology
BTA	Business Technology & Accounting
EL	Electrical Technology
IN	Instrumentation & Industrial Automation Technology
ITC	Information Technology & Communication Systems
MA	Precision Machining & Manufacturing
MED	Medical Assistant
MOA	Medical Office Administration & Coding
RE	Heating, Ventilation, Air Conditioning & Refrigeration Technology
WLD	Welding Technology

**GRADING**

The progress or grading system by which a student will be evaluated is as follows:

Grade	GPA	Grade	GPA
A	4.0	C	2.0
A-	3.7	C-	1.7
B+	3.3	D+	1.3
B	3.0	D	1.0
B-	2.7	D-	.7
C+	2.3	F	0

P/F	Pass/Fail	R	Repeated
I	Incomplete	CT	Credit Awarded by Testing
W	Withdraw		

An incomplete grade will revert to a failing grade if it is not completed by the end of the term. Only in the case of a leave of absence will an incomplete be carried into the next term.

Students may view their grades or print an unofficial transcript through myperrytech.edu at any time. A copy is sent to the student’s counselor (if applicable) at the end of each term and the documentation is maintained in the school’s database. A student who wishes to appeal a grade, must submit a letter to the Dean of Education within 10 business days of the completed term. The letter must describe any and all circumstances deserving further consideration. The burden of proof in an appeal lies with the student. The Dean of Education will convene an appeal committee consisting of the department head, instructor, and a designated representative of the school in order to review the appeal. The student will be notified within one week of the official appeal decision.

**MAKE-UP WORK**

Make-up work will be available for the following reasons: medical emergency, military leave, or other approved family crisis. To request make-up work, the student must provide the instructor with third-party verification of the reason.

The following types of make-up work are allowed: textbook assignments, quizzes, tests, projects, and lab work.

**GRADUATION REQUIREMENTS**

*Addendum: pg. 1*

- 1) Completion of:
  - 75.5 credit hours for Automotive Technology
  - 116.0 credit hours for Business Technology & Accounting
  - 172.5 credit hours for Electrical Technology
  - 174.5 credit hours for HVAC/R Technology
  - 160.5 credit hours for Information Technology & Communication Systems
  - 159.0 credit hours for Instrumentation & Industrial Automation Technology
  - 139.5 credit hours for Precision Machining & Manufacturing
  - 114.0 credit hours for Medical Assistant
  - 115.5 credit hours for Medical Office Administration & Coding
  - 77.0 credit hours for Welding Technology
- 2) Maintain satisfactory progress with a minimum grade point average of 2.0
- 3) Maintain satisfactory attendance record
- 4) Maintain proper student conduct
- 5) Full payment or satisfactory arrangement to fulfill all financial obligations

**ASSOCIATE OF APPLIED SCIENCE/CERTIFICATE OF COMPLETION**

Business Technology & Accounting students who satisfactorily complete their course of training are granted Associate of Applied Science degrees. Students who satisfactorily complete training in all other programs are granted Certificates of Completion.

*Addendum: pg. 2*

**ENROLLMENT CAPACITY**

Automotive	16 each section, 64 total
BTA	24 each section, 48 total
Electrical	22 each section, 176 total

HVAC/R	22 each section, 88 total
ITCS	24 each section, 96 total
Instrumentation	22 each section, 176 total
Machining	12 each section, 48 total
MED	24 each section, 48 total
MOAC	24 each section, 48 total
Welding	20 each section, 60 total

### RE-ENROLLMENT TO PERRY TECHNICAL INSTITUTE

Students intending to re-enroll after withdrawing or being dismissed from Perry Technical Institute are required to write a letter addressed to the appropriate Dean that clearly states the following:

- 1) The reason for termination
- 2) The actions taken during the termination period to resolve the problem
- 3) His/her plan to successfully complete the program

### TRANSCRIPTS

Upon graduation, a graduate will receive one free official transcript. Fees are assessed for additional transcripts. Official transcripts are \$10 and unofficial transcripts are \$3. Unofficial transcripts are available at no cost at my.perrytech.edu.

## ❖ student services

### ADVISING

Faculty members will regularly monitor their students' performance in class and provide advising as necessary or requested. Career advising is available through instructors or Career Services. Career Services can be reached by phone at 509.453.0374 or in person in the Learning Resource Center.

### FIRST AID/CPR TRAINING

Students are required to have a two-year first aid/CPR certification. Perry Technical Institute offers first aid/CPR classes on campus. The company providing the certification charges the student a fee for this service.

### HOUSING

The school does not provide housing for students. Subject to availability, dorm accommodations are available on the Yakima Valley Community College campus for eligible students. Information on rental units and dorm accommodations may be obtained from Enrollment Services or through the Perry website, perrytech.edu.

### JOB PLACEMENT

The school does not guarantee placement upon completion of a training program. However, Perry Technical Institute offers continuous career services to its graduates and current students to provide assistance with:

- 1) Job search planning and implementation
- 2) Resume and cover letter preparation
- 3) Mock interviews
- 4) Locating job advertisements
- 5) Coordination of company interviews on campus

The Career Services Office may be contacted for more information or to schedule an appointment to receive assistance.

### STUDENT ACCIDENT INSURANCE

Perry Technical Institute requires each enrolled student to participate in the school's Student Accident Insurance which covers accidents that occur during on-campus training-related activities, off-campus training-related field work, and unpaid externships. The Student Accident Insurance is mandatory and will be applied to the student's account each term for a fee. Information about Student Accident Insurance and claim forms are available through the Facilities & Safety Office.

### LEARNING RESOURCE SYSTEM

The school's Learning Resource System materials are integrated into the school's curriculum and program requirements as a mechanism to enhance the educational process and to facilitate positive learning outcomes for students. Perry Technical Institute provides learning resource materials that are commensurate with the level of education provided and appropriate to the courses of study in sufficient quantity and scope to meet the educational objectives of each program. Perry Technical Institute has a partnership with the Yakima Valley Libraries which provides Perry students with 24/7 access to a complete collection of online libraries and databases. In addition, the library offers computers, books, internet/WIFI access, and research assistance. Students will be required to obtain a Yakima Valley Library Card upon enrollment. Students will be trained to locate and use information through the learning resource system.

The PTI Learning Resource Center is located off the Michael G. Smith Hallway. Hours of operation are Monday, 6:30 a.m. to 7:00 p.m. and Tuesday through Thursday, 6:30 a.m. to 5:30 p.m. (excluding school closures and holidays).

## ❖ financial aid

Perry Technical Institute offers a variety of financial assistance to eligible students. Aid in the form of grants, loans, jobs, and scholarships help offset the cost of educational expenses. Financial aid is administered in accordance with established state and federal policies and philosophies. The basis of these policies is the belief that financing a student's education is the responsibility of the student and family.

### ELIGIBILITY

A student's financial aid award is based on a demonstrated financial need. Need is determined from analysis of the Free Application for Federal Student Aid Form (FAFSA). This form is analyzed to determine the expected contribution from the student and the student's family toward the educational expenses. Financial need is the difference between total educational expenses for an academic year and the student/family contribution. Financial aid should be viewed as a supplement only after the full resources of the student and family are committed.

### SATISFACTORY ACADEMIC PROGRESS REQUIREMENTS FOR FINANCIAL AID RECIPIENTS

#### DEFINITION

Satisfactory Academic Progress (SAP) holds students accountable for meeting the minimum academic standards in an eligible program of study per federal and state financial aid regulations. SAP is reviewed by the Director of Financial Aid before financial aid is awarded and is reviewed at the end of every term that aid is received.

Students must be making SAP in order to remain eligible for financial

aid. To fulfill SAP requirements, students must:

1. Complete each term with a minimum GPA of 2.0 and have a minimum cumulative GPA of 2.0.
2. Quantitative/credit completion rules: All students at Perry Technical Institute (PTI) attend full time in programs exceeding 12 credit hours per term. Students must successfully complete 100% of the credits associated with the full time awards (meeting the minimum GPA 2.0) or aid will be terminated.
3. Progress in a program of study at a pace that allows completion within the maximum time frame of 150% (federal funds) and 125% (state funds) of program length.
4. Courses must be completed on time.

If a student withdraws or is terminated, the Dean of Education or Associate Dean notifies the Director of Financial Aid and R2T4 is calculated and financial aid for future terms is terminated. If at the end of any term a student is not making SAP, the Registrar notifies the Director of Financial Aid and financial aid funds for future terms are terminated. If possible, a Financial Aid employee meets with the student to discuss termination of eligibility. If not, they will be notified regarding eligibility by phone or mail. If a student does not make SAP at the end of the payment period and they wish to continue in the program of study, the student will need to repeat all of the coursework in that payment period based on our school's academic policies.

If a student reenrolls, he or she will not be eligible for federal or state financial aid for his or her first term back. In order to regain eligibility, the student must complete all credits in the first term back successfully. After successfully completing the term with a minimum of 2.0 GPA, his or her financial aid will be reinstated for future terms. The student will also be on probation for 1 quarter followed by an academic plan for up to 3 quarters for pace of completion.

If, due to extenuating circumstances the student fails to meet SAP requirements, he or she may appeal the termination of his or her financial aid to the Director of Financial Aid. Appeals are completed on the Financial Aid General Appeal Form. Based upon review of a student's circumstances by the Director of Financial Aid, exceptions may be made to the stated SAP requirements. All appeals will be reviewed on an individual basis and will take into consideration special circumstances such as the death of a relative, an injury or illness of the student or other unusual circumstances. The appeal must include a statement from the student as to why he or she failed to make SAP and what has changed in the student's situation that will allow the student to demonstrate SAP at the next evaluation. An otherwise eligible student in a repeated quarter resulting from a successful appeal may receive financial aid for a maximum of one repeated term per FSA Regulations. The student will also be on probation for 1 quarter followed by an academic plan for up to 3 quarters for pace of completion. If the student does not meet both the minimum 2.0 GPA SAP standards by the end of the repeated quarter, and be on pace for completion after 3 terms following the failed term, financial aid will be terminated.

### **INCOMPLETES (SAP)**

If at the end of the term the student has an incomplete, no financial aid is disbursed for the following term until the term is completed and SAP can be determined.

### **TRANSFER OF CREDITS**

Due to the unique occupational nature of the courses offered at Perry Technical Institute, transfer credits from other post-secondary institutions are not accepted.

### **REINSTATEMENT OF AID**

Students' financial aid may be reinstated in one of two ways:

1. By having the Financial Aid General Appeal Form approved.
2. By remaining in school and re-establishing compliance with the minimum cumulative GPA (qualitative) and attendance (quantitative) standards.

### **WITHDRAWALS (REFUNDS)**

Perry Technical Institute uses the student's last date of attendance as their official withdrawal date. Up through the 60% point in each payment period or period of enrollment, a pro-rata schedule is used to determine how much FSA Program funds the student has earned at the time of withdrawal. The Return of Title IV Fund Calculation is used to determine the amount that must be returned by the student and school.

The amount of financial aid earned is the percentage of aid earned multiplied by the total amount of aid that was disbursed for the payment period or period of enrollment as of the day the student withdrew.

1. If the day the student withdrew occurs on or before the student completed 60% of the payment period or period of enrollment for which the assistance was awarded, the percentage earned is equal to the percentage of the payment period for which assistance was awarded that was completed.
2. If the day the student withdrew occurs after the student has completed greater than 60 percent of the payment period or period of enrollment, the percentage earned is 100%.

Following federal policy using the Title IV Fund Calculation, the percentage of the payment period or period of enrollment completed is determined by calculating the total number of calendar days in the payment period divided into the number of calendar days completed in that period as of the day the student withdrew.

Funds will be returned in the following order:

- 1) Unsubsidized Federal Stafford Loans
- 2) Subsidized Federal Stafford Loans
- 3) Perkins Loans
- 4) Federal/Direct Plus Loans
- 5) Federal Pell Grants
- 6) FSEOG

### **REFUNDING STATE AID FUNDS STATE NEED GRANT (SNG), COLLEGE BOUND SCHOLARSHIP (CBS) AND PASSPORT TO COLLEGE SCHOLARSHIP (PTC)**

If a student withdraws and his/her last date of attendance is prior to or at 50% of the term, the SNG and/or CBS repayment will be based on the percent of the term not completed, following the procedures outlined in the Washington Student Achievement Council's repayment methodology. Funds will be returned to SNG and/or CBS and/or PTC via the Washington Student Achievement Council's secure portal, CSAW. If a student last date of attendance is after 50% of the term, the aid is considered 100% earned per the State Grant Aid repayment policy and no repayment is processed.



## SBCTC OPPORTUNITY GRANTS (OG)

For refunds/repayment, the Perry Technical Institute Tuition Refund Policy will be followed.

Percentage of student's attendance for term	Refund due to state (% of OG)
0%-first 9%	90%
10%-25%	75%
26%-60%	50%
More than 60%	0%

The foundation's mission is to raise funds for student scholarships, loans, instructional equipment, and capital improvements which enrich learning on the Perry campus.

With the support of alumni, community members, foundations, and industry, Perry Technical Foundation has established a strong scholarship program designed to assist current students working toward their career goals. Over the last five years, the Perry Technical Foundation has awarded nearly \$2 million in scholarships to deserving students. For more information on scholarships, please visit the foundation office.

## ❖ veteran education benefits

Perry Technical Institute qualifies for all chapters of veteran's aid. Selected programs of study at Perry Technical Institute 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.

To apply for benefits, you may obtain an application at Perry Technical Institute or apply online at <http://gibill.va.gov/>. Return the completed application to PTI along with a certified copy of your DD214 form. You must also provide copies of transcripts from any other colleges that you have attended. The Veterans Certifying Official will forward applications to the Department of Veterans Affairs.

Perry Technical Institute 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 awarding of student financial assistance.

## MILITARY ACTIVE DUTY POLICY

- 1) A student or military dependent leaving for active duty or due to relocation related to military service during an academic term will receive an Incomplete.
- 2) The student should request to resume academic work within six months of returning from active duty or relocating back to the area.
- 3) The school will place the student in the earliest possible enrollment period.
- 4) Upon returning and finishing the academic work for the class section, the Incomplete will be removed and a final grade for that section will be given.

## REFUND POLICY FOR ACTIVE DUTY

- 1) Refunds will be processed in accordance with the Title IV refund policy when applicable.
- 2) Upon returning, Military Active Duty students or military dependents whose training was interrupted due to military service will receive a waiver equal to the amount of prior tuition unless financial aid funds were used.

*Addendum: pg. 2*

## ❖ perry technical foundation scholarships

In 1992, a group of community volunteers pledged their commitment to Perry Technical Institute by forming Perry Technical Foundation.

## ❖ tuition costs by program

### Costs of Enrollment for Programs One Year in Length\*

	(SUM 2015) AUTO	(FALL 2015) WELD
Tuition	\$15,576.00	\$15,770.50
Lab Fees	\$200.00	\$2,000.00
Tool Fee	\$2,500.00	
Technology Fees	\$60.00	\$60.00
First Aid/CPR fee	\$25.00	\$25.00
Student Accident Insurance Fees	\$88.00	\$88.00
Graduation Fee	\$54.00	\$54.00
<b>TOTAL TUITION AND FEES</b>	<b>\$18,503.00</b>	<b>\$17,997.50</b>
<b>ADDITIONAL ESTIMATED COSTS</b>		
Books (average)	\$191.00	\$229.00
Tools (average)	\$2,879.00	\$1,841.00
Materials (average)	\$218.00	\$77.00
Uniform (average)	\$114.00	
<b>TOTAL ADDITIONAL ESTIMATED COSTS</b>	<b>\$3,402.00</b>	<b>\$2,147.00</b>
<b>TOTAL COST OF ENROLLMENT</b>	<b>\$21,905.00</b>	<b>\$20,144.50</b>

\*Additional Certifications and Field Trips are optional and costs will be assessed separately.

### Costs of Enrollment for Programs Eighteen Months in Length\*

	(FALL 2015) MOAC	(FALL 2015) BTA	(WTR 2016) MED
Tuition	\$ 23,498.25	\$ 23,498.25	\$24,142.00
Lab Fees	\$180.00	\$150.00	\$300.00
Technology Fees	\$330.00	\$330.00	\$330.00
First Aid/CPR fee	\$25.00	\$25.00	\$35.00
Student Accident Insurance Fees	\$132.00	\$132.00	\$132.00
Graduation Fee	\$54.00	\$54.00	\$54.00
<b>TOTAL TUITION AND FEES</b>	<b>\$24,219.25</b>	<b>\$24,189.25</b>	<b>\$24,993.00</b>
<b>ADDITIONAL ESTIMATED COSTS</b>			
Books (average)	\$3,739.00	\$4,341.00	\$2,365.00
Tools (average)	\$974.00	\$974.00	\$974.00
Materials (average)	\$183.00		\$211.00
Uniform (average)			
<b>TOTAL ADDITIONAL ESTIMATED COSTS</b>	<b>\$4,896.00</b>	<b>\$5,315.00</b>	<b>\$3,550.00</b>
<b>TOTAL COST OF ENROLLMENT</b>	<b>\$29,115.25</b>	<b>\$29,504.25</b>	<b>\$28,543.00</b>

\*Additional certifications and field trips are optional and costs will be assessed separately.

The State of Washington does not allow for tax-exemption of items purchased for use in the State of Washington such as books and tools for instruction received in the State of Washington.

**Costs of Enrollment for Programs Two Years in Length\***

	(SUM 2015) ITCS	(SUM 2015) ELEC	(SUM 2015) HVAC	(SUM 2015) INSTRU	(SUM 2015) MACH
Tuition	\$31,930.00	\$34,939.00	\$ 31,930.00	\$ 31,930.00	\$ 31,930.00
Lab Fees	\$360.00	\$360.00	\$400.00	\$160.00	\$360.00
Field Training Fees		\$600.00			
Technology Fees	\$120.00	\$120.00	\$120.00	\$120.00	\$120.00
First Aid/CPR fee	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00
First Aid/CPR Renewal fee		\$20.00			
Student Accident Insurance Fees	\$176.00	\$176.00	\$176.00	\$176.00	\$176.00
Graduation Fee	\$54.00	\$54.00	\$54.00	\$54.00	\$54.00
<b>TOTAL TUITION AND FEES</b>	<b>\$32,665.00</b>	<b>\$ 36,294.00</b>	<b>\$ 32,705.00</b>	<b>\$ 32,465.00</b>	<b>\$32,665.00</b>
<b>ADDITIONAL ESTIMATED COSTS</b>					
Books (average)	\$931.00	\$1,404.00	\$625.00	\$1,062.00	\$958.00
Tools (average)	\$1,300.00	\$1,510.00	\$1,866.00	\$2,320.00	\$3,766.00
Materials (average)	\$557.00	\$123.00	\$192.00	\$372.00	\$13.00
Uniform (average)		\$271.00	\$114.00		
Total Additional Estimated Costs	\$2,788.00	\$3,308.00	\$2,797.00	\$3,754.00	\$4,737.00
<b>TOTAL COST OF ENROLLMENT</b>	<b>\$35,453.00</b>	<b>\$39,602.00</b>	<b>\$35,502.00</b>	<b>\$36,219.00</b>	<b>\$37,402.00</b>

\*Additional certifications and field trips are optional and costs will be assessed separately.

The State of Washington does not allow for tax-exemption of items purchased for use in the State of Washington such as books and tools for instruction received in the State of Washington.

## ❖ tuition and fees

### TUITION PAYMENT REQUIREMENTS

Tuition is billed on a quarterly basis. Tuition is generally due at the start of each program quarter, however, there is an optional Tuition Payment Plan (TPP) available which may be subject to a fee and late charges, and which allows a maximum of three payments over the term. A student with a balance owing on his/her account may not be allowed to continue to the next term.

### DELINQUENT ACCOUNTS

In the event a student's account is delinquent, the student may be required to pay late fees and all reasonable collection costs, including attorney fees and collection agency fees in accordance with Washington State law. Student transcripts may also be held if an account is delinquent. Students will not receive a certificate of graduation or a degree if they have a balance owing.

### RETURNED CHECK PROCESSING FEE

A charge of \$32 is assessed each time a student's check is returned by a bank withholding payment. In addition, the student may not be permitted to pay by check for any future payments.

### CANCELLATION & REFUND POLICY

The school will refund all money paid if the applicant is not accepted including instances where a starting class is cancelled by the school.

The school will refund all money paid if an applicant cancels within five business days (excluding Sundays and holidays) after the enrollment contract is signed or an initial payment is made, as long as the applicant has not entered class.

If the applicant cancels after the fifth business day after signing the enrollment contract or making an initial payment, but prior to attending class, the school will retain the registration fee not to exceed \$100.00.

If training is terminated after the student enters class, the school will retain 100% of all assessed fees with the exception of lab fees. The school will refund a pro-rated portion of tuition and lab fees based on the following schedule:

If the student completes through:	The school refunds this training amount to student:
The first 10%	90%
11% through 25%	75%
26% through 60%	50%
More than 60%	0%

The training completion percentage is calculated by dividing the number of scheduled class days through the date of student's termination by the total number of scheduled class days in the term.

When calculating refunds, the official date of a student's termination is the last actual day of recorded attendance. All refunds will be paid within 30 calendar days of the student's official termination date.

Any student receiving federal or state financial aid who officially or unofficially withdraws from Perry Technical Institute will have funds returned to the appropriate financial aid program based on the regulations governing the program.

## ❖ general information

### PROGRAM ADVISORY COMMITTEES

Each program at Perry Technical Institute maintains an independent Advisory Committee that meets two times per year to review the established curriculum and comment as to the appropriateness and adequacy of the program objectives, program length, curriculum content, learning resources, facilities and equipment, student graduation, and graduate employment. The majority of the members of each Program Advisory Committee are employers representing the major occupations for which training is provided. Departments with student associations may also include student members as well as instructional staff.

### ARTICULATION AGREEMENTS

A collaborated program between Perry Technical Institute and Yakima Valley Community College provides students with the opportunity to earn an Associate of Applied Science in three technical areas\*. Upon acceptance into a designated Perry Technical Institute program, students may begin taking required classes at Yakima Valley Community College. This can be done while waiting for entrance into the technical portion of their degree, while they complete the technical portion, or after they completed their technical portion.

An Associate of Applied Science along with the technical program allows students to work more effectively in their chosen field and to help them compete for advanced opportunities. An official referral from Perry Technical Institute is required for students enrolling under the terms of this agreement.

In addition to completing their technical program at Perry Technical Institute, students complete credits at Yakima Valley Community College. Credits are designated as core requirements and are required for all programs. For additional information, please contact the Workforce Education Division at Yakima Valley Community College at 509.574.4744 or 509.574.4796 ([www.yvcc.edu](http://www.yvcc.edu)) or Perry Technical Institute at 509.453.0374.

An articulation between Perry Technical Institute, the Yakima School District, and the Yakima Valley Technical Skills Center provides high school students with the opportunity to earn credit for one quarter in Perry's Automotive, Welding, Business, and Medical programs. In order to qualify, high school students must meet all terms of the articulation agreement, including but not limited to, providing Perry Technical Institute with transcripts that depict transferable credits have been earned.

\*The Instrumentation & Industrial Automation Technology, Heating, Ventilation, Air Conditioning & Refrigeration Technology, and Electrical Technology programs have articulation agreements with Yakima Valley Community College.

### COMPARABLE PROGRAMS

Information about comparable programs, tuition, and length of programs may be obtained by contacting:

Accrediting Commission of Career Schools and Colleges  
2101 Wilson Blvd., Suite 302  
Arlington, VA 22201  
Telephone: 703.247.4212  
[www.accsc.org](http://www.accsc.org)



## **STUDENT COMPLAINT/GRIEVANCE PROCEDURE**

Perry Technical Institute utilizes policies and procedures for handling student complaints and informs the students in writing of them. When a student has a complaint, they're encouraged to follow the chain of command and communicate informally first with the instructor, then the Department Head, and then the Dean/Associate Dean of Education. If the student is still unsatisfied, he/she is asked to file a PTI Complaint Form at the President's Office and then encouraged to make an appointment with the President for further discussion and action.

A student may consider contacting the Workforce Training and Education Coordinating Board. Contact information for the Workforce Training and Education Coordinating Board is as follows:

Workforce Training and Education Coordinating Board  
128 Tenth Ave. SW  
Olympia, WA 98504-3105  
Telephone 360.753.5673.

More information can be obtained by referencing RCW's Title 28C > Chapter 28C.10 or 28C.10.084(10) and 28C.10.120 or WACs > Title 490 > Chapter 490-105 > Section 490-105-180

Schools accredited by the Accrediting Commission of Career Schools and Colleges must have a procedure and operational plan for handling student complaints. If a student does not feel that the school has adequately addressed a complaint or concern, the student may consider contacting the Accrediting Commission. All complaints reviewed by the Commission must be in written form and should grant permission for the Commission to forward a copy of the complaint to the school for a response. This can be accomplished by filing the ACCSC Complaint Form. The complainant(s) will be kept informed as to the status of the complaint as well as the final resolution by the Commission. Please direct all inquiries to:

Accrediting Commission of Career Schools and Colleges  
2101 Wilson Boulevard, Suite 302  
Arlington, VA 22201  
703.247.4212  
<http://www.accsc.org/>

A copy of the ACCSC Complaint Form is available at the school and may be obtained by contacting the Institutional Effectiveness & Accreditation Office or online at <http://www.accsc.org/>.

## **CONDUCT STANDARDS**

Admission to Perry Technical Institute carries with it the expectation that students will conduct themselves as responsible members of the school community, that they will comply with the rules and regulations of the institution, maintain high standards of integrity and honesty, respect the rights, privileges, and property of other members of the school community, and will not interfere with legitimate Perry Technical Institute affairs.

Perry Technical Institute maintains the right to make and enforce rules for conduct. This includes the right to dismiss at any time a student whose conduct, academic standing, or health is such that the Administration believes it undesirable for that student to continue at Perry Technical Institute.

A student policy handbook is provided to all new students the first day of class. The booklet provides a complete statement of the policies

and procedures and describes student rights and responsibilities which govern students attending Perry Technical Institute, including any disputes involving the school, its faculty or staff, and the student.

## **DRUG-FREE AND ALCOHOL-FREE CAMPUS AND WORKPLACE POLICY STATEMENT**

In accordance with federal law, Perry Technical Institute has adopted this Drug-Free and Alcohol-Free Campus and Workplace Policy. Perry Technical Institute recognizes that students and employees have a right to a safe and secure campus and workplace and has implemented a drug and alcohol abuse prevention assistance program. Furthermore, Perry Technical Institute recognizes that employers who hire students from its programs demand employees who are drug free. In order to ensure that Perry Technical Institute's students are the highest quality and are able to meet the demands of employers, Perry Technical Institute adopts its drug testing policy.

### **Standards of Conduct Regarding Drugs and Alcohol**

The unlawful manufacture, distribution, dispensing, possession or use of any federally banned substance, prescribed medical drugs that were unlawfully obtained or are being unlawfully or abusively used, drug-related paraphernalia, or being under the influence of controlled substances is prohibited at Perry Technical Institute, in the workplace, on campus, while engaging in school business, and at any activities sponsored by Perry Technical Institute. Returning or arriving to school after consuming drugs or alcohol is prohibited and will result in immediate dismissal.

Any student who is taking a drug or medication, whether or not prescribed by the student's physician, which may adversely affect that student's ability to perform work in a safe or productive manner, is required to report such use of medication to his/her instructor or Department Head. This includes drugs known or advertised as possibly affecting judgment, coordination, or any of the senses, including those which may cause drowsiness or dizziness. A doctor, dentist, or druggist will determine whether the student can remain at school and whether any work restrictions are necessary. The instructor may request such assistance as he/she desires in making the determination.

### **Health Risks**

Short-term and long-term effects of drug use vary for the specific drugs, but the following nonexclusive list of health risks have been identified with the use and abuse of illicit drugs and alcohol: confusion, lack of coordination, memory loss; depression; fetal alcohol syndrome; problem pregnancies; sclerosis; circulatory problems; insomnia; heart failure; respiratory arrest; cardiac arrest; seizures; coma; anxiety; paranoia; irritability; fatigue; mental illness; and death.

### **Institute Sanctions**

The Institute will conduct drug and/or alcohol testing under any of the following circumstances:

**RANDOM TESTING:** Students may be selected at random for drug and/or alcohol testing at any interval determined by the Institute. Any student who enrolls at Perry Technical Institute gives consent to random drug tests as an express condition of his or her enrollment and continued enrollment at Perry Technical Institute.

**FOR-CAUSE TESTING:** The Institute may ask a student to submit to a drug and/or alcohol test at any time it feels that the

student may be under the influence of drugs or alcohol, including, but not limited to, the following circumstances: evidence of drugs or alcohol on or about the student's person or in the student's vicinity, unusual conduct on the student's part that suggests impairment or influence of drugs or alcohol, negative performance patterns, or excessive and unexplained absenteeism or tardiness.

**POST-ACCIDENT TESTING:** Any student involved in a training-related accident or injury under circumstances that suggest possible use or influence of drugs or alcohol in the accident or injury event will be asked to submit to a drug and/or alcohol test. "Involved in a training-related accident or injury" means not only the one who was or could have been injured, but also any student who potentially contributed to the accident or injury event in any way.

A student will be presumed under the influence of an illegal controlled substance upon any positive finding from a random drug test or reasonable cause drug test given under this policy. Drug testing will be by mass spectrometer test on Perry Technical Institute time and expense by a certified creditable laboratory or medical facility prescribed by the Institute. Random drug test collection will be conducted on the Perry Technical Institute campus with a minimal disruption to class time. Failure to take a drug test, producing a cold sample, or producing a dilute test will result in a positive test result. A positive test result may result in the imposition of sanctions up to and including, but not limited to, suspension and/or dismissal. A student who has been deemed to be under-the-influence may not operate any vehicle on company property or a public roadway. If the student insists on driving, PTI administration will contact law enforcement and report the infraction.

If a student has violated the Drug-Free and Alcohol-Free Campus and Workplace Policy, the Institute may take any of the following actions:

- Disciplinary action including, but not limited to, suspension and/or dismissal, and/ or
- Require the student to satisfactorily participate in drug abuse assistance or rehabilitation program approved for such purpose by federal, state or local health, law enforcement, or other appropriate agency.

Any student convicted of any criminal drug statute violation occurring in the workplace, during school hours, or while engaged in Institute business, must notify the President or Dean of Education no later than five (5) days after such conviction.

### Legal Sanctions

In addition to sanctions imposed by the Institute, drug and/or alcohol violations may be referred to the appropriate external authorities. This may result in arrest and conviction under applicable criminal laws of the United States, the State of Washington, or local municipalities. Violations as specified above may result in penalties ranging from fines through imprisonment.

### Available Assistance Treatment Programs

Alcoholism and drug dependency are defined as illnesses that may interfere with a student's ability to perform assigned work satisfactorily or that adversely affect classroom behavior. Students are encouraged to voluntarily seek expert assistance for alcoholism, alcohol abuse, or drug dependency. Assistance is available through a variety of professional resources in the community.

Community resources include:

Yakima Valley Farm Workers Clinic - Behavioral Health Services	509.453.1344
Department of Social & Health Services	877.501.2233
Central Washington Comprehensive Mental Health	509.248.1200
Neighborhood Health Services	509.454.4143
Yakima Health District	509.575.4040
Yakima Valley Vet Center	509.457.2736
Merit Resources	509.469.9366
Sundown M Ranch	509.457.0990
Barth Clinic	509.457.5653

### ANTI-HARASSMENT POLICY

As a part of continuing efforts by Perry Technical Institute to prevent unlawful discrimination, and pursuant to guidelines issued by the Equal Employment Opportunity Commission and the Washington Human Rights Commission, the school endorses the following policy.

All are reminded that each student is at all times to be treated courteously by fellow students, so that he or she is free from harassment or interference.

Harassment is defined as unwelcome or unsolicited verbal, physical or sexual conduct which creates an intimidating, offensive, or hostile environment. Examples of what may be considered harassment, depending on the circumstances, are:

- Questions or comments that unnecessarily infringe on personal privacy or offensive, sexist, off-color or sexual remarks, jokes, slurs or propositions or comments that disparage a person or group on the basis of race, color, age (40 and over), sex, pregnancy, gender, creed, disability, religion, national origin, ethnic background, military service, or citizenship.
- Derogatory or suggestive posters, cartoons, photographs, calendars, graffiti, drawings, other materials, electronic mail, or gestures.
- Inappropriate touching, hitting, pushing, or other aggressive physical contact or threats to take such action.

PTI will promptly investigate all charges of violation of this policy. The confidentiality of the person reporting violations will be respected so far as practical in conducting an investigation of such claims. There will absolutely be no retaliation against persons filing such complaints.

### SEXUAL HARASSMENT POLICY

It is the policy of PTI that all students shall have the right to learn in an environment free from any form of unlawful discrimination. Sexual harassment is constituted as discrimination and is prohibited by state and federal laws. Therefore, it is the position of Perry Technical Institute that sexual harassment will not be tolerated. It is a violation of PTI policy for any supervisor or employee, student, male or female, to engage in sexual harassment as defined below. Such conduct will result in disciplinary action up to and including dismissal.

The Equal Employment Opportunity Commission (EEOC) defines sexual harassment as:

**Quid Pro Quo** – Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature constitute quid pro quo when (1) submission to such conduct is made either explicitly or implicitly a term or condition of an individual's enrollment and, or (2) submission or rejection of such conduct by an individual is used as the basis for enrollment decisions affecting an individual.

**Hostile Environment** – Is one in which unwelcome sexual advances, requests for sexual favors and verbal or other conduct of a physical nature occur and when such conduct has the purpose or effect of unreasonably interfering with an individual's performance or creating an intimidating, hostile, or offensive environment.

Some examples of sexual harassment include, but are not limited to:

- Unwanted sexual advances
- Offering benefits in exchange for sexual favors
- Making threatening reprisals after a negative response to sexual advances
- Visual conduct such as leering, making sexual gestures, or displaying sexually suggestive objects, pictures, cartoons, posters, or electronic mail
- Verbal conduct such as making derogatory comments, epithets, slurs, sexually explicit jokes, or comments about an employee's body or dress
- Verbal sexual advances or propositions
- Verbal abuse of a sexual nature, graphic verbal commentary about an individual's body, sexually degrading words to describe an individual, or suggestive or obscene letters, notes, or invitations
- Physical conduct such as touching, assault, or impeding or blocking movement
- Retaliation for reporting harassment or threatening to report harassment
- Sexual assault, domestic violence, dating violence, and stalking

Any student, who believes he/she has experienced such conduct by anyone should tell the offender that such conduct is unwelcome and unacceptable. If the offensive behavior does not stop, or if the student is uncomfortable confronting the offender, the student must immediately report such conduct to an instructor or to the employee listed below:

Title IX Coordinator/Director of HR for Faculty & Staff Development  
Perry Technical Institute Human Resources Office  
509.895.5755

PTI prohibits retaliation against any student who complains of sexual harassment or who participates in an investigation. All aspects of the complaint-handling procedure will be dealt with discreetly. However, it may be necessary to include others on a need-to-know basis.

All incidents of prohibited harassment that are reported will be investigated. The compliance officer listed above will immediately undertake or direct an effective, thorough, and objective investigation of the harassment allegations. The investigation will be completed as soon as practical and a determination regarding the reported harassment will be made and communicated to the student who complained and to the accused harasser. If a complaint of prohibited harassment is substantiated, appropriate corrective action, up to and including dismissal, will be taken. Appropriate action will also be taken to correct the effects of the harassment and to deter any future harassment.

## LIABILITY

Perry Technical Institute is not responsible for loss or damage to student personal property or for personal and/or bodily injury to student occurring while on the school grounds or on field trips.

## PARKING PERMIT POLICY

All vehicles parked regularly on the Perry Technical Institute campus must have a parking permit visibly displayed at all times. If a student forgets his/her parking permit or it is lost or stolen, he/she should report to the Academic Support Services Office immediately to obtain a temporary permit or to purchase a new permit. If a vehicle is found without a parking permit or in violation of the parking lot regulations, Security will put a parking ticket on the vehicle's windshield describing what action needs to be taken. If the issue is not resolved by the end of the school day, the vehicle may be towed or disciplinary action may be taken. Students who drive multiple vehicles may switch their parking permit between vehicles or purchase another parking permit for \$3. All drivers must fill out a Vehicle Registration Form to give the school a record of all vehicles on campus. Students must notify the Academic Support Services Office if their vehicle information changes.

## NON-DISCRIMINATION POLICY

Perry Technical Institute does not discriminate on the basis of race, color, religion, national origin, ancestry, sex, sexual orientation, disability, or age in its programs and activities. The following person has been designated to handle inquiries regarding the non-discrimination policies:

Title IX Coordinator/Director of HR for Faculty & Staff Development  
Perry Technical Institute  
2011 W. Washington Ave.  
Yakima, WA 98903  
509.453.0374 or 888.528.8586

Seattle Office  
Office for Civil Rights  
U.S. Department of Education 915 Second Ave., Room 3310  
Seattle, WA 98174-1099  
Telephone: 206.220.7900 Fax: 206.220.7887; TDD: 877.521.2172  
Email: OCR.Seattle@ed.gov

Students with a disability who would like to discuss accommodations should make an appointment with the Dean of Education.

## STUDENT RECORDS

Students have the right to inspect and request amendment to their confidential education records. A student requesting to review his/her education records shall make the request in writing to the Registrar. The Registrar must be presented with proper identification which may include the student's identification card, a state-issued ID card, or a driver's license containing a picture of the student.

Perry Technical Institute maintains a permanent educational record for all currently enrolled students that consists of all admissions, academic and financial information upon which a student's enrollment is based. These records (physical and electronic) are securely maintained and protected against damage or loss (fire, water, theft, tampering, etc.).

Perry Technical Institute maintains an official transcript for all formerly enrolled students (graduates and terminated or withdrawn students). The transcript includes, at a minimum, the program of study; the date of program entry; the date of graduation, termination or withdrawal;

and the clock or credit hours and grades earned. An official transcript is available to students upon request and in accordance with the school's policies.

Perry Technical Institute maintains student financial records related to financial aid, tuition and fee payments, and tuition refunds for a minimum of five years. (State or federal regulation or law may require these records to be maintained for a longer period of time.)

#### **FAMILY EDUCATION RIGHTS AND PRIVACY ACT (FERPA)**

The Family Educational Rights and Privacy Act (FERPA) affords eligible students certain rights with respect to their education records. These rights include:

1) The right to inspect and review the student's education records within 45 days after the day Perry Technical Institute receives a request for access. A student should submit to the registrar a written request that identifies the record(s) the student wishes to inspect. The school official will make arrangements for access and notify the student of the time and place where the records may be inspected.

2) The right to request the amendment of the student's education records that the student believes is inaccurate, misleading, or otherwise in violation of the student's privacy rights under FERPA.

A student who wishes to ask the school to amend a record should submit a letter to the Registrar clearly identifying the part of the record the student wants changed, and specify why it should be changed.

If Perry Technical Institute decides not to amend the record as requested, the student will be notified in writing of the decision and the student's right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.

3) The right to provide written consent before Perry Technical Institute discloses personally identifiable information (PII) from the student's education records, except to the extent that FERPA authorizes disclosure without consent.

Perry Technical Institute discloses education records without a student's prior written consent under the FERPA exception for disclosure to school officials with legitimate educational interests. A school official includes a person employed by Perry Technical Institute in an administrative, supervisory, academic, research, or support staff; a person serving on the Board of trustees; a person or company with whom the school has contracted as its agent to provide a service instead of using school employees or officials (such as an attorney, auditor, or collection agent) who is under the direct control of Perry Technical Institute with respect to the use and maintenance of PII from education records. A school official has a legitimate educational interest if the official needs to review an education record in order to fulfill his or her professional responsibilities for the school.

4) The right to file a complaint with the U.S. Department of Education concerning alleged failures by Perry Technical Institute to comply with the requirements of FERPA. The name and address of the office that administers FERPA is:

Family Policy Compliance Office  
U.S. Department of Education  
400 Maryland Avenue, SW  
Washington, DC 20202

#### **TRANSFER OF CREDIT**

Credits earned at Perry Technical Institute may or may not be transferrable to other institutions depending upon policies of the receiving institution. Students wishing to transfer credits outside the institution should contact the receiving institution to determine which courses and how many credits will be transferrable.

#### **CHANGES**

This catalog is current as of the date of publication. Perry Technical Institute reserves the right to make changes at any time to any provision of this catalog, including the amount of tuition and fees; academic programs and courses; Perry Technical Institute policies and procedures; faculty and administrative staff; academic calendar; and other dates and provisions. Perry Technical Institute also reserves the right to make changes in equipment and instructional materials, to modify curriculum and, when size and curriculum permit, to combine classes.

From time to time, it may be necessary for Perry Technical Institute to make changes to this catalog due to the requirements and standards of Perry Technical Institute's accrediting body, state authorization agency or the United States Department of Education, or due to the market conditions, employer needs or for other reasons.

To see the most current version of the catalog, please visit our website at [perrytech.edu](http://perrytech.edu).



## ❖ automotive technology

Perry Technical Institute's Automotive Technology Program is designed to help students gain the necessary understanding of automotive principles through a variety of experiences including classroom learning, lab activities, working on customer vehicles, writing repair orders, and ordering parts.

The objective of the program is to provide students with a broad base of knowledge and the skills necessary for employment in the automotive industry. The nine recognized areas of automotive repair are addressed in the program: engine repair; automatic transmission/ transaxle; manual drive train and axles; suspension and steering; brakes; electrical/electronic systems; heating and air conditioning; engine performance; and light vehicle diesel engines.

The Automotive Technology Program is certified by the National Automotive Technicians Education Foundation (NATEF) and the course reflects the national automotive training standards established by the National Institute for Automotive Service Excellence (ASE). Section 609 of the U.S. Clean Air Act of 1990 requires that all mobile service technicians opening the refrigeration circuit in automotive air conditioning systems be certified in refrigerant recovery and recycling procedures. The program prepares students to obtain Section 609 Certification through the Mobile Air Conditioning Society.

The goal for students who successfully complete the course is employment as entry-level technicians in the automotive industry. The Automotive Technology Program is 12 months in length (four quarters). The student will earn 75.5 credit hours which are 1,344 clock hours. Tuition is payable on a quarterly basis. There are four quarters in an academic year.

The student to instructor ratio for the Automotive Technology Program is 16:1.

### PROGRAM OUTLINE

			Clock Hours	Credit Hours
Quarter 1	AU 110	Intro to Automotive Technology	108	6.5
	AU 111	Automotive Engine Repair	120	7.0
	AU 112	Basic Automotive Electrical Systems	<u>108</u>	<u>6.5</u>
			336	20.0
Quarter 2	AU 120	Automotive Chassis Systems	200	11.5
	AU 121	Advanced Automotive Electrical Systems	<u>136</u>	<u>8.0</u>
			336	19.5
Quarter 3	AU 130	Automotive Engine Performance & Drivability	220	13.0
	AU 131	Automotive Climate Control Systems	95	5.5
	AU 132	Automotive & Light Duty Diesel	<u>21</u>	<u>1.0</u>
			336	19.5
Quarter 4	AU 140	Automotive Drive Train Systems	215	12.5
	AU 141E	Externship	<u>121</u>	<u>4.0</u>
			336	16.5
	Program Totals		1,344	75.5

### AUTOMOTIVE TECHNOLOGY COURSE DESCRIPTIONS

#### AU 110 Intro to Automotive Technology

AU 110 Intro to Automotive Technology

This course covers workplace safety, hazardous materials and environmental regulations, use of hand tools, service information resources, basic concepts, systems, and terms of automotive technology. Topics include familiarization with vehicle systems along with identification and proper use of various automotive hand and power tools. Upon completion, students will be able to describe safety and environmental procedures, terms associated with automobiles, and know how to use basic tools and shop equipment.

#### AU 111 Automotive Engine Repair

This course covers the theory, construction, inspection, diagnosis, and repair of internal combustion engines and related systems. Topics include fundamental operating principles of engines and diagnosis, inspection, adjustment, and repair of automotive engines

using appropriate service information. Upon completion, students will be able to perform basic diagnosis, measurement, and repair of automotive engines using appropriate tools, equipment, procedures, and service information.

#### AU 112 Basic Automotive Electrical Systems

This course covers basic electrical theory, wiring diagrams, test equipment, diagnosis, repair, and replacement of batteries, starters, and alternators. Topics include Ohm's Law, circuit construction, wiring diagrams, circuit testing, and basic troubleshooting. Upon completion, students will be able to properly use wiring diagrams, diagnose, test, and repair basic wiring, battery, starting, charging, and electrical concerns.

#### AU 120 Automotive Chassis Systems

This course covers principles of operation and diagnosis/repair of manually and electronically controlled suspension and steering systems. Also included are the diagnosis and repair of hydraulic brake, drum brake, disc brake, and anti-lock brake systems. Upon

completion, students will be able to service and repair steering and suspension components, check and adjust alignment angles, repair tires and balance wheels, and demonstrate skills in hydraulic brake, drum brake, disc brake, and anti-lock brake systems.

#### **AU 121 Advanced Automotive Electrical Systems**

This course covers electronic theory, wiring diagrams, test equipment, diagnosis, repair and replacement of electronics, lighting, gauges, horn, wiper, accessories, and body modules. Topics include networking and module communication, circuit construction, wiring diagrams, circuit testing, and troubleshooting. Upon completion, students will be able to properly use wiring diagrams, diagnose, test, and repair wiring, lighting, gauges, accessories, modules, and electronic components.

#### **AU 130 Automotive Engine Performance & Drivability**

This course covers the introduction, theory of operation, and diagnostic procedures used to locate engine performance concerns. Topics will include currently used fuel-injected systems, computerized ignition, injection components, emission control, OBD II (on-board diagnostics), and interrelated electrical/electronic systems. Upon completion, students will be able to diagnose and repair complex engine performance concerns using appropriate test equipment and service information.

#### **AU 131 Automotive Climate Control Systems**

This course covers the theory of refrigeration and heating, including manual and electronic climate control systems. Students will understand the importance of recovery and recycling refrigerant as well as adhering to safety and environmental regulations. Upon completion, students will be able to diagnose and safely service climate control systems using appropriate tools, equipment, and service information.

#### **AU 132 Automotive & Light Duty Diesel**

This course covers the diagnostic and repair procedures for automotive and light duty diesel engines. Topics include common tools and practices used while servicing diesel engines. Students will identify and learn the variances of today's diesel fuels. Base engine fundamentals and condition diagnosis will be taught in conjunction with the differences, operation, and repair of diesel fuel injection systems. Students will also examine exhaust filtering and after treatment systems. Upon completion students will be able to service, diagnose and repair modern diesel engines using computer based information systems and laptop driven scan tools.

#### **AU 140 Automotive Drive Train Systems**

This course covers operation, diagnosis, service, and repair of automatic transmissions/transaxles. Topics include hydraulic, pneumatic, mechanical, and electrical/electronic operation of automatic drive trains and the use of appropriate service tools and equipment. This course will also cover manual transmissions/transaxles, clutches, drive shafts, axles, and final drives. Topics include theory of torque, power flow, and manual drive train servicing and repair using appropriate service information, tools, and equipment. Upon completion, students will be able to explain operational theory and diagnose and repair automatic and manual drive trains.

#### **AU 141E Externship**

Students will learn advanced career planning practices and demonstrate skills and competencies in externship assignments. Students must have a "C+" or better in current coursework, must not be under any type of probationary contract, and must complete

and submit a regular lab work experience employer evaluation. The instructor may terminate industry work experiences at any time if students do not adhere to these requirements. If the student does not obtain an externship, completion of a capstone project is required.

#### **AUTOMOTIVE TECHNOLOGY BOOK AND TOOL LIST**

The book and tool list for students in the Automotive Technology Program is intended to be a minimum requirement to complete the program. The book and tool list will be provided no later than the first day of class. For specifics on cost of books, training materials, uniforms, and tools, please refer to page 13.

#### **AUTOMOTIVE TECHNOLOGY EQUIPMENT LIST**

Students in the Automotive Technology Program utilize the following software and equipment:

ShopKey Pro online repair and estimating software  
Identifix  
Procut on car brake lathe  
Automotive fluid service equipment  
Rotary vehicle hoists  
Engine and transmission lifting equipment  
Hunter under car service equipment  
Factory diagnostic tools  
Snap-on diagnostic equipment  
MotoLOGIC information system

## ❖ business technology & accounting

Perry Technical Institute's Business Technology & Accounting Program covers the basic office, computer, accounting, and soft skills needed to be successful in the business world.

Students gain a solid understanding of computers including entry-level keyboarding operations, basic computer maintenance, and desktop publishing. The curriculum reviews basic arithmetic, 10-key skills, and computerized accounting and teaches students to manage their personal finances as well as grasp business concepts, the fundamentals of business finance, and managerial accounting. Students learn the soft skills needed in the office environment and the importance of career planning and how to develop a positive customer service environment.

The program prepares students to take the Microsoft Office Specialist (MOS) certification examination in Microsoft Word, Excel, Access, PowerPoint, and Outlook. In addition, students will receive the knowledge and skills needed to become certified in QuickBooks, Payroll and Bookkeeping through national associations such as the American Institute of Professional Bookkeepers and the National Association of Certified Public Bookkeepers.

The Business Technology & Accounting Program is the launching pad toward entry-level jobs in a variety of business and office positions such as administrative assistant, accounting assistant, accounts payable or receivable specialist, office manager, bookkeeper, and other administrative positions.

The Business Technology & Accounting Program is 18 months in length (six quarters). The student will earn 116.0 credit hours which are 2,016 clock hours. Tuition is payable on a quarterly basis. There are four quarters in an academic year.

The student to instructor ratio for the Business Technology & Accounting Program is 24:1.

### PROGRAM OUTLINE

			Clock Hours	Credit Hours
Quarter 1	BTA 110	Computer Applications	60	3.5
	BTA 111	Keyboarding I	30	1.5
	BTA 112	Word Processing	60	3.5
	BTA 113	Spreadsheets	60	3.5
	BTA 114	Business English I	60	3.5
	BTA 115	Business Math	<u>66</u>	<u>4.0</u>
		336	19.5	
Quarter 2	BTA 120	Database & Integration	88	5.5
	BTA 121	Keyboarding II	30	1.5
	BTA 122	Business Presentation	86	5.0
	BTA 123	Career Planning	30	1.5
	BTA 124	Business Etiquette	42	2.5
	BTA 125	Business English II	<u>60</u>	<u>3.5</u>
		336	19.5	
Quarter 3	BTA 130	Fundamentals of Accounting	76	4.5
	BTA 131	Office Administration	54	3.0
	BTA 132	Introduction to Business	60	3.5
	BTA 133	Introduction to Marketing	60	3.5
	BTA 134	Business Communications	51	3.0
	BTA 135	Human Relations	<u>35</u>	<u>2.0</u>
		336	19.5	
Quarter 4	BTA 140	Principles of Accounting I	76	4.5
	BTA 141	Entrepreneurship	70	4.0
	BTA 142	Business Ethics	60	3.5
	BTA 143	Economics	65	4.0
	BTA 144	Business Law	<u>65</u>	<u>4.0</u>
		336	20.0	
Quarter 5	BTA 210	Principles of Accounting II	91	5.5
	BTA 211	Federal & State Tax Accounting	91	5.5
	BTA 212	Human Resources	71	4.5
	BTA 213	Computerized Accounting Concepts (QuickBooks)	<u>83</u>	<u>5.0</u>
		336	20.5	

(cont. on next page)

Quarter 6	BTA 220	Payroll Accounting Concepts	60	3.5
	BTA 221	Accounting Integration (project-based using QuickBooks)	80	5.0
	BTA 222	Customer Service	76	4.5
	BTA 223E	Externship	<u>120</u>	<u>4.0</u>
			336	17.0
Program Totals			2,016	116.0

## BUSINESS TECHNOLOGY & ACCOUNTING COURSE DESCRIPTIONS

### BTA 110 Computer Applications

Course introduces the basics of computer hardware and software, networks, the Internet, Outlook, and Publisher. The objective is to allow students to be more comfortable working with personal computers on a daily basis.

### BTA 111 Keyboarding I

In this course, students learn beginning typing and 10-key skills. The objectives are for students to learn how to type by touch and how to take a timed keyboarding/10-key test for accuracy and speed.

### BTA 112 Word Processing

Students learn how to use Microsoft Word for basic and advanced word processing. The objective of this course is to prepare students to take the MOS certification exam for Word.

### BTA 113 Spreadsheets

Students learn Microsoft Excel and how to build business and financial applications for forecasting, budgeting, and basic bookkeeping. The objective of this course is to prepare students to take the MOS certification exam for Excel.

### BTA 114 Business English I

A concentrated review of sentence writing, this course emphasizes sentence combining, basic mechanics, and paragraph writing.

### BTA 115 Business Math

Students will review the basic operations of arithmetic, understand and manage their personal finances, as well as grasp the fundamentals of business finances. This course will prepare students to be smart shoppers, informed taxpayers, and valued employees. Basic math skills will be covered in a step-by-step manner, building student confidence along the way.

### BTA 120 Database & Integration

Students learn how to create and use databases with Microsoft Access. The objective of this course is to prepare students to take the MOS certification exam for Access. Students will also receive hands-on integration of the entire Microsoft Office Suite.

### BTA 121 Keyboarding II

In this course, students learn how to improve their accuracy and typing/10-key speed. Students also learn formatting for personal and business letters, memoranda, simple tabulation techniques, proofreading, and editing.

### BTA 122 Business Presentation

This course provides instruction in delivering speeches and developing presentation materials. Students will create a variety of charts, graphs, and interactive presentations with the primary use of PowerPoint. Students will be encouraged to complete the MOS certification in PowerPoint.

### BTA 123 Career Planning

This course is designed to teach students how to write a professional cover letter and resume, participate in career networking, search for positions, apply for positions, and negotiate a position in an administrative field.

### BTA 124 Business Etiquette

This course focuses on the fundamentals of etiquette as they relate to business and business relationships inside and outside the office.

### BTA 125 Business English II

This course emphasizes basic punctuation and grammar rules and covers sentence structure. The course is designed to introduce basic reading skills and to develop basic writing skills. Coursework emphasizes writing from observation as well as writing in response to readings. The focus is on writing sentences which demonstrate a grasp of basic syntax and usage, and writing sound paragraphs which express a main idea clearly and develop it fully with a minimum of errors in sentence structure, punctuation, and spelling.

### BTA 130 Fundamentals of Accounting

As an introduction to accounting, students will learn accounting concepts and procedures to include debits and credits, the general journal, general ledger, accounting cycle, banking and cash handling procedures, and payroll entries. The objective of this course is to give students a solid foundation in accounting.

### BTA 131 Office Administration

This course is designed to prepare students to manage an office and provides office-related situations including decision-making and critical thinking activities.

### BTA 132 Introduction to Business

Students will learn and apply the basic concepts of business. Topics include the business environment, business formation, financing a business, management motivation and leadership, and operations management.

### BTA 133 Introduction to Marketing

Students will learn and apply the basic concepts of marketing. Subjects included are an overview of marketing, analyzing market opportunities, product and distribution decisions, promotion and communication strategies, and pricing decisions.

### BTA 134 Business Communications

Students learn various forms of written business communications and effective verbal communications including emails, memos, letters, and working effectively in teams.

### BTA 135 Human Relations

Human Relations will develop the personal and professional skills needed to be successful in business. Topics include confidence building, self-concept and self-esteem, building positive attitudes, motivation, effective leadership, conflict management, and balancing professional and personal priorities individually and in a team environment.



### **BTA 140 Principles of Accounting I**

Students will expand their knowledge of accounting concepts and procedures by learning how to account for sales and cash receipts, purchases and cash payments, the worksheet for a merchandise company, bad debts, notes, merchandise inventory and accounting for property, plant, and equipment. The objective of this course is to familiarize students with standard accounting procedures that are found in most companies.

### **BTA 141 Entrepreneurship**

This course focuses on developing and writing a complete business plan. Students will develop a business idea and learn how to bring their idea to market. Students will learn how companies finance, choose employees, purchase assets, develop and define a market, set a pricing structure, create a marketing plan, and then present the idea to industry experts for review.

### **BTA 142 Business Ethics**

This course examines the ethical challenges facing individuals and businesses in modern society. The course utilizes case studies of professionals working in various areas of business and provides guest speakers with real-world experiences.

### **BTA 143 Economics**

This course is designed to promote economic literacy and help students appreciate how economics affects their everyday lives.

### **BTA 144 Business Law**

Business Law will focus on legal issues in the workplace and the legal system as it pertains to business transactions. Topics include contract formation and performance, real property, product liability, and employer/employee relations.

### **BTA 210 Principles of Accounting II**

Students continue to build their accounting skills by learning how to account for partnership equity, corporation stock, corporate dividends, treasury stocks and retained earnings, bonds, the statement of cash flows, financial statement analysis, and cost accounting. The objective of this course is to help students develop the analytical and problem solving skills necessary in accounting and bookkeeping positions.

### **BTA 211 Federal & State Tax Accounting**

This course will introduce students to the fundamentals of tax accounting and state tax requirements. Coursework will focus on individual returns, income and exclusions, business income and expenses, deductions and credits, capital gains and losses, corporate tax, and tax administration and planning.

### **BTA 212 Human Resources**

This course will introduce students to all aspects of human resource management. Students will learn the most up-to-date practices in human resource planning. Topics will include addressing legal requirements, employee compensation and training, employee safety and health, and assessing performance.

### **BTA 213 Computerized Accounting Concepts**

This course will provide a hands-on approach to learning QuickBooks that incorporates a thorough understanding of the software while applying knowledge of the accounting cycle.

### **BTA 220 Payroll Accounting Concepts**

This course will provide students with firsthand experience in

calculating payroll, completing payroll taxes, and preparing payroll records and reports. Students will learn through application with realistic, hands-on practice exercises.

### **BTA 221 Accounting Integration**

This is a project-based course that will provide a hands-on simulation project. The project is designed to incorporate the accounting and QuickBooks knowledge gained in previous courses, through realistic practice.

### **BTA 222 Customer Service**

This course emphasizes how to provide excellent customer service. Students learn proper telephone skills, problem resolution skills, and how to handle difficult situations.

### **BTA 223E Externship**

Students will learn advanced career planning practices and demonstrate skills and competencies in externship assignments by electing an externship option pending instructor approval. Students must have a "C+" or better in current coursework, must not be under any type of probationary contract, and must complete and submit a regular lab work experience employer evaluation. The instructor may terminate industry work experiences at any time if students do not adhere to these requirements. If the student does not obtain an externship, completion of a capstone project is required.

## **BUSINESS TECHNOLOGY & ACCOUNTING BOOK AND TOOL LIST**

The book and tool list for students in the Business Technology & Accounting Program is intended to be a minimum requirement to complete the program. The book and tool list will be provided no later than the first day of class. For specifics on cost of books, training materials, uniforms, and tools, please refer to page 13.

## **BUSINESS TECHNOLOGY & ACCOUNTING EQUIPMENT LIST**

Students in the Business Technology & Accounting Program utilize the following equipment:

Computers  
Copy machines  
Fax machines  
Scanners  
10-key calculators  
Telephone

## ✦ electrical technology

Perry Technical Institute's Electrical Technology Program offers students a diversified curriculum that guides them through the process of becoming electricians.

Students are introduced to the generation and distribution of AC/DC electricity as well as utilizing green technologies including solar and wind turbine theory and applications. During classroom, lab and fieldwork experiences, students gain valuable theory while incorporating current NEC codes and WAC/RCW rules, laws, and procedures with hands-on application.

The Washington State Department of Labor & Industries may recognize up to two years of training received from Perry's Electrical Technology Program toward the General Journeyman 01 certification. Graduates must accumulate additional hours of industrial/ commercial electrical work before applying to take their journeyman examination with the State of Washington.

The goal for students who successfully complete this program is entry-level employment as third-year electrical trainees. The two largest groups of potential employers are electrical construction contractors and electrical departments in manufacturing industries.

The Electrical Technology Program is 24 months in length (eight quarters). The student will earn 172.5 credit hours which are 3,000 clock hours. Tuition is payable on a quarterly basis. There are four quarters in an academic year.

The classroom student to instructor ratio for the Electrical Technology Program is 22:1. The student to journeyman ratio when performing field work for the school is 4:1. When performing field work for a company other than Perry Technical Institute, the student to journeyman ratio is 1:1.

### PROGRAM OUTLINE

			Clock Hours	Credit Hours
Quarter 1	EL 110	Electrical Safety	36	2.5
	EL 111	DC Fundamentals I	90	6.0
	EL 112	National Electric Code/WAC Code	109	7.5
	EL 113	Introduction to Voltage Systems	30	2.0
	EL 114L	Lab & Shop Projects	<u>110</u>	<u>5.5</u>
			375	23.5
Quarter 2	EL 120	DC Fundamentals II	75	5.0
	EL 121	AC Theory Single-Phase	130	9.5
	EL 122	National Electric Code	96	6.5
	EL 123	Safety Meetings	11	0.5
	EL 124L	Lab & Shop Projects	<u>58</u>	<u>3.0</u>
			375	24.5
Quarter 3	EL 130	AC Motors	30	2.0
	EL 131	NEC Articles 430 & 440	50	3.5
	EL 132	Motor Controls	124	8.5
	EL 133	Safety Meetings	11	0.5
	EL 134L	Lab & Shop Projects	<u>160</u>	<u>8.0</u>
			375	22.5
Quarter 4	EL 140	Introduction to Digital	55	3.5
	EL 141	Programmable Logic Controllers	129	9.0
	EL 142	NEC Review	14	0.5
	EL 143	Safety Meetings	11	0.5
	EL 144L	Lab & Shop Projects	<u>166</u>	<u>8.0</u>
			375	21.5
Quarter 5	EL 210	Blueprint Reading	50	3.5
	EL 211	NEC & Load Sizing Calculations	144	10.0
	EL 212	NEC 690 & WAC	30	2.0
	EL 213	Variable-Frequency Drives	50	3.5
	EL 214	Safety Meetings	11	0.5
	EL 215L	Lab & Shop Projects	<u>90</u>	<u>4.5</u>
			375	24.0

(cont. on next page)

Quarter 6	EL 220	Three-Phase Systems & Distribution	134	9.0
	EL 221	NEC Article 450/Utility Power	50	3.5
	EL 222	Conduit Bending & Wiring Practices	45	3.0
	EL 223	Safety Meetings	11	0.5
	EL 224L	Lab & Shop Projects	<u>135</u>	<u>7.0</u>
			375	23.0
Quarter 7	EL 230	Solid State Electronic Fundamentals	105	7.0
	EL 231	Career Planning	20	1.0
	EL 232	Safety Meetings	11	0.5
	EL 233L	Lab & Shop Projects	115	6.0
	EL 234L	Electrical Field Experience	<u>124</u>	<u>6.5</u>
			375	21.0
Quarter 8	EL 240E	Externship	375	12.5
		Program Totals	3000	172.5

## ELECTRICAL TECHNOLOGY COURSE DESCRIPTIONS

### EL 110 Electrical Safety

Safety requirements for campus, classroom, lab, and shop environments. Proper use and care of personal and school property, tools, equipment, and procedures.

The Electrical Department holds weekly safety meetings. The meeting has a safety curriculum that is covered with the students. Safety demonstrations are performed to show the correct way to use tools, ladders, scaffoldings, and other equipment needed in the electrical trade. A first aid and CPR certificate is awarded after successful completion of the class.

### EL 111 DC Fundamentals I

Electrical safety, atomic structure, basic electrical definitions, electron flow theory through electrical circuits, conventional flow current flow, and series, parallel and series-parallel combination circuits solving using applied electrical mathematics used for theory utilizing Ohm's Law and Watt's Law; problem solving and transposing, and electronic units of conversion of measure. Application for mathematics will continue throughout the program.

### EL 112 National Electric Code/WAC Code

Minimum standards for safe installation and maintenance of electrical systems utilizing the L&I adopted edition of National Fire Protection Association (NFPA Volume 70) WAC 296 46B Rules and Regulations that supersede the NEC minimum standards that are enforced and practiced in the industry, and RCW 19.28 Laws governing competent electrical installers. Electrical circuits, conventional flow current flow, and series, parallel and series-parallel combination circuits solving using applied electrical mathematics used for NEC utilizing Ohm's Law and Watt's Law; problem solving and transposing, and electronic units of conversion of measure. Application of mathematics will continue throughout the program.

### EL 113 Introduction to Voltage Systems

Names, schematics, grounding, configurations, and hook-ups of single-phase transformers and three-phase transformers used in the industry.

### EL 114L Lab & Shop Projects

Introduction to proper drawings and schematics utilizing conductors, cables, switches, receptacles, and lighting fixtures. Safe and practical application of classroom instruction on actual equipment. Proper

use of personal protective equipment and tools to install and troubleshoot conductors, cables, switches, receptacles, and lighting fixture wiring.

### EL 120 DC Fundamentals II

Differences and similarities between DC motors and generators; calculating the counter EMF generated in the armature of the motor; performance characteristics of DC shunt, series and compound motors; assigning correct polarity to interpoles installed in DC motors; drawing the process of controlling speed of various DC motors; drawing the process of reversing the rotation of any DC motor; and determining the speed regulation of DC motors.

### EL 121 AC Theory Single-Phase

RL, RC and RLC series circuits and the effects of the inductive and capacitive reactance. Impedance and power factor.

### EL 122 National Electric Code

Minimum standards of outdoor branch circuits and feeders, services, grounding and bonding, MC Cable, hazardous locations and pools. The NEC articles covered in this section are: 225, 230, 250, 330, 500 & 680.

### EL 123 Safety Meetings

Each week there will be a safety meeting for the Electrical Department. The meeting has a safety curriculum and a safety video that are covered with the students. Accident reports and unsafe condition reports are reviewed. Safety demonstrations are performed to show the correct way to use tools, ladders, scaffoldings, and other equipment needed in the electrical trade.

### EL 124L Lab & Shop Projects

Using ladder diagrams, students install the wiring to motor control lab stations. Students will also perform troubleshooting after the instructor bugs the station.

### EL 130 AC Motors

Single-phase motor hook-ups; reversing externally reversible motors; four major parts of a motor; run winding/start windings; using an OHM meter; and properly connect to line voltages. Three-phase wye connected; high and low voltage connections; delta high and low voltage connections; identify, drawing and numbering 9 and 12 lead wye and delta motors; and reversing three-phase motors.

**EL 131 National Electrical Code Articles 430 & 440**

NEC Article 430 – Motor feeder short-circuit and ground fault protection; motor disconnecting means; and motor branch circuit, short-circuit, and ground-fault protection.

NEC Article 440 – Code section applying to sizing the conductor and protection to central electric space heating equipment; sizing the circuit conductors and protection for a five-horsepower motor used as a blower; and the differences in the rules between motors and air conditioning when installing a disconnecting means.

**EL 132 Motor Controls**

The principles of two- and three-wire controls and the use of relays, mag-starters, timers, sensors, along with the symbols and ladder diagrams needed to make a successful control installation. Photoelectric controls, thru-beam, retroreflective, diffused, and specular types will be addressed. Inductive and capacitive proximity sensors and various other sensors will be utilized in discussion and lab exercises.

**EL 133 Safety Meetings**

Each week there will be a safety meeting for the Electrical Department. The meeting has a safety curriculum and a safety video that are covered with the students. Accident reports and unsafe condition reports are reviewed. Safety demonstrations are performed to show the correct way to use tools, ladders, scaffolding, and other equipment needed in the electrical trade.

**EL 134L Lab & Shop Projects**

Using ladder diagrams, students install the wiring to motor control lab stations. Students will also do troubleshooting after the instructor bugs the station.

**EL 140 Introduction to Digital**

Examination of several different numbering systems, including but not limited to logic gates, conversions, and combination logic.

**EL 141 Programmable Logic Controllers**

The programmable logic controller, focusing on Allen-Bradley SLC500 series, various small fixed I/O type PLCs. The software covered is RSLogix500, and RS-Linx. Programming concepts range from programming of discrete I/Os to the use of analog I/O. Troubleshooting and how to construct programs with all safety concerns.

**EL 142 NEC Review**

Code evaluation of previously covered code articles.

**EL 143 Safety Meetings**

Each week there will be a safety meeting for the Electrical Department. The meeting has a safety curriculum and a safety video that are covered with the students. Accident reports and unsafe condition reports are reviewed. Safety demonstrations are performed to show the correct way to use tools, ladders, scaffolding, and other equipment needed in the electrical trade.

**EL 144L Lab & Shop Projects**

Students will develop, use, and create programs and use logical diagrams to control the desired process by analyzing inputs and updating outputs and by monitoring devices and troubleshooting the written program.

**EL 210 Blueprint Reading**

Terms, symbols, layout, organization, and structure of plans that are used for residential, commercial, and industrial buildings. Understand and interpret prints for identification of code violations, conflicts of space, and safety issues.

**EL 211 NEC & Load Sizing Calculations**

Covering code Articles 220 and 240, calculating the ampacity of service conductors, feeder conductors, branch circuit conductor, and the ampacity rating of the panels and load centers they supply, including the overcurrent devices used for protection.

**EL 212 NEC 690 & WAC**

NEC Article 690 – Solar photovoltaic systems including the array circuit, inverter, and controller. Washington Administrative Code (WAC) and Revised Code of Washington (RCW) requirements for the electrical industry including, but not limited to: electrical industry scopes of work, licensing qualifications, exams, fees, penalties, types of certifications, and continuing education requirements.

**EL 213 Variable-Frequency Drives**

Fundamentals and functions of both DC motor drives and AC variable-frequency drives.

**EL 214 Safety Meetings**

Each week there will be a safety meeting for the Electrical Department. The meeting has a safety curriculum and a safety video that are covered with the students. Accident reports and unsafe condition reports are reviewed. Safety demonstrations are performed to show the correct way to use tools, ladders, scaffolding, and other equipment needed in the electrical trade.

**EL 215L Lab & Shop Projects**

Variable frequency drives used with motors and motor controllers will give students the hands-on training needed to reinforce the classroom teaching to keep up with industry demands. Students will participate.

**EL 220 Three Phase Systems & Distribution**

Students will demonstrate an understanding of the relationship and characteristics of current, voltage, power, power factor, and power quality in three phase configurations. Students will examine different methods of power distribution through the use of transformers and their connections. This course will explore practical applications of transformers and their effect on power quality. Students will troubleshoot the symptoms of poor power quality and harmonics with power quality analyzers.

**EL 221 NEC Article 450/Utility Power**

NEC Article 450 – Code requirements for sizing of transformers, conductors, and overcurrent protection.

**EL 222 Conduit Bending & Wiring Practices**

Introduction to the use of hand, hydraulic, and PVC conduit benders. Lab exercises will include the following; predetermined 90-degree stubs, predetermined offsets, box offsets, back-to-back 90-degree stubs, three-bend saddles, four-bend saddles, and kicks.

**EL 223 Safety Meetings**

Each week there will be a safety meeting for the Electrical Department. The meeting has a safety curriculum and a safety video that are covered with the students. Accident reports and unsafe condition reports are reviewed. Safety demonstrations are performed



to show the correct way to use tools, ladders, scaffoldings, and other equipment needed in the electrical trade.

### **EL 224L Lab & Shop Projects**

The student will practice applied wiring techniques in various hands-on exercises and labs including, but not limited to: conduit bending, switch connections, single- and three-phase power factor correction, transformer connections, non-metallic cable, metallic cable, wire pulling, panel, box and device installation, and connections.

### **EL 230 Solid State Electronic Fundamentals**

Students will build a foundation of solid state power electronics through the theory and operation of PN junctions and how they react to voltages in diodes, transistors. Construction of power supplies using different rectifiers and filters, and how to calculate average DC output. Basic C++ programming and operation of microcontrollers with analog and digital inputs/outputs.

### **EL 231 Career Planning**

Students will prepare for an effective career search by learning to create a resume, practicing interviewing skills, and reviewing the job application process.

### **EL 232 Safety Meetings**

Each week there will be a safety meeting for the Electrical Department. The meeting has a safety curriculum and a safety video that are covered with the students. Accident reports and unsafe condition reports are reviewed. Safety demonstrations are performed to show the correct way to use tools, ladders, scaffoldings, and other equipment needed in the electrical trade.

### **EL 233L Lab & Shop Projects**

Lab time will give students the opportunity to apply the use of training equipment including oscilloscopes, signal generators, and DC power supplies, used with solid state components to determine how and why they operate. Introducing green technology with solar energy sources and storing and conveying electricity through solar cells.

### **EL 234L Electrical Field Experience**

Students will take part in on-the-job training projects doing hands-on electrical wiring installations in residential and commercial buildings. Students are required to have 100% supervision by a (01) journey level electrician employed by Perry Technical Institute while performing these electrical installations with a ratio of not more than 4 students to 1 (01) journey level electrician. All work will comply with the NEC, WAC and RCWs and shall be inspected by the Department of Labor & Industries. In addition to holding a current (01) journey level electrician certificate, the (01) journey level electricians must also have training in instruction and meet the minimum requirements of a classroom instructor. Journey level electricians shall not engage in any of the electrical installations.

### **EL 240E Externship**

On-the-job training projects doing hands-on electrical wiring installations in residential and commercial buildings. All trainee electrical installations are supervised by an (01) journey level electrician and inspected by the Department of Labor & Industries. Students who have a job offer as an electrician may leave the program and work in the field under a training extern agreement with Perry Technical Institute, the employer, and the student. Completion of an externship packet is required including a WAC and RCW compliance form to ensure students are supervised 100% of the time by an (01)

journey level electrician at a ratio of no more than one student to one (01) journey level electrician. If the student does not obtain an externship, completion of an electrical capstone project is required.

### **ELECTRICAL TECHNOLOGY BOOK & TOOL LIST**

The book and tool list for students in the Electrical Technology Program is intended to be a minimum requirement to complete the program. The book and tool list will be provided no later than the first day of class. For specifics on cost of books, training materials, uniforms, and tools, please refer to page 14.

### **ELECTRICAL TECHNOLOGY EQUIPMENT LIST**

Students in the Electrical Technology Program utilize the following equipment:

- Computers
- Electrical hand tools
- Motor control labs
- PLC simulators
- PLC labs
- Transformer connection labs
- Power factor correction labs
- Conduit bending equipment
- Oscilloscopes and related electronic equipment

## ❖ heating, ventilation, air conditioning & refrigeration technology

Perry Technical Institute's Heating, Ventilation, Air Conditioning & Refrigeration Technology Program covers all aspects of the field, from refrigeration fundamentals to direct digital control and energy management systems. Students learn the curriculum through classroom and extensive hands-on training in lab-related instruction.

Perry Technical Institute's HVAC/R Program is approved by the Washington State Department of Labor & Industries as a 06A HVAC/R Specialty Electrical Training Program. Graduates may be credited with up to one year (or 2,000 hours) towards the two years (or 4,000 hours) required by the State of Washington to be eligible to take the certification exam for the 06A HVAC/R Specialty Electrical License.

The program prepares students to gain industry certifications in several areas, giving them competitive advantages in the employment market. Some of the technician certifications offered include Universal R-410A Safety, OSHA Safety, EPA 608 Refrigerant, EPA 609 Refrigerant, and Green Mechanical Systems.

Classroom and shop training prepares students to enter the HVAC/R industry as qualified entry-level technicians.

The HVAC/R Technology Program is 24 months in length (eight quarters). The student may earn 174.5 credit hours which are 2,872 clock hours. Labor & Industries does not separate break times and credits 3,000 hours towards classroom participation. Tuition is payable on a quarterly basis. There are four quarters in an academic year. Quarter three and four course offerings may be offered in a sequence other than listed to accommodate seasonal working conditions.

The student to instructor ratio for the Heating, Ventilation, Air Conditioning & Refrigeration Technology Program is 22:1.

### PROGRAM OUTLINE

			Clock Hours	Credit Hours
Quarter 1	RE 110	Refrigeration Fundamentals	259	18.0
	RE 111L	Lab & Shop Projects	<u>100</u>	<u>5.0</u>
			359	23.0
Quarter 2	RE 120	Refrigeration & Electric Forced Air Heating	219	15.5
	RE 121L	Lab & Shop Projects	<u>140</u>	<u>7.0</u>
			359	22.5
Quarter 3	RE 130	Residential & Light Commercial HVAC I	229	16.0
	RE 131L	Lab & Shop Projects	<u>130</u>	<u>6.5</u>
			359	22.5
Quarter 4	RE 140	Residential & Light Commercial HVAC II	209	14.5
	RE 141L	Lab & Shop Projects	<u>150</u>	<u>7.5</u>
			359	22.0
Quarter 5	RE 210	Commercial Refrigeration I	218	15.0
	RE 211L	Lab & Shop Projects	<u>141</u>	<u>7.0</u>
			359	22.0
Quarter 6	RE 220	Commercial Refrigeration II	228	16.0
	RE 221L	Lab & Shop Projects	<u>131</u>	<u>6.5</u>
			359	22.5
Quarter 7	RE 230	Industrial Heating & Cooling Systems I	261	18.0
	RE 231L	Lab & Shop Projects	<u>98</u>	<u>4.5</u>
			359	22.5
Quarter 8	RE 240	Industrial Heating & Cooling Systems II	131	9.0
	RE 241L	Lab & Shop Projects	98	4.5
	RE 242E	Externship	<u>130</u>	<u>4.0</u>
			359	17.5
	Program Totals		2,872	174.5

## HEATING, VENTILATION, AIR CONDITIONING & REFRIGERATION TECHNOLOGY COURSE DESCRIPTIONS

### First Aid

First aid and CPR training is contracted with an outside agency. Current certification is required.

### RE 110 Refrigeration Fundamentals

Tools, procedures, and equipment are covered/demonstrated in both the classroom and lab environment. Mathematics is used for practical electrical theory and application of series and parallel electrical circuits as found in the HVAC/R trade. Emphasis is placed on the understanding and application of the four main components of a mechanical compression refrigeration system, each of their functions within the system including the pressures and temperatures associated with each component.

### RE 111L Lab & Shop Projects

Students develop the necessary skills for the application and use of electrical and HVAC/R tools and equipment. Students learn the required skills and techniques for the proper joining of copper to copper and copper to steel tubing by use of oxyacetylene torches. Students begin practical application of refrigeration operation and troubleshooting on residential refrigerators and freezers.

### RE 120 Refrigeration & Electric Forced Air Heating

Studies expand on the four main components of the refrigeration system. This section of the program also introduces central forced air electric heating systems. Students continue reading and using schematic and ladder diagrams and learn to develop their own electrical diagrams to meet specific operations.

### RE 121L Lab & Shop Projects

Lab time includes an emphasis on electrical measurements for troubleshooting and hands-on wiring of equipment. Students complete the wiring and operation of relays, capacitors, single and multi-speed single-phase fractional horsepower motors, heaters, low-voltage heat/cool thermostats, compressors, and fan motors. Time is used for wiring, troubleshooting, and maintaining controls as well as actual operation and troubleshooting of electric furnaces and their controls.

### RE 130 Residential & Light Commercial HVAC I

Students review shop safety procedures and are introduced to fall protection and ladder safety. Safe handling of refrigerants and proper HVAC system charging are covered, including refrigerant recovery and applications of R-22, HFC refrigerants R-410A, and R-422B. Students learn the fundamentals of humidifiers and air filtration, including all types of disposable air filters to state-of-the-art electronic air cleaners. Students learn to interpret both ladder and pictorial wiring diagrams. All types of single-phase motors are discussed. The curriculum covers both packaged and split systems of residential and light commercial HVAC equipment.

### RE 131L Lab & Shop Projects

This section emphasizes the application of control strategies used to wire and operate HVAC equipment. Students develop all types of wiring diagrams utilizing actual HVAC units. Students are exposed to systems such as heat pumps, oil, gas, and electric forced air HVAC systems. Typical lab projects include tasks such as soldering, steel pipe threading, wiring, and proper refrigerant charging of A/C units. Students are introduced to basic sheet metal fabrication concepts

including several sheet metal projects using not only sheet metal hand tools, but the heavier shop fabrication equipment associated with the fabrication of HVAC duct systems.

### RE 140 Residential & Light Commercial HVAC II

In this section, students study heating systems that include fossil fuel units such as natural, LP gas units, oil heating systems, electric heating, and heat pump systems. The section covers the combustion and venting process as it relates to fossil fuel heating systems. The duct design process is introduced. Students learn to apply control strategies covered in the classroom to wire and operate several types of HVAC equipment. Residential load calculations are introduced. Students learn the basics of air distribution and balancing residential and light commercial HVAC air delivery systems. The curriculum introduces several types of air side components such as grills, registers, and diffusers as well as equipment typically used for air balancing.

### RE 141L Lab & Shop Projects

This course helps students apply the knowledge learned in the classroom to operational HVAC equipment. All laboratory/shop tasks will be performed on functional oil furnaces. The scope of tasks involves electrical wiring, mechanical operation, and combustion analysis of oil heating systems. The study of oil heating systems focuses on high pressure, gun-type oil burners. The primary control systems include both stack and cadmium cell types. Students complete several lab projects including wiring and combustion analysis on natural gas furnaces using both chemical and digital analysis tools.

### RE 210 Commercial Refrigeration I

Students begin studying and troubleshooting commercial systems and components. The course covers electrical theory, control circuits, and wiring schematics. RCW 19.28, WAC 29646A, WAC 296401B, and articles from the NEC are also covered.

### RE 211L Lab & Shop Projects

This course provides hands-on evaluation and repair of a wide variety of live refrigeration equipment. The curriculum tests the student's ability to set, adjust, and evaluate a wide variety of refrigerant and electrical controls under different operating conditions. Installation, setting, and proper wiring methods as specified by NEC are covered for a variety of control applications.

### RE 220 Commercial Refrigeration II

The curriculum covers advanced commercial systems and components, troubleshooting commercial systems, electrical theory, control circuits, and wiring schematics. RCW 19.28, WAC 296-401B, and articles from the NEC are also covered.

### RE 221L Lab & Shop Projects

This course provides hands-on evaluation and repair of a wide variety of live refrigeration equipment. The curriculum tests the student's ability to set, adjust, and evaluate a variety of refrigerant and electrical controls under different operating conditions. Installation, setting, and proper wiring methods as specified by NEC are covered for a number of control applications.

### RE 230 Industrial Heating & Cooling Systems I

Students are introduced to industrial heating and cooling systems and components, troubleshooting industrial systems, electrical theory, control circuits, wiring schematics, and piping diagrams. This includes NEC compliance, using chapters 2, 3, and 9.

**RE 231L Lab & Shop Projects**

Lab time gives students the opportunity to apply the skills they have learned. Training equipment, lab projects, computer simulators, and on-site service work allow the student to receive hands-on training to reinforce classroom instruction.

**RE 240 Industrial Heating & Cooling Systems II**

Students are introduced to advanced heating/cooling systems and related electrical and mechanical components. Troubleshooting, electrical theory, control circuits, wiring, and piping diagrams are emphasized. This includes NEC compliance, using Chapters 2, 3, and 9.

**RE 241L Lab & Shop Projects**

This course will provide students with the opportunity to evaluate and troubleshoot a wide variety of equipment. Lab time will allow students to apply the skills they have learned. Training equipment, lab projects, computer simulators, and on-site service work will provide the student with hands-on training to help reinforce classroom teaching.

**RE 242E Externship**

Qualifying students have the option of obtaining practical experience in an HVAC/R environment. All trainee HVAC/R installations are supervised by an HVAC/R 06 journeyman. Students who have a job offer as an HVAC/R technician may leave the program and work in the field under a training extern agreement with Perry Technical Institute, the employer, and the student. Completion of an externship packet is required. Externships must be approved by the Department Head. If the student does not obtain an externship, completion of the HVAC/R capstone project is required.

**HVAC/R TECHNOLOGY BOOK AND TOOL LIST**

The book and tool list for students in the Heating, Ventilation, Air Conditioning & Refrigeration Technology Program is intended to be a minimum requirement to complete the program. The book and tool list will be provided no later than the first day of class. For specifics on cost of books, training materials, uniforms, and tools, please refer to page 14.

**HVAC/R TECHNOLOGY EQUIPMENT LIST**

Students in the HVAC/R Program utilize the following equipment:

- Computers
- Digital multi-meter
- Digital clamp-on ammeter
- Digital temperature meter
- Elenco oscilloscopes
- Ultrasonic refrigerant leak detection
- Thermistor vacuum gauge
- Digital duct leakage monitor
- Digital refrigerant scale
- Oxyacetylene torch set
- Vacuum pump
- Refrigerant recovery equipment
- Refrigerant gage manifold
- Arc welder
- Wire feed welder



## ❖ information technology & communication systems

Perry Technical Institute's Information Technology & Communication Systems Program teaches the theories and skills needed to work in all areas of communications technology – electronics theory, personal computers, wireless communications, telephone systems, transmission equipment, alarm systems, and data networking and administration.

The program is divided into four six-month sections of curriculum and combines classroom and lab projects to provide students with the proper balance of theory and hands-on experience.

Students prepare to earn numerous industry certifications including CompTIA, Cisco, and FCC. The program is approved by the State of Washington as a two-year Limited Energy (06) Specialty Electrical training program. Graduates may be credited with up to one year towards the two years required to be eligible to take the certification exam for the Limited Energy (06) Specialty Electrical License Throughout the program, students prepare themselves for the workforce. Resume writing, interview skills, and documentation of their experience at Perry Technical Institute in a portfolio enable the student to conduct an effective job search.

The goal of Perry Technical Institute's Information Technology & Communication Systems Program is to provide graduates with the wide variety of skills necessary to obtain entry-level employment and achieve success in their careers.

The Information Technology & Communication Systems Program is 24 months in length (eight quarters). The student will earn 160.5 credit hours which are 2,688 clock hours. Tuition is payable on a quarterly basis. There are four quarters in an academic year.

The student to instructor ratio for the Information Technology & Communication Systems Program is 24:1.

### PROGRAM OUTLINE

			Clock Hours	Credit Hours
Quarter 1	ITC 110	Applied Mathematics for Electronics I	110	7.0
	ITC 111	Electronics: Fundamentals	<u>226</u>	<u>14.5</u>
			336	21.5
Quarter 2	ITC 120	Electronic Fundamentals II	156	9.5
	ITC 121	Wireless Technology	<u>180</u>	<u>11.5</u>
			336	21.0
Quarter 3	ITC 130	Computer Hardware Fundamentals	173	11.0
	ITC 131	Computer Software Fundamentals	<u>163</u>	<u>10.0</u>
			336	21.0
Quarter 4	ITC 140	Network Server Operating Systems	210	13.0
	ITC 141	Network Architecture Platforms & Topologies	<u>126</u>	<u>8.0</u>
			336	21.0
Quarter 5	ITC 210	Cisco Networking I	276	15.0
	ITC 212	Cisco Networking II	<u>60</u>	<u>3.5</u>
			336	18.5
Quarter 6	ITC 220	Cisco Networking II (continued)	216	12.5
	ITC 222	Cisco Networking III	<u>120</u>	<u>7.0</u>
			336	19.5
Quarter 7	ITC 230	Basic Telephony & Cabling Standards	128	8.0
	ITC 231	Voice Communication Systems I	188	12.0
	ITC 232	Employment Search: Resumes & Interview Skills	<u>20</u>	<u>1.0</u>
			336	21.0
Quarter 8	ITC 240	Voice Communication Systems II	112	6.5
	ITC 241	Limited Energy	104	6.5
	ITC 243E	Externship	<u>120</u>	<u>4.0</u>
			336	17.0
		Program Totals	2,688	160.5

## **INFORMATION TECHNOLOGY & COMMUNICATION SYSTEMS COURSE DESCRIPTIONS**

### **ITC 110 Applied Mathematics for Electronics I**

Mathematics required to evaluate and understand the electronic circuits and equipment which will be covered.

### **ITC 111 Electronics: Electronics: Fundamentals**

Basic electronic components and DC circuit operation are introduced including test equipment and tools. DC network analysis, AC circuits, and their effect on reactive components are covered as well. Application of the technical knowledge acquired in the classroom to practical electronic circuits in a lab environment. The concepts of teamwork, analytical problem solving, and troubleshooting are introduced. The students begin preparing a portfolio, documenting their experiences and training through the program.

### **ITC 120 Electronics: Fundamentals II**

Advanced DC and AC electronics, transistors, and integrated circuit operational amplifiers. Boolean algebra and binary arithmetic provide the basis for the understanding of digital logic circuits utilizing logic gates and combinational logic. Application of the technical knowledge acquired in the classroom to practical power supplies, transistor amplifiers and switches, and operational amplifier circuits, digital circuits in a lab environment.

### **ITC 121 Wireless Technology**

Radio frequency theory, noise, bandwidth, analog and digital modulators. RF transmission and reception, propagation, transmission lines, and antenna systems are covered. Lab projects enable the application of the technical knowledge acquired in the classroom to RF modulators, radio receivers, antenna systems, and transmitters.

### **ITC 130 Computer Hardware Fundamentals**

Theory, operation, assembly, and maintenance of personal computer hardware and peripheral devices, in a hands-on lab environment. Preparation for the CompTIA A+ certification. Hardware installation and troubleshooting is accomplished which allows the student to apply the technical knowledge acquired in the classroom.

### **ITC 131 Computer Software Fundamentals**

Operation of PC operating systems, including: software installation, management, utilities, and troubleshooting in a lab environment. Students experience Workstation configuration using different operating systems as well as virtualization software teaching students the skills necessary to troubleshoot a variety of computer systems.

### **ITC 140 Network Server Operating Systems**

Installation and configuration of Windows server. Configuration of virtual machines and networks, DHCP and DNS services, domain controllers and active directory along with group policy and security policies. Preparation for the Microsoft Server certification. Technical knowledge acquired in the classroom will be utilized in a lab setting. Installing, configuring and troubleshooting Windows server and the utilities involved.

### **ITC 141 Network Architecture Platforms & Topologies**

Principles, design, implementation and administration of the latest industry network architectures and topologies. Virtualized network environments to provide service and applications to end users are covered, as well as network storage and cloud infrastructure. Preparation for the VMWare VCP certification exams. Application of this knowledge will be utilized in a lab environment.

### **ITC 210 Cisco Networking I**

Intro to Networking — This course introduces the architecture, structure, functions, components and models of the Internet and other computer networks. The principles and structure of IP addressing and the fundamentals of Ethernet concepts, media and operations are introduced to provide a foundation for the curriculum. By the end of the course, students will be able to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes.

### **ITC 211 Cisco Networking II**

Routing and Switching — This course describes the architecture, components and operations of routers and switches in a small network. Students learn how to configure a router and a switch for basic functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with RIPv1, RIPv2, single-area and multi-area OSPF, virtual LANs, and inter-VLAN routing in both IPv4 and IPv6 networks.

### **ITC 220 Cisco Networking II (continued)**

### **ITC 221 Cisco Networking III**

Scaling Networks — This course describes the architecture, components, and operations of routers and switches in larger and more complex networks. Students learn how to configure routers and switches for advanced functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with OSPF, EIGRP, and STP.

### **ITC 230 Basic Telephony & Cabling Standards**

Preparation of the student for entry into the telephone industry. Cabling installation, telephone sets, and local loop are covered. The history of the industry and industry terms are presented. National Electrical Code and industry cabling and equipment standards are covered. Data cable installer certificate obtained through industry provided certification. (Certification may occur in quarter 7 or 8). Lab exercises allow students hands-on experience with industry standard tools and practice in the installation and testing of copper and fiber optic cable systems for voice and data networks.

### **ITC 231 Voice Communications Systems I**

Installation, programming, and troubleshooting of business telephone systems including key systems, hybrids, and an introduction to PBX switching equipment in a simulated business environment. Transmission lines and long distance networks, which tie telephone switches together, are covered. Customer service concepts are presented to enable the student to communicate effectively with the customer. Lab exercises allow students hands-on experience and comprehension in the installation, programming, and maintenance of various business communication systems.

### **ITC 232 Employment Search: Resumes & Interview Skills**

Designed to prepare the student to mount an effective job search. Resume preparation, interview skills, and the job application process are covered as the portfolio preparation process is completed.

### **ITC 240 Voice Communication Systems II**

A continuation of quarter 7 Voice Communication Systems. The convergence of voice and data, through the development of Computer-Telephone Integration (CTI) and Voice over Internet (VoIP) concepts. Installation, programming, and troubleshooting of PBX and VoIP equipment in a simulated business environment

is accomplished. Voice mail is integrated into the system and the programming of system features is accomplished. Customer service concepts are presented to enable the student to communicate effectively with the customer. Lab exercises allow students hands-on experience and comprehension in the installation, programming, and maintenance of various business communication systems.

### **ITC 241 Limited Energy**

Limited Energy Systems: Alarms and amplified sound. Fire alarm system installation, programming, and troubleshooting are covered. Proper installation practices are covered in accordance with the National Electrical Code and NFPA 72: National Fire Alarm Code. Amplified sound and speaker systems, including 70V centralized systems and intercom systems are covered. Introduction to Power over Ethernet (PoE) cable and device installation will also be covered in accordance with the Washington State Limited Energy System guidelines. Lab exercises allow students hands-on experience and comprehension in the installation, programming, and maintenance of various limited energy systems.

### **ITC 242E Externship**

Qualifying students have the option of obtaining practical experience in a workplace environment in lieu of the last month of training on campus. Externships must relate to the training that would occur in the last quarter of ITCS and must be approved by the Department Head. If the student does not obtain an externship, he/she will be responsible for completing an on-campus capstone project.

## **INFORMATION TECHNOLOGY & COMMUNICATION SYSTEMS BOOK AND TOOL LIST**

The book and tool list for students in the Information Technology & Communication Systems Program is intended to be a minimum requirement to complete the program. The book and tool list will be provided no later than the first day of class. For specifics on cost of books, training materials, uniforms, and tools, please refer to page 14.

## **INFORMATION TECHNOLOGY & COMMUNICATION SYSTEMS EQUIPMENT LIST**

Students in the Information Technology & Communication Systems Program utilize the following equipment:

Personal computers and servers  
Cisco routers  
Network switches  
Wireless access points  
Fluke EtherScope  
Fluke network analyzer, cable certifiers, and testers  
Digital multi-meters  
Oscilloscopes, signal generator, and power supplies  
Spectrum analyzers  
Cell site test sets  
AM/FM signal generators/modulators  
Antenna system testers  
In-line watt meters  
Telephone key system, PBX, and VoIP system  
Voice mail system  
PA systems 24V and 70V  
Fire alarm system

## ❖ instrumentation & industrial automation technology

Perry Technical Institute's Instrumentation & Industrial Automation Technology Program introduces students to today's world of computerized industrial automated manufacturing.

The program's curriculum covers basic mathematics for electronics, electricity, solid state, digital devices, applied physics, and calculus. Programmable logic controllers, transmitters, transducers, recorders, and controllers are used to simulate control techniques. Temperature, level, flow, and pressure are just a few of the process controls that instrumentation technicians monitor, install, troubleshoot, repair, and calibrate.

The goal of the Instrumentation & Industrial Automation Technology Program is to provide the resources and instruction students need to obtain entry-level employment as instrumentation technicians. Trained instrument technicians work in industries such as petrochemical, pulp and paper, chemical, food processing, metal refining, power generation, and engineering.

The Instrumentation & Industrial Automation Technology Program is 24 months in length (eight quarters). The student will earn 159.0 credit hours which are 2,688 clock hours. Tuition is payable on a quarterly basis. There are four quarters in an academic year.

The student to instructor ratio for the Instrumentation & Industrial Automation Technology Program is 22:1.

### PROGRAM OUTLINE

			Clock Hours	Credit Hours
Quarter 1	IN 110	Math for Electronics	137	9.5
	IN 111	Electrical Fundamentals I	95	6.5
	IN 112L	Lab & Shop Projects	<u>104</u>	<u>5.0</u>
			336	21.0
Quarter 2	IN 120	Solid State Devices	72	5.0
	IN 121	Electrical Fundamentals II	108	7.5
	IN 122L	Lab & Shop Projects	<u>156</u>	<u>7.5</u>
			336	20.0
Quarter 3	IN 130	Operational Amplifiers	84	5.5
	IN 131	Physics I	50	3.5
	IN 132	Instrumentation I	43	3.0
	IN 133L	Lab & Shop Projects	<u>159</u>	<u>7.5</u>
		336	19.5	
Quarter 4	IN 140	Physics II	110	7.5
	IN 141	Calculus I	43	3.0
	IN 142	Instrumentation II	65	4.5
	IN 143L	Lab & Shop Projects	<u>118</u>	<u>5.5</u>
		336	20.5	
Quarter 5	IN 210	Calculus II	72	5.0
	IN 211	Instrumentation III	69	4.5
	IN 212	Motor Control	25	1.5
	IN 213L	Lab & Shop Projects	<u>170</u>	<u>8.5</u>
		336	19.5	
Quarter 6	IN 220	Industrial Computing I	95	6.5
	IN 221	Instrumentation IV	100	7.0
	IN 222L	Lab & Shop Projects	<u>141</u>	<u>7.0</u>
			336	20.5
Quarter 7	IN 230	Programmable Logic Controllers	90	6.0
	IN 231	Digital Fundamentals	87	6.0
	IN 232	Networking Fundamentals	30	2.0
	IN 232L	Lab & Shop Projects	<u>129</u>	<u>6.0</u>
		336	20.0	
Quarter 8	IN 240	Analytical Instruments	64	4.5
	IN 241	Industrial Computing II	30	2.0
	IN 242	Employment Preparation	72	5.0
	IN 243L	Lab & Shop Projects	50	2.5
	IN 244E	Externship	<u>120</u>	<u>4.0</u>
		336	18.0	
	Program Totals		2,688	159.0



## **INSTRUMENTATION & INDUSTRIAL AUTOMATION TECHNOLOGY COURSE DESCRIPTIONS**

### **IN 110 Math for Electronics**

This course covers numbers, addition, subtraction, multiplication, and division of polynomials, equations, powers of 10, units and dimensions, special products and factoring, algebraic fractions, fractional equations, graphs, simultaneous equations, exponents and radicals, and quadratic equations.

### **IN 111 Electrical Fundamentals I**

Electric circuits, starting with the nature of electricity are introduced, Ohm's Law and electrical calculations, conductors, insulators, and resistors, series resistive circuits, parallel resistive circuits, series-parallel resistive circuits, voltage cells, and batteries. Network analysis techniques and network theorems are also covered.

### **IN 112L Lab & Shop Projects**

School rules, conduct and dress code, including proper clothing requirements and the use of safety glasses, general safety practices concerning the usage and proper maintenance procedures for electrical and general shop equipment. First aid and CPR training for two-year certification, tool and book purchases, explanation of ISA, overview of basic personal computer operation including the Windows environment focusing on desktop and Explorer. Microsoft Word will be incorporated into technical report writing skills, use of word processor for lab assignments, and applying classroom theory to practical lab assignments.

### **IN 120 Solid State Devices**

The curriculum covers basic definitions, semiconductor diodes, rectifier diode circuits, basic DC power supply, and transformer usage. DC power supplies – single phase, transistor as DC switch, transistor as an AC amplifier, silicon controlled rectifiers, triac, diac, and unijunction transistor, and solid state transducers.

### **IN 121 Electrical Fundamentals II**

Electrical fundamentals are expanded. Magnetism, magnetic circuits, inductance, capacitance, series and parallel AC circuits, and power in AC circuits. Angles, trigonometric functions, trigonometric tables, solution of right triangles, trigonometric identities and equations, elementary plane vectors, periodic functions, and phasor algebra.

### **IN 122L Lab & Shop Projects**

Classroom theory is applied to practical lab assignments and simulators, using Microsoft Word and AutoCad.

### **IN 130 Operational Amplifiers**

Students are introduced to OP Amps and have their first experiences with inverting and non-inverting amplifiers, comparators and controls, differential, instrumentation, and bridge amplifiers, and integrated circuit timers.

### **IN 131 Physics I**

Technical mathematics and friction, equilibrium, projectile motion, torque and rotational equilibrium, and uniformly accelerated motion are covered in this section of physics.

### **IN 132 Instrumentation I**

Loop concepts, calibration methods, analog transmitters, transducers, controllers, and process variables are covered.

### **IN 133L Lab & Shop Projects**

Classroom theory is applied to practical lab assignments and simulators, using Microsoft Word and AutoCad.

### **IN 140 Physics II**

Uniformly accelerated motion is covered in this section of physics. Newton's Second Law; work, energy and power; impulse and momentum; simple machines; elasticity; fluids at rest; fluids in motion; temperature and expansion; quantity of heat; transfer of heat; and thermal properties of matter are covered.

### **IN 141 Calculus I**

Students learn analytic geometry, equations of curves and curve sketching, functions, and derivatives.

### **IN 142 Instrumentation II**

This course covers instrumentation concepts, calibration, analog and smart transmitters, transducers, and process variables.

### **IN 143L Lab & Shop Projects**

Classroom theory is applied to practical lab assignments and simulators, using Microsoft Word and AutoCad. Safety is stressed at all times.

### **IN 210 Calculus II**

Students will learn formulas for calculating derivatives, applications of derivatives, anti-differentiation, trigonometric functions, and definite integral calculus.

### **IN 211 Instrumentation III**

This course covers process and instrumentation diagramming, loop sheets, electrical diagramming, proportional, integral and derivative controls, and tuning controllers.

### **IN 212 Motor Control**

Students learn about lock-out tag-out, electric symbols, ladder diagramming, contactors, single-phase, three-phase, DC motors, and variable speed devices.

### **IN 213L Lab & Shop Projects**

Classroom theory is applied to practical lab assignments and simulators, using Microsoft Word and AutoCad. Safety is stressed at all times.

### **IN 220 Industrial Computing I**

Curriculum explores configurations of distributive process control, hardware implementations, and plant loop communications all utilizing control simulators.

### **IN 221 Instrumentation IV**

Instrumentation IV covers configurations of distributive process control, hardware implementations, and plant loop communications all utilizing control simulators, Fluid power systems, control valves, and valve positioners. Advanced control concepts.

### **IN 222L Lab & Shop Projects**

Classroom theory is applied to practical lab assignments and simulators, using Microsoft Word and AutoCad. Safety is stressed at all times.

### **IN 230 Programmable Logic Controllers**

The course provides an overview of PLCs, PLC hardware components, fundamentals of logic, basics of PLC programming, developing PLC ladder and wiring diagrams, and basic PLC functions.

### **IN 231 Digital Fundamentals**

Introductory digital concepts, number systems, operations, and codes, logic gates are covered along with Boolean algebra and logic simplification, combinational logic, functions of combinational logic, flip-flops, and related devices.

### **IN 232 Networking Fundamentals**

The course introduces networks, network components, and real-world networks.

### **IN 233L Lab & Shop Projects**

Classroom theory is applied to practical lab assignments and simulators, using Microsoft Word and AutoCad. Safety is stressed at all times.

### **IN 240 Analytical Instruments**

Students will explore applications and implementation of process analyzer systems and study chemistry as it pertains to process analyzers. Theory and operation of electrochemical and compositional process analyzers will be covered.

### **IN 241 Industrial Computing II**

Industrial Computing II expands upon hardware and software configurations and implementation utilizing software packaged for personal computers that provides interfaces between operator and controller. HMI software configurations on PLC-controlled simulators are also explored.

### **IN 242 Employment Preparation**

Students will create a resume to be used in the job search and develop of a list of potential employers for setting interview schedules. Interviewing techniques will be discussed and feedback will be given from practice interviews. Students will also review material from previous sections.

### **IN 243L Lab & Shop Projects**

Classroom theory will be applied to practical lab assignments and simulators, using Microsoft Word and AutoCad. Safety is stressed at all times.

### **IN 244E Externship**

Students who have had a job offer as an instrumentation technician may leave the program and work in the field under a training extern agreement with Perry Technical Institute, the employer, and the student. Completion of the externship packet is required. The Learning Resource System (LRS) contains valuable resources to assist in the completion of this project. Students not receiving an externship will be required to complete a SCADA capstone project.

## **INSTRUMENTATION & INDUSTRIAL AUTOMATION TECHNOLOGY BOOK AND TOOL LIST**

The book and tool list for students in the Instrumentation & Industrial Automation Technology Program is intended to be a minimum requirement to complete the program. The book and tool list will be provided no later than the first day of class. For specifics on cost of books, training materials, uniforms, and tools, please refer to page 14.

## **INSTRUMENTATION & INDUSTRIAL AUTOMATION TECHNOLOGY EQUIPMENT LIST**

Students in the Instrumentation & Industrial Automation Technology Program utilize the following equipment:

Computers  
Signal generators  
Oscilloscopes and related electronic equipment  
Digital multi-meter  
Analog/digital transmitter  
Control valves  
Recorders  
Variable frequency drives  
Motor control stations  
Pumps  
PLC labs  
HMI labs  
Hydraulic labs  
Smart communication devices  
Distributed control system

## ❖ medical assistant

The Medical Assistant Program prepares students for entry-level positions with medical offices and hospitals. Students will be equipped with valuable skills in office administration as well as clinical and patient care skills. Medical assistants are commonly employed in physicians' offices, outpatient clinics, health maintenance organizations, and hospitals. The program consists of six quarters of coursework followed by an externship with a local employer.

The goal of the Medical Assistant Program is to prepare graduates for entry-level positions as medical assistants.

The Medical Assistant Program is 18 months in length (six quarters). The courses prepare students to take the Registered Medical Assistant (RMA) examination. The student will earn 114 credit hours which are 2,016 clock hours. Tuition is payable on a quarterly basis. There are four quarters in an academic year.

The student to instructor ratio for the Medical Assistant Program is 24:1

### PROGRAM OUTLINE

			Clock Hours	Credit Hours
Quarter 1	MED 110	Computer Applications	60	3.5
	MED 111	Business English I	60	3.5
	MED 112	Keyboarding I	30	1.5
	MED 113	Word Processing	60	3.5
	MED 114	Spreadsheets	60	3.5
	MED 115	Business Math	<u>66</u>	<u>4.0</u>
		336	19.5	
Quarter 2	MED 120	Business English II	60	3.5
	MED 121	Database & Integration	88	5.5
	MED 122	Keyboarding II	30	1.5
	MED 123	Business Presentation	86	5.0
	MED 124	Career Planning	30	1.5
	MED 125	Business Etiquette	<u>42</u>	<u>2.5</u>
		336	19.5	
Quarter 3	MED 130	Anatomy & Physiology I	60	3.5
	MED 131	Health Care Law & Ethics	88	3.5
	MED 132	Medical Terminology	30	4.5
	MED 133	Medical Career Planning	86	2.0
	MED 134	Human Diseases	30	3.0
	MED 135	Computers in Health Care	<u>42</u>	<u>3.0</u>
		336	19.5	
Quarter 4	MED 140	Anatomy & Physiology II	60	3.5
	MED 141	Basic Diagnostic & Procedure Coding	60	3.5
	MED 142	Pharmacology I	60	3.5
	MED 143	Clinical Procedures I	80	5.0
	MED 144	Practice Management & EHR	<u>76</u>	<u>4.5</u>
		336	20.0	
Quarter 5	MED 210	Clinical Aspects of Coding & Billing	60	3.5
	MED 211	Surgical Procedures	60	3.5
	MED 212	Pharmacology II	60	3.5
	MED 213	Clinical Procedures II	80	5.0
	MED 214	Communications	<u>76</u>	<u>4.5</u>
		336	20.0	
Quarter 6	MED 220	Medical Specialty Procedures	71	4.0
	MED 221	Clinical Procedures III	80	5.0
	MED 222	Electronic Health Records	25	1.5
	MED 223E	Externship	<u>160</u>	<u>5.0</u>
		336	15.5	
	Program Totals		2,016	114.0

**MEDICAL ASSISTANT COURSE DESCRIPTIONS****MED 110 Computer Applications**

This course covers the basics of computer hardware and software, networks, the Internet, Outlook, and Publisher. The objective is to prepare the student to take the MOS certification exam.

**MED 111 Business English I**

A concentrated review of sentence writing, this course emphasizes sentence combining, basic mechanics, and paragraph writing.

**MED 112 Keyboarding I**

In this course, students learn beginning typing and 10-key skills. The objectives are for students to learn how to type by touch and how to take a timed keyboarding test for accuracy and speed.

**MED 113 Word Processing**

Students learn how to use Microsoft Word for basic and advanced word processing. The objective of this course is to prepare students to take the MOS certification exam for Word.

**MED 114 Spreadsheets**

Students learn Microsoft Excel and how to build business and financial applications for forecasting, budgeting, and basic bookkeeping. The objective of this course is to prepare students to take the MOS certification exam for Excel.

**MED 115 Business Math**

Students will review the basic operations of arithmetic, understand and manage their personal finances, as well as grasp the fundamentals of business finances. This course will prepare students to be smart shoppers, informed taxpayers, and valued employees. Basic math skills will be covered in a step-by-step manner, building student confidence along the way.

**MED 120 Business English II**

This course emphasizes basic punctuation and grammar rules and covers sentence structure. The course is designed to introduce basic reading skills and to develop basic writing skills. Coursework emphasizes writing from observation as well as writing in response to readings. The focus is on writing sentences which demonstrate a grasp of basic syntax and usage, and writing sound paragraphs which express a main idea clearly and develop it fully with a minimum of errors in sentence structure, punctuation, and spelling.

**MED 121 Database & Integration**

Students learn how to create and use databases with Microsoft Access. The objective of this course is to prepare students to take the MOS certification exam for Access. Students will receive hands-on integration of the entire Microsoft Office Suite.

**MED 122 Keyboarding II**

In this course, students learn how to improve their accuracy and typing speed. Students also learn formatting for personal and business letters, memoranda, simple tabulation techniques, proofreading, and editing. This course covers the basics of computer hardware, software, networks, and the Internet.

**MED 123 Business Presentation**

This course provides instruction in developing presentation materials. Students create a variety of charts, graphs and interactive presentations. Microsoft PowerPoint enables users to quickly create high-impact, dynamic presentations, while integrating workflow and ways to easily share information. Students will have an opportunity to earn their PowerPoint certification.

**MED 124 Career Planning**

This course is designed to teach students how to write a professional resume package and to learn basic interviewing skills.

**MED 125 Business Etiquette**

This course focuses on the fundamentals of etiquette as they relate to business and business relationships inside and outside the office.

**MED 130 Anatomy & Physiology I**

An introduction to the structure and function of the human body utilizing a system approach. Emphasis placed on human anatomy as well as the physiology of the cell, skeletal system, muscular system, nervous system, cardiovascular, respiratory, urinary, reproductive, endocrine, digestive, lymphatic, special senses, and integumentary systems.

**MED 131 Health Care Law & Ethics**

This course examines the ethical challenges facing individuals and businesses in modern society. The course utilizes case studies of professionals working in various areas of business and provides guest speakers with real-world experiences.

**MED 132 Medical Terminology**

This course is designed to teach students to accurately spell, pronounce, and define common medical terms related to major disease processes, diagnostic procedures, laboratory tests, abbreviations, drugs, and treatment modalities.

**MED 133 Medical Career Planning**

Students learn advanced interviewing skills, how to construct a portfolio of their work, and job-seeking skills. This course will guide the student through the elements of career planning, including self-understanding, stress management, teamwork, and exploring a variety of medical career paths.

**MED 134 Human Diseases**

Emphasis placed on the disease processes affecting the human body via an integrated approach to specific disease entities, including the study of causes, diagnosis, and treatment of disease.

**MED 135 Computers in Health Care**

Overview of commonly available software tools used in health care. Introduction to the electronic health record process and medical office database management software found in American health care delivery.

**MED 140 Anatomy & Physiology II**

This course takes a more advanced look at human anatomy, physiology, and pathophysiology by building on the basics learned in Anatomy I. Students will take an in-depth look at the axial skeletal system, the appendicular skeletal system, articulations, axial muscles, appendicular muscles, the brain and cranial nerves, the spinal cord and spinal nerves, and various other body systems.

**MED 141 Basic Diagnostic & Procedure Coding**

This course is an introduction to the basics of diagnostic and procedure coding and presents students with the characteristics and conventions of ICD-9-CM, ICD-10-CM, CPT-4, and HCPCS coding. This course focuses on correct code assignment. Focus is also placed on using official coding guidelines correctly and includes extensive practice coding exercises.

**MED 142 Pharmacology I**

Provides a basic knowledge of pharmacology including the legal and ethical issues; the terms and abbreviations; the involvement of governmental agencies; the role of the providers and allied health professionals; reading, interpreting and documenting the medication orders; and the effects of medication and common drugs used with each body system including antineoplastics, analgesics, antipyretics, nutritional supplements, and alternative medicines. Students will be introduced to Child Profile. Inventory control and management processes will also be taught.

**MED 143 Clinical Procedures I**

Demonstrations are provided on assisting the physician in performing physical examinations. Emphasis is placed on obtaining the medical history, measure or vital signs, auditory and visual testing, exam room preparation, equipment set-up, and proper positioning and draping of patients. Patient charting and documentation is also practiced. OSHA, blood-borne pathogens, and PPE will be covered in this course.

**MED 144 Practice Management & EHR**

Students will use an integrated practice management program and EHR to practice capturing the complete patient encounter. HIPAA will be reviewed, and students will begin with scheduling and check-in procedures, and proceed through the entire patient encounter using the PMP and the EHR to document the visit.

**MED 210 Clinical Aspects of Coding & Billing**

Overviews of Medicaid, Medicare, private insurance, and managed care verification and benefits are presented. Pre-authorization, referral procedures, and medical record documentation will be practiced. A review and practice of diagnostic, procedural, and laboratory coding will also be performed.

**MED 211 Surgical Procedures**

Instruction is presented on assisting the physician with minor office surgery, patient preparation, tray set-up, scrubbing, identification and use of surgical instruments and supplies, autoclave procedures, postoperative dressing, and surgical asepsis. Students will also learn correct body mechanics for assisting in patient transfer, how to identify different types of fractures, and how to assist with correct casting procedures. Therapeutic modalities, assistive devices, and surgical intervention will be discussed.

**MED 212 Pharmacology II**

This is the second of two pharmacology classes. This class includes the administration of medication including: safety and quality assurance, enteral, percutaneous, and parenteral routes of medication, medication for multi-system application, and medications related to body systems.

**MED 213 Clinical Procedures II**

Techniques are taught to enable students to perform the routine laboratory procedures conducted in physicians' offices. Information regarding laboratory mathematics and measurement, use of laboratory equipment, collection and processing of specimens, microbiology, phlebotomy, and routine blood testing is presented. Students will learn about CLIA regulations and what types of tests can be conducted in a CLIA-waived lab.

**MED 214 Communications**

This course provides the student with experience in the wide range of communication skills necessary for success in medical assisting. Verbal and non-verbal communication, speaking and listening critically, taking into consideration the diversity of our patients, motivational

interviewing, and other topics are covered. Patient education, including nutrition and diet, are also addressed. Opportunities will be given to role play patient interaction and patient education scenarios. There will be a strong focus on customer service.

**MED 220 Medical Specialty Procedures**

Students are trained to assist the physician with special office examinations including pediatric, gynecologic and prenatal, dermatologic, endoscopic, gastrointestinal, geriatric, and neurological.

**MED 221 Clinical Procedures III**

This course provides a review of the material covered in Clinical Procedures I & II. Students will demonstrate competency in each of the areas taught during the previous courses. This course will also cover externship preparation as well lab safety, electrocardiography, pulmonary testing, and urinalysis.

**MED 222 Electronic Health Records**

Students will use a simulated EHR to practice hands-on documentation.

**MED 223E Externship**

This externship provides the student an opportunity to apply the principles and practices learned in the program and utilize entry-level medical assistant skills in working with patients. The student will work under the direct supervision of qualified personnel at the participating site, and under general supervision of program faculty. Performance evaluations will be received bi-weekly from the supervising personnel at the participating site.

**MEDICAL ASSISTANT BOOK AND TOOL LIST**

The book and tool list for students in the Medical Assistant Program is intended to be a minimum requirement to complete the program. The book and tool list will be provided no later than the first day of class. For specifics on cost of books, training materials, uniforms, and tools, please refer to page 13.

**MEDICAL ASSISTANT EQUIPMENT LIST**

Students in the Medical Assistant Program utilize the following equipment:

Computers Exam tables ECG/EKG unit Autoclave Microscopes Venipuncture and injection arm



## ❖ medical office administration & coding program

Perry Technical Institute's Medical Office Administration & Coding Program provides a combination of training in traditional office skills, soft skills, and specialized medical office billing and coding procedures.

Students gain a solid understanding of computers including entry-level keyboarding operations, basic computer maintenance, the Windows operating system, software applications, and desktop publishing. Students learn the soft skills needed in the office environment and the importance of career planning and how to develop a positive customer service environment. Students then advance into more specialized subjects. They learn the basics of working in a medical office setting. Subjects include: medical terminology, anatomy and physiology, human diseases, medical office procedures, and basic and advanced diagnostic and procedures coding.

The program prepares students to take the Microsoft Office Specialist (MOS) exams in Word, Excel, Access, PowerPoint, and Outlook; the AAPC's Certified Professional Coder (CPC) exam; and the AAPC's Certified Professional Biller exam.

The goal of the Medical Office Administration & Coding Program is to prepare graduates for entry-level positions in the growing field of health care. Graduates of this program will be prepared for positions such as: medical office assistant, medical coder, receptionist, reimbursement specialist, and other administrative positions in medical offices, hospitals, and other health care organizations.

The Medical Office Administration & Coding Program is 18 months in length (six quarters). The student will earn 115.5 credit hours which are 2,016 clock hours. Tuition is payable on a quarterly basis. There are four quarters in an academic year.

The student to instructor ratio for the Medical Office Administration & Coding Program is 24:1.

### PROGRAM OUTLINE

			Clock Hours	Credit Hours
Quarter 1	MOA 110	Computer Applications	60	3.5
	MOA 111	Business English I	60	3.5
	MOA 112	Keyboarding I	30	1.5
	MOA 113	Word Processing	60	3.5
	MOA 114	Spreadsheets	60	3.5
	MOA 115	Business Math	<u>66</u>	<u>4.0</u>
			336	19.5
Quarter 2	MOA 120	Business English II	60	3.5
	MOA 121	Database & Integration	88	5.5
	MOA 122	Keyboarding II	30	1.5
	MOA 123	Business Presentation	86	5.0
	MOA 124	Career Planning	30	1.5
	MOA 125	Business Etiquette	<u>42</u>	<u>2.5</u>
			336	19.5
Quarter 3	MOA 130	Anatomy & Physiology I	60	3.5
	MOA 131	Health Care Law & Ethics	60	3.5
	MOA 132	Medical Terminology	75	4.5
	MOA 133	Medical Career Planning	35	2.0
	MOA 134	Human Diseases	55	3.0
	MOA 135	Computers in Health Care	<u>51</u>	<u>3.0</u>
			336	19.5
Quarter 4	MOA 140	Anatomy & Physiology II	60	3.5
	MOA 141	Basic Diagnostic Coding	83	5.0
	MOA 142	Basic Procedure Coding	91	5.5
	MOA 143	Medical Office Procedures	<u>102</u>	<u>6.0</u>
			336	20.0
Quarter 5	MOA 210	Business Communication	55	3.0
	MOA 211	Medical Reimbursement	66	4.0
	MOA 212	Health Care Delivery Systems	60	3.5
	MOA 213	Intermediate Diagnostic Coding	80	5.0
	MOA 214	Intermediate Procedure Coding	<u>75</u>	<u>4.5</u>
			336	20.0

(cont. on next page)

Quarter 6	MOA 220	Advanced Coding	60	3.5
	MOA 221	Specialty Coding	80	5.0
	MOA 222	Health Care Records	76	4.5
	MOA 223E	Medical Coding Practicum Externship	<u>120</u>	<u>4.0</u>
			336	17.0
	Program Totals		2,016	115.5

**MEDICAL OFFICE ADMINISTRATION & CODING PROGRAM COURSE DESCRIPTIONS**

**MOA 110 Computer Applications**

This course covers the basics of computer hardware and software, networks, the Internet, Outlook, and Publisher. The objective is to prepare the student to take the MOS certification exam.

**MOA 111 Business English I**

A concentrated review of sentence writing, this course emphasizes sentence combining, basic mechanics, and paragraph writing.

**MOA 112 Keyboarding I**

In this course, students learn beginning typing and 10-key skills. The objectives are for students to learn how to type by touch and how to take a timed keyboarding test for accuracy and speed.

**MOA 113 Word Processing**

Students learn how to use Microsoft Word for basic and advanced word processing. The objective of this course is to prepare students to take the MOS certification exam for Word.

**MOA 114 Spreadsheets**

Students learn Microsoft Excel and how to build business and financial applications for forecasting, budgeting, and basic bookkeeping. The objective of this course is to prepare students to take the MOS certification exam for Excel.

**MOA 115 Business Math**

Students will review the basic operations of arithmetic, understand and manage their personal finances, as well as grasp the fundamentals of business finances. This course will prepare students to be smart shoppers, informed taxpayers, and valued employees. Basic math skills will be covered in a step-by-step manner, building student confidence along the way.

**MOA 120 Business English II**

This course emphasizes basic punctuation and grammar rules and covers sentence structure. The course is designed to introduce basic reading skills and to develop basic writing skills. Coursework emphasizes writing from observation as well as writing in response to readings. The focus is on writing sentences which demonstrate a grasp of basic syntax and usage, and writing sound paragraphs which express a main idea clearly and develop it fully with a minimum of errors in sentence structure, punctuation, and spelling.

**MOA 121 Database & Integration**

Students learn how to create and use databases with Microsoft Access. The objective of this course is to prepare students to take the MOS certification exam for Access. Students will receive hands-on integration of the entire Microsoft Office Suite.

**MOA 122 Keyboarding II**

In this course, students learn how to improve their accuracy and typing speed. Students also learn formatting for personal and business letters, memoranda, simple tabulation techniques, proofreading, and editing. This course covers the basics of computer hardware, software, networks, and the Internet.

**MOA 123 Business Presentation**

This course provides instruction in developing presentation materials. Students create a variety of charts, graphs, and interactive presentations. Microsoft PowerPoint enables users to quickly create high-impact, dynamic presentations, while integrating workflow and ways to easily share information. Students will have an opportunity to earn their PowerPoint certification.

**MOA 124 Career Planning**

This course is designed to teach students how to write a professional resume package and to learn basic interviewing skills.

**MOA 125 Business Etiquette**

This course focuses on the fundamentals of etiquette as they relate to business and business relationships inside and outside the office.

**MOA 130 Anatomy & Physiology I**

An introduction to the structure and function of the human body utilizing a system approach. Emphasis placed on the basics of human anatomy as well as the physiology of the cell, skeletal system, muscular system, nervous system, cardiovascular, respiratory, urinary, reproductive, endocrine, digestive, lymphatic, special senses, and integumentary systems.

**MOA 131 Health Care Law & Ethics**

This course examines the ethical challenges facing individuals and businesses in modern society. The course utilizes case studies of professionals working in various areas of business and provides guest speakers with real-world experiences. Great emphasis is placed on HIPAA and Washington State Privacy laws.

**MOA 132 Medical Terminology**

This course is designed to teach students to accurately spell, pronounce, and define common medical terms related to major disease processes, diagnostic procedures, laboratory tests, abbreviations, drugs, and treatment modalities.

**MOA 133 Medical Career Planning**

Students learn advanced interviewing skills, how to construct a portfolio of their work, and job-seeking skills. This course will guide the student through the elements of career planning, including self-understanding and exploring a variety of medical careers paths.

**MOA 134 Human Diseases**

Emphasis placed on the disease processes affecting the human body via an integrated approach to specific disease entities, including the study of causes, diagnosis, and treatment of disease.

**MOA 135 Computers in Health Care**

Overview of commonly available software tools used in health care. Introduction to the electronic health record process and medical office database management software found in American health care delivery.

**MOA 140 Anatomy & Physiology II**

This course takes a more advanced look at human anatomy and physiology by building on the basics learned in Anatomy & Physiology I. Students will take an in-depth look at the axial skeletal system, the appendicular skeletal system, articulations, axial muscles, appendicular muscles, the brain and cranial nerves, the spinal cord and spinal nerves, and various other body systems.

**MOA 141 Basic Diagnostic Coding**

This course is an introduction to basic diagnostic coding and presents students with the characteristics and conventions of ICD-10-CM and a brief history of ICD-9-CM (International Classification of Diseases, 9th and 10th Edition, Clinical Modification). Focus is placed on using official coding guidelines correctly and the course includes extensive practice coding exercises.

**MOA 142 Basic Procedure Coding**

This course is an introduction to basic procedural coding and presents students with the characteristics of CPT-4 (Current Procedural Terminology), and HCPCS (Health Care Financing Administration Common Procedure Coding System) Level II codes. The course focuses on correct code assignment and includes extensive practice coding exercises.

**MOA 143 Medical Office Procedures**

This course introduces and teaches the tasks of a medical office assistant's career: How to perform administrative functions, records management, medical communications, scheduling appointments, and an introduction to patient billing and processing insurance claims. Emphasis is placed on developing a working knowledge of concepts, processes, and procedures in the billing cycle from point of service to receipt of payment. The course covers how to recognize components of a compliance plan for physician office billing, filing of appeals and focuses on decision making and critical thinking activities. Students will learn the importance of customer service in the medical industry. Effective verbal communication and telephone skills are taught. Problem resolution skills and how to handle difficult situations are important elements of this course.

**MOA 210 Business Communication**

Students learn various forms of written business communication including routine business correspondence (e-mail, memos, letters), reports, and proposals. Students will also take part in team building activities that incorporate communicating at work, communicating in small groups and teams, workplace listening and nonverbal communication, and communicating across cultures. Career planning is also integrated into this course (resume, cover letter, and references).

**MOA 211 Medical Reimbursement**

Students will study federal, state, and private health insurance plans including managed care systems. Students will learn the processing cycle of health insurance claims, health insurance terminology, reimbursement methodologies for professional services, and proper completion of the 1500 billing form. Students will have hands-on experience with simulated practice management software. An overview of billing system management reports and legal issues related to reimbursement processing.

**MOA 212 Health Care Delivery Systems**

Students will demonstrate an understanding of health care delivery systems. They will analyze the organization of health care delivery in hospitals, mental health and ambulatory care centers, home health agencies, and nursing homes. Students will have extensive hands-on experience with the UBO4. Emphasis is placed on hospital inpatient billing.

**MOA 213 Intermediate Diagnostic Coding**

This course will serve as a continuation of basic diagnostic coding and the characteristics and conventions of ICD-10-CM coding. A brief history of ICD-9 and the transition to ICD-10-CM will be covered. Students will analyze and discuss case studies using more complex code assignments with ICD-10-CM. Inpatient coding will be covered. This course will provide an overview of SNOMED.

**MOA 214 Intermediate Procedure Coding**

This course will serve as a continuation of basic procedural coding and the characteristics and conventions of RBRVS and APCs. Students will analyze and discuss case studies and more complex code assignments using CPT and HCPCS Level II codes. Students will learn procedure coding for inpatients using ICD-10-PCS.

**MOA 220 Advanced Coding**

This course provides students with advanced understanding of complex coding scenarios, with an emphasis on medical coding services such as medical visits, diagnostic testing and interpretation, treatments, surgeries, and anesthesia. This course covers more advanced coding concepts using step-by-step methods that give a more in-depth understanding of physician-based medical coding to ensure gathering the correct information from documents, selecting the right codes, and determining the correct sequencing of those codes.

**MOA 221 Specialty Coding**

This course provides students with advanced understanding of complex coding scenarios, with an emphasis on coding within different medical specialties. Students will learn the specific coding challenges of each of the following specialties: obstetrics and gynecology; gastroenterology; podiatry; dermatology; ear, nose and throat; surgery; radiology; and cardiology.

**MOA 222 Health Care Records**

Students will demonstrate an understanding of health information department and record systems. Students will compare and contrast health care data sets (primary versus secondary records). Students will analyze the content and uses of hospital and physician clinic patient records. Students will learn documentation requirements and the evaluation of documentation completeness and quality. This course will expose students to record storage and retrieval systems (manual and electronic). Hands-on training with simulated EHR will be provided.

**MOA 223E Medical Coding Practicum Externship**

The externship will provide students with coding practices in a hospital, physician's office, clinic or other health care setting with directed projects common to a clinical coding specialist on the job. Students will practice with clinical code assignments and billing methodologies, including projects and cases that replicate typical coding tasks in a physician's office, hospital outpatient clinic, ambulatory surgery, and hospital acute care settings that employ coding professionals. This practicum will focus on building speed and accuracy using actual medical records. If the student does not obtain an externship, completion of a capstone project is required.

**MEDICAL OFFICE ADMINISTRATION & CODING BOOK AND TOOL LIST**

The book and tool list for students in the Medical Office Administration & Coding Program is intended to be a minimum requirement to complete the program. The book and tool list will be provided no later than the first day of class. For specifics on cost of books, training materials, uniforms, and tools, please refer to page 13.

**MEDICAL OFFICE ADMINISTRATION & CODING EQUIPMENT LIST**

Students in the Medical Office Administration & Coding Program utilize the following equipment:

- Computers
- Copy machines
- Scanners
- Fax machines
- 10-key calculators

## ❖ precision machining & manufacturing

Perry Technical Institute's Precision Machining & Manufacturing Program teaches students the machine trade through the integration of machining theory and practical application in the machine shop. Students use the skills they learn to plan and carry out the operations needed to make machined products that meet precise specifications.

The working properties of metals, applied mathematics, blueprint reading, computer numerical control (CNC) programming, and computer-aided manufacturing (CAM) using Mastercam are some of the subjects students study to develop the skills demanded by today's industry. The program prepares students to take the Mastercam certification exam.

The goal of the Precision Machining & Manufacturing Program is to prepare students for entry-level positions in a variety of manufacturing fields. Graduates will be qualified for positions in industries such as manufacturing, prototyping, job shops, power generation, aerospace, food processing, medical equipment, and other specialty machining industries.

The Precision Machining & Manufacturing Program is 24 months in length (eight quarters). The student will earn 139.5 credit hours which are 2,688 clock hours. Tuition is payable on a quarterly basis. There are four quarters in an academic year.

The student to instructor ratio for the Precision Machining & Manufacturing Program is 24:1.

### PROGRAM OUTLINE

			Clock Hours	Credit Hours
Quarter 1	MA 110	Shop Safety	21	1.0
	MA 111	Mathematics for Machine Technology I	50	3.5
	MA 112	Elementary Blueprint Reading I	35	2.0
	MA 113	Machine Tool Practices I	40	2.5
	MA 114L	Machine Lab	<u>190</u>	<u>9.5</u>
		336	18.5	
Quarter 2	MA 120	Mathematics for Machine Technology II	50	3.5
	MA 121	Elementary Blueprint Reading II	36	2.5
	MA 122	Machine Tool Practices II	40	2.5
	MA 123L	Machine Lab	<u>210</u>	<u>10.5</u>
		336	19.0	
Quarter 3	MA 130	Mathematics for Machine Technology III	50	3.5
	MA 131	Intermediate Blueprint Reading I	36	2.5
	MA 132	Machine Tool Practices III	40	2.5
	MA 133L	Machine Lab	<u>210</u>	<u>10.5</u>
		336	19.0	
Quarter 4	MA 140	Mathematics for Machine Technology IV	50	3.5
	MA 141	Intermediate Blueprint Reading II	36	2.5
	MA 142	Machine Tool Practices IV	40	2.5
	MA 143L	Machine Lab	<u>210</u>	<u>10.5</u>
		336	19.0	
Quarter 5	MA 210	Geometric Dimensioning & Tolerancing I	35	2.0
	MA 211	CNC Machine Tool Operation I	30	2.0
	MA 212	Mastercam Mill Level One I	31	2.0
	MA 213L	Machine Lab	<u>240</u>	<u>12.0</u>
		336	18.0	
Quarter 6	MA 220	Geometric Dimensioning & Tolerancing II	35	2.0
	MA 221	CNC Machine Tool Operation II	30	2.0
	MA 222	Mastercam Mill Level One II	31	2.0
	MA 223L	Machine Lab	<u>240</u>	<u>12.0</u>
		336	18.0	

(cont. on next page)



Quarter 7	MA 230	Geometric Dimensioning & Tolerancing III	35	2.0
	MA 231	CNC Machine Tool Operation III	30	2.0
	MA 232	Mastercam Mill Level Three I	31	2.0
	MA 233E	Externship	<u>240</u>	<u>8.0</u>
			336	14.0
Quarter 8	MA 240	Geometric Dimensioning & Tolerancing IV	35	2.0
	MA 241	CNC Machine Tool Operation IV	30	2.0
	MA 242	Mastercam Mill Level Three II	31	2.0
	MA 243E	Externship	<u>240</u>	<u>8.0</u>
			336	14.0
Program Totals			2688	139.5

## PRECISION MACHINING & MANUFACTURING COURSE DESCRIPTIONS

### MA 110 Shop Safety

This course covers the fundamental safety procedures for each group of machine tools in the shop. General shop safety considerations include proper clothing, eye protection, lifting, first aid, and CPR.

### MA 111 Mathematics for Machine Technology I

Operations with fractions, mixed numbers, and decimals as they relate to the machine trades. The topics covered are the basic math skills of addition, subtraction, multiplication, and division. Calculations involving exponents, percentages, and rates are also covered.

### MA 112 Elementary Blueprint Reading I

Develops the fundamental skills needed to read and interpret industrial drawings. Topics covered include drawing layouts, drawing symbols, and the different drawing views used to describe machined parts.

### MA 113 Machine Tool Practices I

Covers the use of hand tools including hacksaws, files, taps, and dies. Topics also include the use of measuring instruments such as steel rules, vernier scales, micrometers, and dial indicators. Precision layout techniques, drilling machine operation, drill bit sharpening, and tapping are also covered. An introduction to turning machines will include lathe cutting tools, engine lathe tooling, engine lathe operation, and facing and center drilling.

### MA 114L Machine Lab

Classroom theory on the operation of drill presses, band saws, bench grinders, and basic hand tools will be applied in the shop. Operations performed will include filing a block square, hacksaw use, precision hole layout, drill bit sharpening, drilling, and tapping.

### MA 120 Mathematics for Machine Technology II

This course covers the customary and metric linear measuring systems as well as the fundamentals of algebra found in the machine trades. Topics include using the principles of equality and rearranging of formulas to solve common shop problems.

### MA 121 Elementary Blueprint Reading II

Further develops the skills learned in Elementary Blueprint Reading I. Topics covered include the dimensions and symbols used to call-out common features such as counterbores, countersinks, fillets, and spot faces. Other topics include tapers, chamfers, bevels, and screw threads.

### MA 122 Machine Tool Practices II

This course covers the different types of lathes, their nomenclature, and their operation and set-up theories. Topics covered include turning, thread cutting, grooving, drilling, and tapping. The operation of band saws, cold saws, and abrasive saws is also covered. Dimensional measurements will encompass comparison measuring tools, gage blocks, and angular measuring tools. An introduction to the vertical milling machine will include tooling and set-ups for the mill.

### MA 123L Machine Lab

Classroom theory on the operation and set-up of engine lathes will be applied in the shop. Operations will include turning, thread cutting, grooving, drilling, and tapping. Also covered are the set-ups of four-jaw chucks, follower rests, and steady rests.

### MA 130 Mathematics for Machine Technology III

This course covers the fundamentals of plane geometry. Common shop problems are solved by applying the geometric principles of triangles, common polygons, and circles. Other topics covered include geometric construction, area calculations, and volume calculations.

### MA 131 Intermediate Blueprint Reading I

Covers more advanced blueprinting topics such as orthographic projection, sectioning, and special views used in industrial drawing to further define machined parts. Basic geometric tolerances, their datums and modifiers, along with threaded fasteners, are covered.

### MA 132 Machine Tool Practices III

Covers operation and set-up theories of the vertical milling machine. Topics covered include face milling, rough/finish milling, hole layout, drilling, and tapping. Also covered are heat treating of materials, material properties, and material application. An introduction to the horizontal milling machine will include tooling, set-ups, and operation demonstrations.

### MA 133L Machine Lab

Classroom theory on the operation and set-up of the vertical milling machine will be applied in the shop. Operations will include face milling, rough/finish milling, hole layout, drilling, and tapping. Also covered are general machine set-ups including dialing vises and head tramming.

### MA 140 Mathematics for Machine Technology IV

Introduces trigonometric functions and compound angles as they apply in the machine trades. Calculations of angles and sides of right triangles, the Cartesian coordinate system, the laws of sines and cosines, and compound angle calculations are covered.

**MA 141 Intermediate Blueprint Reading II**

As a continuation of Intermediate Blueprint Reading I, this course further develops advanced blueprint reading skills required in the machine trades. The topics of pipe threads, dovetails, and steel identification are covered along with structural steel shapes and welding. The special considerations of blueprints for castings, worm gears, and mechanical fasteners are also covered.

**MA 142 Machine Tool Practices IV**

Covers the operation and set-up theories of horizontal milling machines and surface grinders. Milling topics covered include face milling, rough, and finish milling. Surface grinding topics include selection of grinding wheels, coolant, and work holding options. General shop tools and procedures covered will include the arbor press, hydraulic press, countersinking, counterboring, and reaming. Also, computer numerical control machines will be introduced.

**MA 143L Machine Lab**

Classroom theory on the operation and set-up of the horizontal milling machines and surface grinders will be applied in the shop. Milling operations will include face milling, rough, and finish milling. Surface grinder operations will include block squaring and angle grinding.

**MA 210 Geometric Dimensioning & Tolerancing I**

This course covers the fundamental geometric dimensioning and tolerancing skills needed to interpret industrial drawings. Topics include basic dimensioning and tolerancing rules, definitions, symbols, material conditions, form variation, and basic fits of mating parts. Also covered are baseline, chain, direct, and alternate dimensioning.

**MA 211 CNC Machine Tool Operation I**

Manual programming and operation of CNC machining centers. Topics include defining numerical control, machine types and layouts, coordinate geometry, basic machine control features, programming codes, and structure.

**MA 212 Mastercam Mill Level One I**

Students use Mastercam to create two- and three-dimensional drawings. Solid modeling and blueprinting are also covered along with general drafting skills.

**MA 213L Machine Lab**

Students will complete a series of projects designed to hone the skills needed in industry. They will operate a job shop style machine shop doing work for customers and participate in a final class machining project.

**MA 220 Geometric Dimensioning & Tolerancing II**

A continuation of Geometric Dimensioning & Tolerancing I, this course further develops the geometric dimensioning and tolerancing skills needed to interpret industrial drawings. Topics are datums, material conditions, and material boundary.

**MA 221 CNC Machine Tool Operation II**

As a continuation of CNC Machine Tool Operation I, this course covers the manual programming and operation of CNC machining centers. Topics include tool function, reference points, work and tool offsets, and rapid positioning. Also covered are linear interpolation, fixed cycles, and hole machining.

**MA 222 Mastercam Mill Level One II**

Covers programming two dimensional toolpaths with Mastercam. Topics include drilling, tapping, contouring, and pocketing. Circle and slot milling are also covered.

**MA 223L Machine Lab**

Students will complete a series of projects designed to hone the skills needed in industry. They will operate a job shop style machine shop doing work for customers and participate in a final class machining project.

**MA 230 Geometric Dimensioning & Tolerancing III**

A continuation of Geometric Dimensioning & Tolerancing II, this course further develops the geometric dimensioning and tolerancing skills needed to interpret industrial drawings. Topics covered include form tolerances, orientation tolerances, and location tolerances.

**MA 231 CNC Machine Tool Operation III**

As a continuation of CNC Machine Tool Operation II, this course covers the manual programming and operation of CNC machining centers. Topics include cutter diameter compensation, plane selection, circular interpolation contour milling, face milling, and machining slots and pockets.

**MA 232 Mastercam Mill Level Three I**

Students use Mastercam to create three-dimensional wireframe geometry and surfaces. The proper uses of stock setup, tool libraries, and toolpath verification are also taught.

**MA 233E Externship**

Students work in various local machine shops under the supervision of an approved employer. They must maintain a minimum GPA of 3.0 and not be on any probation contract in order to be eligible to participate in an externship. The instructor or administration may terminate the externship at any time if the student does not adhere to the requirements stated in the Externship Training Packet. If a student does not obtain an externship, completion of a machine capstone project will be required.

**MA 240 Geometric Dimensioning & Tolerancing IV**

A continuation of Geometric Dimensioning & Tolerancing III, this course further develops the geometric dimensioning and tolerancing skills needed to interpret industrial drawings. Topics covered are location tolerances, profile tolerances, and run-out tolerance.

**MA 241 CNC Machine Tool Operation IV**

As a continuation of CNC Machine Tool Operation III, this course covers the manual programming and operation of CNC turning centers. Topics include turning and boring, fixed lathe cycles, parting off and grooving, threading, facing, and contouring.

**MA 242 Mastercam Mill Level Three II**

This course covers machining three-dimensional shapes with the surface rough and surface finish toolpaths. Other topics include surface high speed toolpaths and using a STL stock model to verify a solid model.

### **MA 243E Externship**

Students work in various local machine shops under the supervision of an approved employer. They must maintain a minimum GPA of 3.0 and not be on any probation contract in order to be eligible to participate in an externship. The instructor or administration may terminate the externship at any time if the student does not adhere to the requirements stated in the Externship Training Packet. If a student doesn't obtain an externship, completion of a machine capstone project will be required.

### **PRECISION MACHINING & MANUFACTURING BOOK AND TOOL LIST**

The book and tool list for students in the Precision Machining & Manufacturing Program is intended to be a minimum requirement to complete the program. The book and tool list will be provided no later than the first day of class. For specifics on cost of books, training materials, uniforms, and tools, please refer to page 14.

### **PRECISION MACHINING & MANUFACTURING EQUIPMENT LIST**

Students in the Precision Machining & Manufacturing Program utilize the following equipment:

- Computers
- Cylindrical grinders
- Gear hobs
- Engine lathes
- Vertical and horizontal mills
- Surface grinders
- Drill presses
- Band saws
- Vertical machining centers
- Turning centers
- Wire EDM machine

## ❖ welding technology

The Welding Technology Program equips students with the skills they need to gain employment as entry-level welders in fields such as structural iron, manufacturing, fabrication, sanitary/food grade, repair, and power generation.

The program stresses safe practices for the welding industry. Students are immersed in classroom theory and hands-on lab instruction in welding, fitting, and related metalworking processes. The program provides students with a foundation that includes print reading and fabrication plans for welders. Coursework covers oxyfuel cutting and welding; carbon arc cutting and gouging; shielded metal arc welding; gas metal arc welding; flux core arc welding; gas tungsten arc welding; and pipe welding.

The curriculum progresses into advanced fabrication techniques using CAD drafting software. Students are required to demonstrate their skills by completing advanced welding projects. The program prepares students to sit for the American Welding Society (AWS) and Washington Association of Building Officials (WABO) certification tests.

The Welding Technology Program is 12 months in length (four quarters). The student will earn 77 credit hours which are 1,344 clock hours. Tuition is payable on a quarterly basis. There are four quarters in an academic year.

The student to instructor ratio for the Welding Technology Program is 20:1.

### PROGRAM OUTLINE

			Clock Hour	Credit Hours
Quarter 1	WLD 110	Introduction to Welding	100	6.0
	WLD 111	Fundamental Welding Skills & Fabrication	136	8.0
	WLD 112	Introduction to Print Reading	<u>100</u>	<u>6.5</u>
			336	20.5
Quarter 2	WLD 120	Shielded Metal Arc Welding	168	10.0
	WLD 121	Gas Metal Arc Welding	<u>168</u>	<u>10.0</u>
			336	20.0
Quarter 3	WLD 130	Flux Cored Arc Welding	168	10.0
	WLD 131	Gas Tungsten Arc Welding	<u>168</u>	<u>10.0</u>
			336	20.0
Quarter 4	WLD 140	Advanced Fabrication Techniques	136	8.0
	WLD 141	Introduction to Pipe Welding	80	4.5
	WLD 142	Externship	<u>120</u>	<u>4.0</u>
			336	16.5
	Program Totals		1,344	77.0

### WELDING TECHNOLOGY COURSE DESCRIPTIONS

#### WLD 110 Introduction to Welding

This course offers an introduction to safety practices and procedures that will be most commonly adhered to in the welding industry. Safety considerations will include proper clothing, eye protection, and workplace hazards. Students will be required to complete the OSHA 10 web-based training and certification course. Students gain a basic understanding of the common welding procedures and terminology used such as Oxyfuel, Shielded Metal Arc Welding, Gas Metal Arc Welding, Flux Core Arc Welding, and Gas Tungsten Arc Welding. Students learn to identify different metal types, gain a basic understanding of metallurgy and develop a higher understanding of mechanical property changes.

#### WLD 111 Fundamental Welding Skills & Fabrication

This course covers manual, semi-automatic, and CNC cutting operations such as Mechanical, Oxyfuel, Plasma, and Carbon-Arc Cutting/Gouging. Students will also develop advanced skills in Oxyacetylene Welding, Soldering and Brazing.

#### WLD 112 Introduction to Print Reading

This course offers an introduction to CAD software and blueprint designs. Students will develop the ability to interpret lines, dimensions and notes used on blueprints in the welding and fabrication trades. Mathematic fundamentals are applied to welding in the forms of cost estimation, angular measurement, geometric computation, and number conversions.

#### WLD 120 Shielded Metal Arc Welding

Students will analyze the use of shielded metal arc welding in industry and name the components that make up the schematic representation of the shielded metal arc. Topics of study will include appropriate arc temperature, welding machines, power supply, and cable size.

#### WLD 121 Gas Metal Arc Welding

Students receive introductory instruction regarding the process and theory of gas metal arc welding. Students will be exposed to related equipment, set-up procedures, and safety requirements.

### **WLD130 Flux Cored Arc Welding**

In this course, students will gain an understanding of the flux cored arc welding process and related variables. Students will demonstrate the ability to make various fillet and groove welds as well as define the operational differences between the two main types of flux cored electrodes.

### **WLD 131 Gas Tungsten Arc Welding**

Students will be able to apply the correct selection of tungsten, polarity, gas, and proper filler rod. They will perform fillet and groove welds with various electrodes and filler materials on steel, stainless steel, and aluminum.

### **WLD 140 Advanced Fabrication Techniques**

During this course students will work with CAD software to design projects. Students will then perform these hands-on welding projects using specified processes referenced in WPS. During these projects students will learn to overcome fit-up problems, control warp age/distortion and other tolerance controls problems.

### **WLD 141 Introduction to Pipe Welding**

This course introduces students to techniques used in the pipe welding industry. Students learn to produce acceptable welds on pipe and troubleshooting skills when working with pipe.

### **WLD 142E Externship**

Students will learn advanced career planning practices and demonstrate skills and competencies in extern assignments. Students must have a "C+" or better in current coursework, must not be under any type of probationary contract, and must complete and submit a regular lab work experience employer evaluation. The instructor may terminate industry work experiences at any time if students do not adhere to these requirements. If the student does not obtain an externship, completion of the Welding capstone project is required.

## **WELDING TECHNOLOGY BOOK AND TOOL LIST**

The book and tool list for students in the Welding Technology Program is intended to be a minimum requirement to complete the program. The book and tool list will be provided no later than the first day of class. For specifics on cost of books, training materials, uniforms, and tools, please refer to page 13.

## **WELDING TECHNOLOGY EQUIPMENT LIST**

Students in the Welding Technology Program utilize the following equipment:

- Computers
- Shielded metal arc welding (stick)
- Gas tungsten arc welding (TIG/Heliarc) Gas metal arc welding (MIG)
- Flux cored arc welding
- Plasma arc cutting and gouging Carbon arc cutting and gouging
- Oxygen acetylene cutting, brazing, and soldering apparatus
- Variety of hand tools



## ❖ board of trustees

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**Curtis King**  
**Jake Jundt**

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B.S. – Central Washington University  
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B.A. – Eastern Washington University

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A.A.S. – Yakima Valley Community College

**Jill Cope, Registrar**  
B.A. – Minot State University

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B.S. – City University  
Certificate – Telecommunications, Perry Technical Institute

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B.S. – Portland State University  
M.B.A. – Marylhurst University

**Nicole Trammell Woolpert, Director of Marketing & Admissions**  
B.S. – Central Washington University  
Certificate – Graphics, Perry Technical Institute

**Leanne LaBissoniere, Director of Public Relations**  
B.A. – Central Washington University

**Carol Helms, Director of HR for Faculty & Staff Development**  
A.A. – Yakima Valley Community College

**Mayra Fernandez, Director of Financial Aid**  
A.A. – Yakima Valley Community College

**Deann Bergquist, Director of HR for Payroll & Benefits**  
B.A. – Central Washington University  
B.S. – Central Washington University

**Chelsea Snodgrass, Director of Career Services**  
A.A. – Yakima Valley Community College  
B.S. – Central Washington University

**Maria Pulido, Purchasing & Auxiliary Services Manager**  
B.S. – Central Washington University

**Kaila Lockbeam, Director of Facilities**

## ❖ faculty

### AUTOMOTIVE TECHNOLOGY

**Dusty Morrill, Department Head**

**Isaac Espinoza, Associate Instructor**

**Sam Perez, Instructor**

**Michael Powell, Instructor**  
Certificate – Automotive, Perry Technical Institute

**Ken Waggener, Instructor**  
Certificate – Automotive, Perry Technical Institute

### BUSINESS TECHNOLOGY & ACCOUNTING

**Valerie Ryan, Department Head**  
B.S. – Central Washington University  
M.S. – Central Washington University

**Mardell Newhouse**  
B.A. – University of Washington  
M.B.A. – Western Governors University

### ELECTRICAL TECHNOLOGY

**Michael Yusi, Department Head**  
Certificate – Electrical, Perry Technical Institute

**Juan Becerra, Instructor**  
Certificate – Electrical, Perry Technical Institute

**Forrest Buchmann, Instructor**  
Certificate – Electrical, Perry Technical Institute

**Jerome Cobane, Electrical Field Instructor**  
Certificate – Electrical, Perry Technical Institute

**Ray Cyr, Instructor**  
Certificate – Electrical, Perry Technical Institute

**Cam Duncan, Instructor**  
Certificate – Electrical, Perry Technical Institute

**Joshua Jackson, Instructor**  
Certificate – Electrical, Perry Technical Institute

**Dan Lovestrand, Electrical Field Instructor**  
Certificate – Perry Technical Institute

**Matthew Shipley, Instructor**  
Certificate – Electrical, Perry Technical Institute

**Mike Tucker, Instructor**  
Certificate – Electrical, Perry Technical Institute  
A.A.S. – Yakima Valley Community College

**Ron Zike, Instructor**

## HEATING, VENTILATION, AIR CONDITIONING & REFRIGERATION TECHNOLOGY

### **Justin McRitchie, Department Head**

Certificate – HVAC/R, Perry Technical Institute

### **Craig Heckart, Instructor**

Certificate – HVAC/R, Perry Technical Institute

### **Dan Henderson, Instructor**

Certificate – HVAC/R, Perry Technical Institute  
A.A.S. – Yakima Valley Community College

### **Ignacio Lopez, Instructor**

Certificate – HVAC/R, Perry Technical Institute

### **Rick Snider, Instructor**

Certificate – HVAC/R, Perry Technical Institute

## INFORMATION TECHNOLOGY & COMMUNICATION SYSTEMS

### **Andy Fischer, Department Head**

Certificate – Telecommunications, Perry Technical Institute  
A.A.S. – Yakima Valley Community College

### **Jeanine Benoit, Instructor**

Certificate – Telecommunications, Perry Technical Institute

### **Francisco Magana, Instructor**

Certificate – Telecommunications, Perry Technical Institute  
A.A.S. – Yakima Valley Community College

### **Matt Sund, Instructor**

Certificate – Telecommunications, Perry Technical Institute  
B.A. – Central Washington University

## INSTRUMENTATION & INDUSTRIAL AUTOMATION TECHNOLOGY

### **Tony Nirk, Department Head**

Certificate – Instrumentation, Perry Technical Institute  
A.A.S. – Pierce College Fort Steilacoom

### **Larry Dagdagan, Instructor**

Certificate – Instrumentation, Perry Technical Institute

### **Patrick Jones, Instructor**

Certificate – Instrumentation, Perry Technical Institute

### **John Koenes, Instructor**

Certificate – Instrumentation, Perry Technical Institute

### **Doug Oswald, Instructor**

Certificate – Instrumentation, Perry Technical Institute

### **Gerry Ries, Instructor**

Certificate – Instrumentation, Perry Technical Institute

### **Carlos Sanchez, Instructor**

Certificate – Instrumentation, Perry Technical Institute

### **Max York, Instructor**

Certificate – Instrumentation, Perry Technical Institute  
A.A.S. – ITT Technical Institute

## PRECISION MACHINING AND MANUFACTURING TECHNOLOGY

### **Dan Steinmetz, Department Head**

### **Jay Wellner, Instructor**

Certificate – Machine, Perry Technical Institute

## MEDICAL TECHNOLOGY

### **Lashel Church, Department Head**

American Academy of Professional Coders – Certified

### **Ruby Aguilar, Associate Instructor**

A.G.S. – Big Bend Community College  
B.A. (2) – Central Washington University  
B.S.N. – Washington State University

### **Angela Fiscus, Instructor**

Certificate – Medical Office Administration & Coding, Perry Technical Institute  
American Academy of Professional Coders – Certified

### **Garet Gasseling, Instructor**

Certificate – Business Technology & Accounting, Perry Technical Institute

### **Cheryl Johnson, Instructor**

A.D.N. – Yakima Valley Community College

## WELDING TECHNOLOGY

### **Scott Nathlich, Instructor**

### **Mariane Sugihara, Instructor**

Certificate – Welding, Aberdeen Proving Grounds  
B.A. – University of Oregon

### **Leonard Thompson, Instructor**

A.T.A. – Centralia Community College

## ❖ phone list

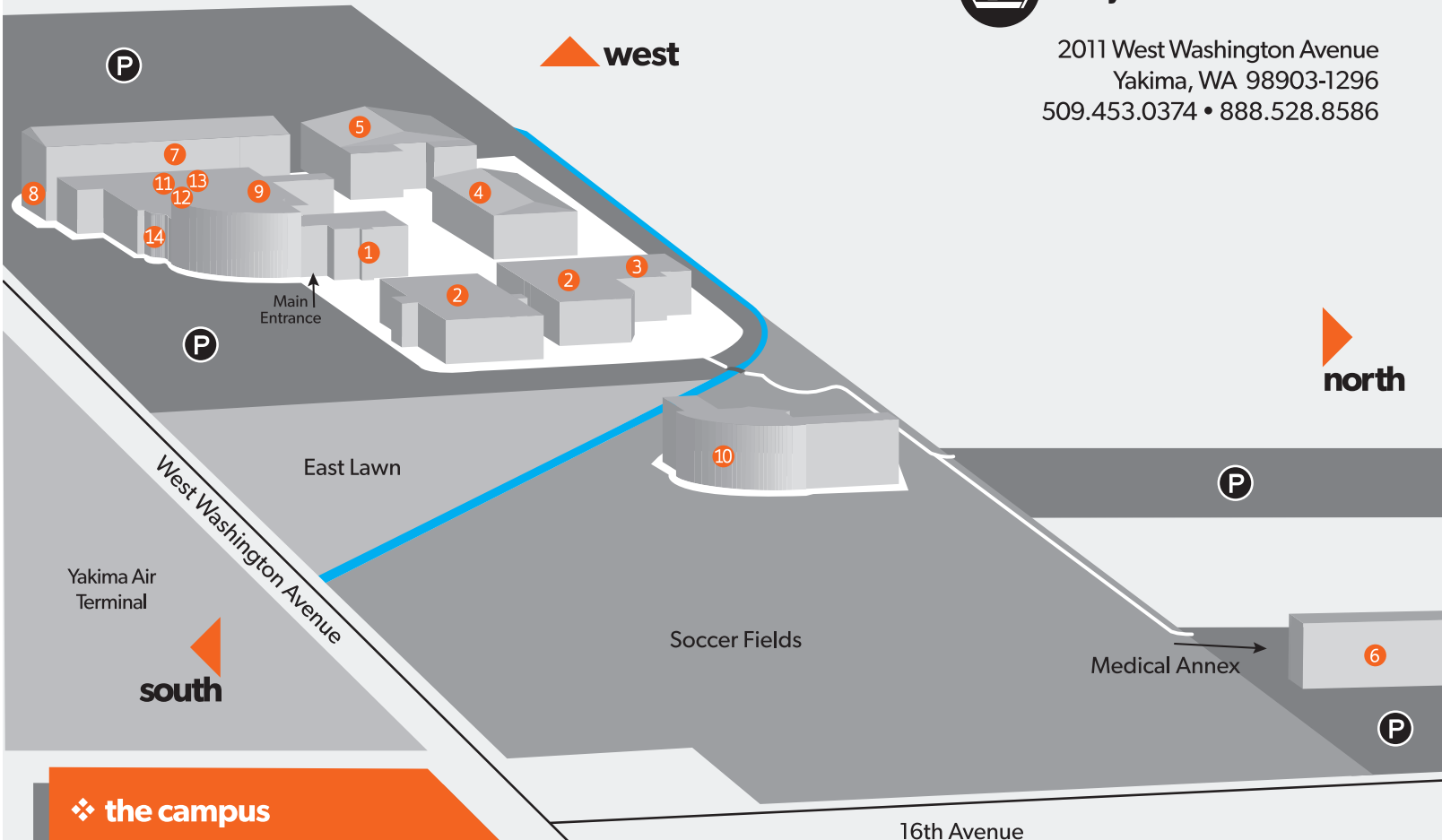
To call the following, please dial 509.453.0374 and ask for the extension.

<b>Admissions</b> .....	5781
<b>Campus Store</b> .....	5777
<b>Career Services</b> .....	5776
<b>Enrollment Services</b> .....	5750
<b>Facilities &amp; Safety</b> .....	5790
<b>Financial Aid</b> .....	5757
<b>Foundation Office</b> .....	5728
<b>Institutional Effectiveness &amp; Accreditation</b> .....	5751
<b>Program Assistance</b> .....	5743
<b>Registration Office</b> .....	5762
<b>Student Financial Services</b> .....	5760
<b>Title IX Coordinator</b> .....	5755
<b>Veteran Affairs</b> .....	5761



**Perry Technical Institute**

2011 West Washington Avenue  
Yakima, WA 98903-1296  
509.453.0374 • 888.528.8586



## ❖ the campus

- |   |               |
|---|---------------|
| 1) <b>Main Office</b>   |               |
| Admissions  | 1st Floor     |
| Enrollment  | 1st Floor     |
| Financial Services  | 1st Floor     |
| President's Office  | 1st Floor     |
| Foundation Office   | 1st Floor     |
| Business Services/HR  | 2nd Floor     |
| Facilities/Maintenance  | 2nd Floor     |
| 2) <b>Electrical Technology</b>   |               |
| 3) <b>Precision Machining &amp; Manufacturing</b>                               |               |
| 4) <b>Welding Technology</b>  |               |
| 5) <b>Automotive Technology</b>   |               |
| 6) <b>Medical Office Administration &amp; Coding, Medical Assistant</b>         | Medical Annex |
| Admissions/PR/Marketing   |               |
| 7) <b>Business Technology &amp; Accounting</b>                                  | 2nd Floor     |
| 8) <b>Heating, Ventilation, Air Conditioning &amp; Refrigeration Technology</b> | 1st Floor     |
| 9) <b>Information Technology &amp; Communication Systems</b>                    |               |
| 10) <b>Instrumentation &amp; Industrial Automation Technology</b>               |               |
| 11) <b>Student Services/Career Services</b>                                     |               |
| 12) <b>Deans of Education</b>   |               |
| Attendance  |               |
| 13) <b>The Hangar Campus Store</b>  |               |
| 14) <b>Deli</b>   |               |

# Catalog Addendum | 2015-2016

PERRY TECHNICAL INSTITUTE  
Updated February, 2016



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## ❖ enrollment

[Updated December 2015]  
Reference page 7

Perry Technical Institute welcomes prospective applicants who are seeking education in one of the school's 11 training programs. Perry Technical Institute admits students of any race/color, sex, sexual orientation, creed, marital status, national origin, age, and disability to all rights, privileges, programs, and activities generally accorded or made available to students at the school. The school does not discriminate on the basis of race/color, ancestry, sex, sexual orientation, creed, marital status, national origin, age, or disability in administration of its educational policies, admissions policies, scholarship and loan programs, and other school administered activities. All applicants must be high school graduates or have earned a General Education Development Certificate (GED), and be at least 16 years of age.

### ENROLLMENT PROCEDURES

To apply for admission, applicants should contact an Admissions representative at Perry Technical Institute to request program information and to take a tour of the school facilities. Once applicants have made a decision to apply they should contact Enrollment Services to complete the following requirements in order to be enrolled into the program of their choice. Candidates will confirm they have already received a catalog or will receive one at the time of acceptance to Perry Technical Institute. Enrollment Services will review the application for enrollment and notify the applicant in writing the status of enrollment to the school.

### ENROLLMENT REQUIREMENTS

- 1) Proof of satisfactory completion of high school or equivalent education and valid state-issued photo ID or driver's license.
- 2) Completed application for enrollment submitted to Perry Technical Institute with \$45 registration fee.
- 3) Successful completion of the entrance exam for the appropriate program.
- 4) Payment of \$500 tuition deposit to ensure a starting date.
- 5) Signed enrollment contract and attendance at mandatory student orientation.

Applicants to the Automotive, Agricultural Equipment Technician, and HVAC/R programs must have a valid driver's license. Automotive and Agricultural Equipment Technician students must provide a three-year driving abstract. Precision Machining & Manufacturing applicants must interview with the Department Head. Medical Assistant Program applicants must successfully pass a criminal background check.

Perry enrolls students based on the date on which their enrollment requirements are complete. When classes reach capacity, students are automatically enrolled in the next available start date. Students requesting to be placed on the waiting list will also be automatically enrolled for the next available start date. Students who request a change in enrollment date will be charged a \$45 registration fee at the time of the third request.

## ENTRANCE EXAMINATION REQUIREMENTS

[Updated March 2016]  
Reference page 7

Applicants must pass the entrance exam with the following score(s). Please refer to the program lettering system on page 9 of the catalog.

	Program								
	AU AET CST	BTA	EL	RE	IN	ITC	MA	MED MOA	WLD
Pre-Algebra					45				
Algebra					27				
IT Algebra						70			
Machine Math							70		
General Math	70	70	70	70				70	70
Mechanical	55		70	65	65	50	65		65
Color				90		90			
Writing		65							
Reading	65	65	65	65	65	65	65	65	65
Typing (WPM)		20						20	

Note: Applicants are not required to complete exams that are "shaded" in the table above. Scores are percentage based with the exception of typing, reading, and writing. Typing is based upon words per minute. Reading and writing are based upon Compass Exam benchmarks. Applicants who fail two consecutive algebra exam attempts will be required to enroll and complete the PTI evening algebra course or an approved comparable course. Applicants who fail any of the PTI entrance examinations four consecutive times will not be allowed to re-test until proof of approved remedial course completion has been provided.

## ❖ academic information

[Updated February 2016]  
Reference page 7

### ATTENDANCE POLICY

Attendance is mandatory. The scheduled start and end times are as follows:

Automotive	Monday – Thursday	7:30 – 4:00
Agricultural	Monday – Thursday	7:30 – 4:00
Construction	Monday – Thursday	7:00 – 3:30
ITCS	Monday – Thursday	7:30 – 4:00
Instrumentation	Monday – Thursday	7:30 – 4:00
BTA	Monday – Thursday	7:30 – 4:30
HVAC/R	Monday – Thursday	7:15 – 4:10
Electrical	Monday – Thursday	6:50 – 4:05
Machine	Monday – Thursday	7:00 – 3:30
MOAC and MED	Monday – Thursday	7:30 – 4:00
Welding	Monday – Thursday	7:30 – 4:00
Evening Programs	Monday – Friday	4:30 – 10:00
	Variable Saturdays	9:00 – 5:00

## EMERGENCY ABSENCE

[Updated March 2016]

Reference page 8

An emergency absence is defined as an officially excused period of time, while maintaining the status of student. An emergency absence request must meet one of the following conditions:

- 1) Military service
- 2) Medical restriction
- 3) Funeral for immediate family member
- 4) ER visit for student or immediate family member

An emergency absence will not be granted for failure to make satisfactory progress.

A request for leave must be made to the Dean/Associate Dean, or time away from school will be subject to point accrual. The written request to the Dean of Education must include dated third-party verification of the reason for the emergency absence as well as a typed letter outlining the reason for the request. The School Certifying Official and the Financial Aid Office will be notified immediately when the student is granted an emergency absence. An emergency absence will be for a maximum of 16 school days, not to exceed 30 calendar days. Failure to return to class following the emergency absence may result in dismissal. Emergency requests must be submitted within five school days of returning to class. Only one emergency absence may be granted per term for each student.

## GRADUATION REQUIREMENTS

[Updated February 2016]

Reference page 9

- 1) Completion of:
  - 67.0 credit hours for Agricultural Equipment Technician
  - 75.5 credit hours for Automotive Technology
  - 72.0 credit hours for Construction
  - 116.0 credit hours for Business Technology & Accounting
  - 172.5 credit hours for Electrical Technology
  - 174.5 credit hours for HVAC/R Technology
  - 156.5 credit hours for Information Technology & Communication Systems
  - 159.0 credit hours for Instrumentation & Industrial Automation Technology
  - 75.0 credit hours for Precision Machining & Manufacturing
  - 114.0 credit hours for Medical Assistant
  - 77.0 credit hours for Medical Office Administration & Coding
  - 74.5 credit hours for Welding Technology
- 2) Maintain satisfactory progress with a minimum grade point average of 2.0
- 3) Maintain satisfactory attendance record
- 4) Maintain proper student conduct
- 5) Full payment or satisfactory arrangement to fulfill all financial obligations

## ENROLLMENT CAPACITY

[Updated February 2016]

Reference page 9

The stated capacity for each program refers to both the classroom and laboratory settings.

Agricultural	20 each section, 20 total
Construction	20 each section, 20 total
Automotive	16 each section, 64 total
BTA	24 each section, 48 total
Electrical	22 each section, 176 total
HVAC/R	22 each section, 88 total
ITCS	24 each section, 96 total
Instrumentation	22 each section, 176 total
Machine	12 each section, 48 total
MED	24 each section, 48 total
MOAC	24 each section, 48 total
Welding	20 each section, 60 total

## ❖ perry technical foundation scholarships

[Updated March 2016]

Reference page 12

In 1992, a group of community volunteers pledged their commitment to Perry Technical Institute by forming the Perry Technical Foundation. The foundation's mission is to raise funds for student scholarships, loans, instructional equipment, and capital improvements which enrich learning on the Perry campus.

With the support of alumni, community members, foundations, and industry, Perry Technical Foundation has established a strong scholarship program designed to assist current students working toward their career goals. Over the last five years, the Perry Technical Foundation has awarded nearly \$2 million in scholarships to deserving students.

Perry Technical Foundation scholarships are offered to current Perry Technical Institute students in the spring and fall of each year. The number of scholarships will vary depending on available funding. For more information on scholarships, please visit the foundation office.

## ❖ tuition costs by program

[Updated February 2016]

Reference page 13

### Costs of Enrollment for Programs One Year in Length\*

	AET (SUM 2016)	AUTO (WTR 2016)	CST (FALL 2017)	MED (WTR 2016)	MOAC (FALL 2015)	WLD (FALL 2015)
Tuition	\$16,354.00	\$16,354.00	\$16,558.50	\$15,965.00	\$16,048.00	\$15,770.50
Lab Fees	\$200.00	\$200.00	\$600.00	\$200.00	\$120.00	\$2,000.00
Technology Fees	\$60.00	\$60.00	\$60.00	\$220.00	\$220.00	\$60.00
First Aid/CPR Fee	\$25.00	\$25.00	\$25.00	\$35.00	\$25.00	\$25.00
Student Accident Insurance Fees	\$88.00	\$88.00	\$88.00	\$88.00	\$88.00	\$88.00
Graduation Fee	\$54.00	\$54.00	\$54.00	\$54.00	\$54.00	\$54.00
<b>Total Tuition and Fees</b>	<b>\$16,781.00</b>	<b>\$16,781.00</b>	<b>\$17,385.50</b>	<b>\$16,562.00</b>	<b>\$16,555.00</b>	<b>\$17,997.50</b>
<b>Additional Estimated Costs</b>						
Books (average)	\$175.00	\$193.00	\$425.00	\$1,306.00	\$3,701.49	\$240.00
Tools (average)	\$2,175.00	\$2,878.00	\$650.00	\$974.00	\$973.80	\$1,840.00
Materials (average)	\$250.00	\$228.00	n/a	\$213.00	\$182.86	\$77.00
Uniform (average)	\$114.00	\$114.00	n/a	N/A	N/A	N/A
<b>Total Additional Estimated Costs</b>	<b>\$2,714.00</b>	<b>\$3,413.00</b>	<b>\$1,075</b>	<b>\$2,493.00</b>	<b>\$4,858.15</b>	<b>\$2,157.00</b>
<b>Total Cost of Enrollment</b>	<b>\$19,495.00</b>	<b>\$20,194.00</b>	<b>\$18,460.50</b>	<b>\$19,055.00</b>	<b>\$21,413.15</b>	<b>\$20,144.50</b>

\*Additional Certifications and Field Trips are optional and costs will be assessed separately.

The State of Washington does not allow for tax-exemption of items purchased for use in the State of Washington such as books and tools for instruction received in the State of Washington.

### Costs of Enrollment for Programs Eighteen Months in Length\*

	BTA (FALL 2016)
Tuition	\$23,498.25
Lab Fees	\$150.00
Technology Fees	330.00
First Aid/CPR Fee	\$25.00
Student Accident Insurance Fees	\$132.00
Graduation Fee	\$54.00
<b>Total Tuition and Fees</b>	<b>\$24,189.25</b>
<b>Additional Estimated Costs</b>	
Books (average)	\$4,341.00
Tools (average)	\$974.00
Materials (average)	N/A
Uniform (average)	N/A
<b>Total Additional Estimated Costs</b>	<b>\$5,315.00</b>
<b>Total Cost of Enrollment</b>	<b>\$29,504.25</b>

\*Additional Certifications and Field Trips are optional and costs will be assessed separately.

The State of Washington does not allow for tax-exemption of items purchased for use in the State of Washington such as books and tools for instruction received in the State of Washington.

## Costs of Enrollment for Programs Two Years in Length\*

	ITCS (SUM 2015)	ELEC (SUM 2015)	HVAC (SUM 2015)	INSTRU (SUM 2015)	PMM (SUM 2015)
Tuition	\$31,930.00	\$34,939.00	\$31,930.00	\$31,930.00	\$16,354.00
Lab Fees	\$360.00	\$360.00	\$400.00	\$160.00	400.00
Field Training Fees	N/A	\$600.00	N/A	N/A	N/A
Technology Fees	\$120.00	\$120.00	\$120.00	\$120.00	\$60.00
First Aid/CPR Fee	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00
First Aid/CPR Renewal fee	N/A	\$20.00	N/A	N/A	N/A
Student Accident Insurance Fees	\$176.00	\$176.00	\$176.00	\$176.00	\$88.00
Graduation Fee	\$54.00	\$54.00	\$54.00	\$54.00	\$54.00
<b>Total Tuition and Fees</b>	<b>\$32,665.00</b>	<b>\$36,294.00</b>	<b>\$32,705.00</b>	<b>\$32,465.00</b>	<b>\$16,981.00</b>
<b>Additional Estimated Costs</b>					
Books (average)	\$931.00	\$1,404.00	\$625.00	\$1,062.00	\$850.00
Tools (average)	\$1,300.00	\$1,510.00	\$1,866.00	\$2,320.00	\$3,175.00
Materials (average)	\$557.00	\$123.00	\$192.00	\$372.00	\$12.50
Uniform (average)	N/A	\$271.00	\$114.00	N/A	N/A
<b>Total Additional Estimated Costs</b>	<b>\$2,788.00</b>	<b>\$3,308.00</b>	<b>\$2,797.00</b>	<b>\$3,754.00</b>	<b>\$4,037.50</b>
<b>Total Cost of Enrollment</b>	<b>\$35,453.00</b>	<b>\$39,602.00</b>	<b>\$35,502.00</b>	<b>\$36,219.00</b>	<b>\$21,018.50</b>

\*Additional Certifications and Field Trips are optional and costs will be assessed separately.

The State of Washington does not allow for tax-exemption of items purchased for use in the State of Washington such as books and tools for instruction received in the State of Washington.

# ❖ agricultural equipment technician

[Updated December 2015]

Perry Technical Institute's Agricultural Equipment Technician Program offers students a diversified curriculum that guides them through the process of becoming an equipment technician in the agricultural industry.

The objective of the program is to provide students with a broad base of knowledge and skills necessary for employment in the agricultural and construction equipment industries. Students will diagnose, repair, modify, and overhaul a wide variety of equipment including (but not limited to) tractors, combines, cultivators, seeders, and sprayers. Training will include exposure to diesel fuel systems, drive trains, hydraulics, electrical systems, and professional development for the agriculture repair industry.

The goal for students who successfully complete this program is employment as entry-level technicians in the agriculture and construction industries. The Agricultural Equipment Technician Program is 12 months in length (four quarters). The student will earn 67 credit hours which are 1,344 clock hours. Tuition is payable on a quarterly basis. There are four quarters in an academic year.

The student to instructor ratio for the Agricultural Equipment Technician Program is 20:1

## PROGRAM OUTLINE

			Clock Hours	Credit Hours
Quarter 1	AET 110	Introduction to Agricultural	84	4.5
	AET 111	Electrical Systems I	84	4.5
	AET 112	Hydraulics and Implements	96	5.5
	AET 113E	Externship	72	2.0
			<hr/>	<hr/>
			336	16.5
Quarter 2	AET 120	Engine Theory & Repair	76	4.5
	AET 121	Fuel Systems	76	4.5
	AET 122	Electrical Systems II	88	5.0
	AET 123E	Externship	96	3.0
			<hr/>	<hr/>
			336	17.0
Quarter 3	AET 130	Electronics & Accessories	88	5.0
	AET 131	Power Train Theory I	152	9.0
	AET 132E	Externship	96	3.0
			<hr/>	<hr/>
			336	17.0
Quarter 4	AET 140	Professional Development	25	1.5
	AET 141	Power Train Theory II	191	11.0
	AET 142E	Externship	120	4.0
			<hr/>	<hr/>
			336	16.5
<b>Program Totals</b>			<b>1,344</b>	<b>67.0</b>

## AGRICULTURAL EQUIPMENT TECHNICIAN COURSE DESCRIPTIONS

### AET 110 Introduction to Agricultural Equipment

This course covers workplace safety, hazardous materials and environmental regulations, use of hand tools, service information resources, basic concepts, systems, and terms of agricultural equipment technology. Topics include familiarization with equipment systems along with identification and proper use of various hand and power tools, shop equipment and lifting procedures. Students are also introduced to equipment repair orders, parts ordering and repair estimating. Upon completion, students will be able to describe safety and environmental procedures, terms associated with agricultural equipment, document repair orders, order parts and how to use basic tools and shop equipment.

### AET 111 Electrical Systems I

This course covers basic electrical theory, wiring diagrams, test equipment, diagnosis, repair, and replacement of batteries, starters, and alternators. Topics include Ohm's Law, circuit construction, wiring diagrams, circuit testing, and basic troubleshooting. Upon completion, students will be able to properly use wiring diagrams, diagnose, test, and repair basic wiring, battery, starting, charging, and electrical concerns.

### AET 112 Hydraulics and Implements

During this course, students be exposed to hydraulic equipment. Students will study friction, lubrication, wear, lubricant maintenance



and oil analysis, hydraulic fluid composition, and hydraulic applications. Students will learn proper techniques for operation of implements including settings, calibrations, and related adjustments.

#### **AET 113E Externship**

Students will gain field experience under an externship agreement with Perry Technical Institute, the employer, and the student. Completion of the externship packet is required.

#### **AET 120 Engine Theory & Repair**

Students will be introduced to gas, CNG (compressed natural gas), and diesel engine application, design, construction, theory, and operating principles. This course will also emphasize diagnosis, disassembly, and assembly of engines.

#### **AET 121 Fuel Systems**

This course focuses on fuel system theory, design, maintenance, diagnosis, and repair of mechanical and electronic fuel systems used in agriculture and construction equipment.

#### **AET 122 Electrical Systems II**

This course covers electronic theory, wiring diagrams, test equipment, diagnosis, repair and replacement of electronics, lighting, gauges, and control modules. Topics include networking and module communication, circuit construction, wiring diagrams, circuit testing, and troubleshooting. Upon completion, students will be able to properly use wiring diagrams, diagnose, test, and repair wiring, lighting, gauges, modules, and electronic components.

#### **AET 123E Externship**

Students will gain field experience under an externship agreement with Perry Technical Institute, the employer, and the student. Completion of the externship packet is required.

#### **AET 130 Electronics & Accessories**

This course will build upon the study of electricity by introducing the circuitry, diagnosis, and repair of electronic components. This course also covers theory, diagnosis and repair of in cab climate control systems. Students will also be introduced to GPS and telematics.

#### **AET 131 Power Train Theory I**

In this course, students will develop an understanding of agriculture transmissions, clutches, sliding gears, and hydrostatic drives. Students will be exposed to the design, operation, adjustment, and maintenance of power train systems.

#### **AET 132E Externship**

Students will gain field experience under an externship agreement with Perry Technical Institute, the employer, and the student. Completion of the externship packet is required.

#### **AET 140 Professional Development**

This course helps students develop professionally by focusing on soft skills, career planning, and future growth. Students will create professional resumes, cover letters, and technical training portfolios. Students will have industry-specific training on interview skills and participate in mock interviews. Upon completion, students will be able to successfully interview for positions, develop future training plans, and set goals for career advancement.

#### **AET 141 Power Train Theory II**

This course will focus on proper repair techniques and diagnosis of transmissions. Students will demonstrate skills working with CVT's,

differentials, torque converters, clutches, amplifiers, planetary drive axels and power take-off units.

#### **AET 142E Externship**

Students will gain field experience under an externship agreement with Perry Technical Institute, the employer, and the student. Completion of the externship packet is required.

#### **AGRICULTURAL EQUIPMENT TECHNICIAN BOOK LIST, TOOL LIST, AND FIELD TRIPS**

The book and tool list for students in the Agricultural Equipment Technician Program is intended to be a minimum requirement to complete the program. The book and tool list will be provided no later than the first day of class. For specifics on cost of books, training materials, uniforms, and tools, please refer to page 13.

#### **AGRICULTURAL EQUIPMENT TECHNICIAN EQUIPMENT LIST**

Students in the Agricultural Equipment Technician Program utilize the following equipment:

- Hydraulic Press
- Oxyacetylene Torch
- Welding Equipment
- Metal Cutting Equipment
- Fuel and Lubrication Equipment
- Pressure Washers
- Forklift
- Web Based Information Systems
- Laptop Based Diagnostic Software

Perry Technical Institute's Construction Program offers students a diversified curriculum that guides them through the process of becoming construction workers

The objective of the program is to provide students with a broad base of knowledge and skills necessary for employment in the construction industry. Students will learn about layouts, blueprints, framing, tool usage, safety, concrete, and finishing. Training will include exposure to drywall, taping, power saws and drills, site surveying, scaffolding, and professional development for the construction industry.

The goal for students who successfully complete this program is employment as entry-level construction workers. The Construction Program is 12 months in length (four quarters). The student will earn 72 credit hours which are 1,344 clock hours. Tuition is payable on a quarterly basis. There are four quarters in an academic year.

## PROGRAM OUTLINE

			Clock Hours	Credit Hours
Quarter 1	CST 110	Introduction to Construction	104	6.0
	CST 111	Construction Blueprint Reading	104	6.0
	CST 112	Construction Fundamentals I	128	7.5
			<hr/>	<hr/>
			336	19.5
Quarter 2	CST 120	Construction Concrete	168	9.5
	CST 121	Construction Fundamentals II	168	9.5
			<hr/>	<hr/>
			336	19.0
Quarter 3	CST 130	Exterior Finishing	120	7.0
	CST 131	Construction Fundamentals III	120	7.0
	CST 132E	Externship	96	3.0
			<hr/>	<hr/>
			336	17.0
Quarter 4	CST 140	Interior Finishing	191	11.0
	CST 141	Professional Development	25	1.5
	CST 142E	Externship	120	4.0
			<hr/>	<hr/>
			336	16.5
<b>Program Totals</b>			<b>1,344</b>	<b>72.0</b>

## CONSTRUCTION COURSE DESCRIPTIONS

### CST 110 Introduction to Construction

This course covers workplace safety, hazardous materials and environmental regulations, use of hand tools, service information resources, basic concepts, systems, and terms of the construction industry. Topics include building process, materials, building systems, and construction components.

### CST 111 Construction Blueprint Reading

This course provides an introduction to reading, interpreting, and applying construction blueprints. Topics will include symbols, terminology, floor plans, elevation, and mechanical plans.

### CST 112 Construction Fundamentals I

This course introduces students to framing, estimating, material selection, basic construction math, tool usage, layout, floors, walls, and ceilings. Students will receive exposure to proper power tool handling, a foundation that will continue throughout the program. In addition, students will study compaction and backing.

### CST 120 Construction Concrete

Students will explore forming methods, footings, foundation walls, slabs, stairs, and the handling and curing of concrete. Students will study placing procedures and mix designs.

### CST 121 Construction Fundamentals II

This course covers roof framing methods for residential construction. Students will be exposed to building codes, rafter nomenclature, ceiling joists, and collar ties. Students will also learn about stacking of residential roofs and rolling of trusses.

### CST 130 Exterior Finishing

This course includes the installation and finishing of wall coverings, cornices, and exterior trim. Students will install windows, doors, waterproofing, and utilize tools specifically designed for exterior finishing. Students will receive practice with ladders and scaffolds.

### **CST 131 Construction Fundamentals III**

In this course, students will explore siding installation as well as state-of-the-art cutting. In addition, students will explore all facets of developing a building envelope. Students will be exposed to advanced construction techniques.

### **CST 132E Externship**

Students will gain field experience under an externship agreement with Perry Technical Institute, the employer, and the student. Completion of the externship packet is required.

### **CST 140 Interior Finishing**

This course covers drywall installation methods, including tapes, corner beads, joint compounds, textures, and patching. Students will also complete material trim installation and estimate trim quantities and costs. Students will be exposed to base, casing, crown, and wainscot panel molding as well as interior door and window surrounds. Cabinetry installation will also be taught.

### **CST 141 Professional Development**

This course helps students develop professionally by focusing on soft skills, career planning, and future growth. Students will learn proper communication skills for the construction industry. Topics will include verbal communication with co-workers and written communication such as filling out a time card or a work order. Upon completion, students will be able to successfully interview for positions, develop future training plans, and set goals for career advancement.

### **CST 142E Externship**

Students will gain field experience under an externship agreement with Perry Technical Institute, the employer, and the student. Completion of the externship packet is required.

### **CONSTRUCTION BOOK LIST, TOOL LIST, AND FIELD TRIPS**

The book and tool list for students in the Construction Program is intended to be a minimum requirement to complete the program. The book and tool list will be provided no later than the first day of class. For specifics on cost of books, training materials, uniforms, and tools, please refer to page 13.

### **CONSTRUCTION EQUIPMENT LIST**

Students in the Construction Program utilize the following equipment:

- Forklift
- Scaffolding
- Manlift
- Backhoe
- Table saw
- Mini excavator
- Compactor
- Planer
- Chop saw

# ❖ electrical technology

[Updated September 2015]

Reference page 25

Perry Technical Institute's Electrical Technology Program offers students a diversified curriculum that guides them through the process of becoming electricians.

Students are introduced to the generation and distribution of AC/DC electricity as well as utilizing green technologies including solar and wind turbine theory and applications. During classroom, lab and fieldwork experiences, students gain valuable theory while incorporating current NEC codes and WAC/RCW rules, laws, and procedures with hands-on application.

The Washington State Department of Labor & Industries may recognize up to two years of training received from Perry's Electrical Technology Program toward the General Journeyman 01 certification. Graduates must accumulate additional hours of industrial/ commercial electrical work before applying to take their journeyman examination with the State of Washington.

The goal for students who successfully complete this program is entry-level employment as third-year electrical trainees. The two largest groups of potential employers are electrical construction contractors and electrical departments in manufacturing industries.

The Electrical Technology Program is 24 months in length (eight quarters). The student will earn 172.5 credit hours which are 3,000 clock hours. Tuition is payable on a quarterly basis. There are four quarters in an academic year.

The classroom student to instructor ratio for the Electrical Technology Program is 22:1. The student to journeyman ratio when performing field work for the school is 4:1. When performing field work for a company other than Perry Technical Institute, the student to journeyman ratio is 1:1.

## PROGRAM OUTLINE

			<b>Clock Hours</b>	<b>Credit Hours</b>
Quarter 1	EL 110	Electrical Safety	36	2.5
	EL 111	DC Fundamentals I	90	6.0
	EL 112	National Electric Code/WAC Code	109	7.5
	EL 113	Introduction to Voltage Systems	30	2.0
	EL 114L	Lab & Shop Projects	110	5.5
			<hr/>	
			375	23.5
Quarter 2	EL 120	DC Fundamentals II	75	5.0
	EL 121	AC Theory Single-Phase	135	9.5
	EL 122	National Electric Code	96	6.5
	EL 123	Safety Meetings	11	0.5
	EL 124L	Lab & Shop Projects	58	3.0
			<hr/>	
			375	24.5
Quarter 3	EL 130	AC Motors	30	2.0
	EL 131	NEC Articles 430 & 440	50	3.5
	EL 132	Motor Controls	124	8.5
	EL 133	Safety Meetings	11	0.5
	EL 134L	Lab & Shop Projects	160	8.0
			<hr/>	
			375	22.5
Quarter 4	EL 140	Introduction to Digital	55	3.5
	EL 141	Programmable Logic Controllers	129	9.0
	EL 142	NEC Review	14	0.5
	EL 143	Safety Meetings	11	0.5
	EL 144L	Lab & Shop Projects	166	8.0
			<hr/>	
			375	21.5

Quarter 5	EL 210	Blueprint Reading	50	3.5
	EL 211	NEC & Load Sizing Calculations	144	10.0
	EL 212	NEC 690 & WAC	30	2.0
	EL 213	Variable-Frequency Drives	50	3.5
	EL 214	Safety Meetings	11	0.5
	EL 215L	Lab & Shop Projects	90	4.5
			<hr/>	
			375	24.0
Quarter 6	EL 220	Three-Phase Systems & Distribution	134	9.0
	EL 221	NEC Article 450/Utility Power	50	3.5
	EL 222	Conduit Bending & Wiring Practices	45	3.0
	EL 223	Safety Meetings	11	0.5
	EL 224L	Lab & Shop Projects	135	7.0
			<hr/>	
			375	23.0
Quarter 7	EL 230	Solid State Electronic Fundamentals	105	7.0
	EL 231	Career Planning	20	1.0
	EL 232	Safety Meetings	11	0.5
	EL 233L	Lab & Shop Projects	115	6.0
	EL 234L	Electrical Field Experience	124	6.5
			<hr/>	
			375	21.0
Quarter 8	EL 240E	Externship	375	12.5
<b>Program Totals</b>			<b>3,000</b>	<b>172.5</b>

## ELECTRICAL TECHNOLOGY COURSE DESCRIPTIONS

### EL 110 Electrical Safety

Safety requirements for campus, classroom, lab, and shop environments. Proper use and care of personal and school property, tools, equipment, and procedures.

The Electrical Department holds weekly safety meetings. The meeting has a safety curriculum that is covered with the students. Safety demonstrations are performed to show the correct way to use tools, ladders, scaffoldings, and other equipment needed in the electrical trade. A first aid and CPR certificate is awarded after successful completion of the class.

### EL 111 DC Fundamentals I

Electrical safety, atomic structure, basic electrical definitions, electron flow theory through electrical circuits, conventional flow current flow, and series, parallel and series-parallel combination circuits solving using applied electrical mathematics used for theory utilizing Ohm's Law and Watt's Law; problem solving and transposing, and electronic units of conversion of measure. Application for mathematics will continue throughout the program.

### EL 112 National Electric Code/WAC Code

Minimum standards for safe installation and maintenance of electrical systems utilizing the L&I adopted edition of National Fire Protection Association (NFPA Volume 70) WAC 296 46B Rules and Regulations that supersede the NEC minimum standards that are enforced and practiced in the industry, and RCW 19.28 Laws governing competent electrical installers. Electrical circuits, conventional flow current flow, and series, parallel and series-parallel combination circuits solving using applied electrical mathematics used for NEC utilizing Ohm's Law and Watt's Law; problem solving and transposing, and electronic units of conversion of measure. Application of mathematics will continue throughout the program.

### EL 113 Introduction to Voltage Systems

Names, schematics, grounding, configurations, and hook-ups of single-phase transformers and three-phase transformers used in the industry.

### EL 114L Lab & Shop Projects

Introduction to proper drawings and schematics utilizing conductors, cables, switches, receptacles, and lighting fixtures. Safe and practical application of classroom instruction on actual equipment. Proper use of personal protective equipment and tools to install and troubleshoot conductors, cables, switches, receptacles, and lighting fixture wiring.

### EL 120 DC Fundamentals II

Differences and similarities between DC motors and generators; calculating the counter EMF generated in the armature of the motor; performance characteristics of DC shunt, series and compound motors; assigning correct polarity to interpoles installed in DC motors; drawing the process of controlling speed of various DC motors; drawing the process of reversing the rotation of any DC motor; and determining the speed regulation of DC motors.

### EL 121 AC Theory Single-Phase

RL, RC and RLC series circuits and the effects of the inductive and capacitive reactance. Impedance and power factor.

### EL 122 National Electric Code

Minimum standards of outdoor branch circuits and feeders, services, grounding and bonding, MC Cable, hazardous locations and pools. The NEC articles covered in this section are: 225, 230, 250, 330, 500 & 680.

**EL 123 Safety Meetings**

Each week there will be a safety meeting for the Electrical Department. The meeting has a safety curriculum and a safety video that are covered with the students. Accident reports and unsafe condition reports are reviewed. Safety demonstrations are performed to show the correct way to use tools, ladders, scaffoldings, and other equipment needed in the electrical trade.

**EL 124L Lab & Shop Projects**

Using ladder diagrams, students install the wiring to motor control lab stations. Students will also perform troubleshooting after the instructor bugs the station.

**EL 130 AC Motors**

Single-phase motor hook-ups; reversing externally reversible motors; four major parts of a motor; run winding/start windings; using an OHM meter; and properly connect to line voltages. Three-phase wye connected; high and low voltage connections; delta high and low voltage connections; identify, drawing and numbering 9 and 12 lead wye and delta motors; and reversing three-phase motors.

**EL 131 National Electrical Code Articles 430 & 440**

NEC Article 430 – Motor feeder short-circuit and ground fault protection; motor disconnecting means; and motor branch circuit, short-circuit, and ground-fault protection.

NEC Article 440 – Code section applying to sizing the conductor and protection to central electric space heating equipment; sizing the circuit conductors and protection for a five-horsepower motor used as a blower; and the differences in the rules between motors and air conditioning when installing a disconnecting means.

**EL 132 Motor Controls**

The principles of two- and three-wire controls and the use of relays, mag-starters, timers, sensors, along with the symbols and ladder diagrams needed to make a successful control installation. Photoelectric controls, thru-beam, retroreflective, diffused, and specular types will be addressed. Inductive and capacitive proximity sensors and various other sensors will be utilized in discussion and lab exercises.

**EL 133 Safety Meetings**

Each week there will be a safety meeting for the Electrical Department. The meeting has a safety curriculum and a safety video that are covered with the students. Accident reports and unsafe condition reports are reviewed. Safety demonstrations are performed to show the correct way to use tools, ladders, scaffoldings, and other equipment needed in the electrical trade.

**EL 134L Lab & Shop Projects**

Using ladder diagrams, students install the wiring to motor control lab stations. Students will also do troubleshooting after the instructor bugs the station.

**EL 140 Introduction to Digital**

Examination of several different numbering systems, including but not limited to logic gates, conversions, and combination logic.

**EL 141 Programmable Logic Controllers**

The programmable logic controller, focusing on Allen-Bradley SLC500 series, various small fixed I/O type PLCs. The software covered is RSLogix500, and RSLinx. Programming concepts range from programming of discrete I/Os to the use of analog I/O.

Troubleshooting and how to construct programs with all safety concerns.

**EL 142 NEC Review**

Code evaluation of previously covered code articles.

**EL 143 Safety Meetings**

Each week there will be a safety meeting for the Electrical Department. The meeting has a safety curriculum and a safety video that are covered with the students. Accident reports and unsafe condition reports are reviewed. Safety demonstrations are performed to show the correct way to use tools, ladders, scaffoldings, and other equipment needed in the electrical trade.

**EL 144L Lab & Shop Projects**

Students will develop, use, and create programs and use logical diagrams to control the desired process by analyzing inputs and updating outputs and by monitoring devices and troubleshooting the written program.

**EL 210 Blueprint Reading**

Terms, symbols, layout, organization, and structure of plans that are used for residential, commercial, and industrial buildings. Understand and interpret prints for identification of code violations, conflicts of space, and safety issues.

**EL 211 NEC & Load Sizing Calculations**

Covering code Articles 220 and 240, calculating the ampacity of service conductors, feeder conductors, branch circuit conductor, and the ampacity rating of the panels and load centers they supply, including the overcurrent devices used for protection.

**EL 212 NEC 690 & WAC**

NEC Article 690 – Solar photovoltaic systems including the array circuit, inverter, and controller. Washington Administrative Code (WAC) and Revised Code of Washington (RCW) requirements for the electrical industry including, but not limited to: electrical industry scopes of work, licensing qualifications, exams, fees, penalties, types of certifications, and continuing education requirements.

**EL 213 Variable-Frequency Drives**

Fundamentals and functions of both DC motor drives and AC variable-frequency drives.

**EL 214 Safety Meetings**

Each week there will be a safety meeting for the Electrical Department. The meeting has a safety curriculum and a safety video that are covered with the students. Accident reports and unsafe condition reports are reviewed. Safety demonstrations are performed to show the correct way to use tools, ladders, scaffoldings, and other equipment needed in the electrical trade.

**EL 215L Lab & Shop Projects**

Variable frequency drives used with motors and motor controllers will give students the hands-on training needed to reinforce the classroom teaching to keep up with industry demands. Students will participate.

**EL 220 Three Phase Systems & Distribution**

Students will demonstrate an understanding of the relationship and characteristics of current, voltage, power, power factor, and power quality in three phase configurations. Students will examine different methods of power distribution through the use of transformers and



their connections. This course will explore practical applications of transformers and their effect on power quality. Students will troubleshoot the symptoms of poor power quality and harmonics with power quality analyzers

#### **EL 221 NEC Article 450/Utility Power**

NEC Article 450 – Code requirements for sizing of transformers, conductors, and overcurrent protection.

#### **EL 222 Conduit Bending & Wiring Practices**

Introduction to the use of hand, hydraulic, and PVC conduit benders. Lab exercises will include the following; predetermined 90-degree stubs, predetermined offsets, box offsets, back-to-back 90-degree stubs, three-bend saddles, four-bend saddles, and kicks.

#### **EL 223 Safety Meetings**

Each week there will be a safety meeting for the Electrical Department. The meeting has a safety curriculum and a safety video that are covered with the students. Accident reports and unsafe condition reports are reviewed. Safety demonstrations are performed to show the correct way to use tools, ladders, scaffoldings, and other equipment needed in the electrical trade.

#### **EL 224L Lab & Shop Projects**

The student will practice applied wiring techniques in various hands-on exercises and labs including, but not limited to: conduit bending, switch connections, single- and three-phase power factor correction, transformer connections, non-metallic cable, metallic cable, wire pulling, panel, box and device installation, and connections.

#### **EL 230 Solid State Electronic Fundamentals**

Students will build a foundation of solid state power electronics through the theory and operation of PN junctions and how they react to voltages in diodes, transistors. Construction of power supplies using different rectifiers and filters, and how to calculate average DC output. Basic C++ programming and operation of microcontrollers with analog and digital inputs/outputs.

#### **EL 231 Career Planning**

Students will prepare for an effective career search by learning to create a resume, practicing interviewing skills, and reviewing the job application process.

#### **EL 232 Safety Meetings**

Each week there will be a safety meeting for the Electrical Department. The meeting has a safety curriculum and a safety video that are covered with the students. Accident reports and unsafe condition reports are reviewed. Safety demonstrations are performed to show the correct way to use tools, ladders, scaffoldings, and other equipment needed in the electrical trade.

#### **EL 233L Lab & Shop Projects**

Lab time will give students the opportunity to apply the use of training equipment including oscilloscopes, signal generators, and DC power supplies, used with solid state components to determine how and why they operate. Introducing green technology with solar energy sources and storing and conveying electricity through solar cells.

#### **EL 234L Electrical Field Experience**

Students will take part in on-the-job training projects doing hands-on electrical wiring installations in residential and commercial buildings. Students are required to have 100% supervision by a

(01) journey level electrician employed by Perry Technical Institute while performing these electrical installations with a ratio of not more than 4 students to 1 (01) journey level electrician. All work will comply with the NEC, WAC and RCWs and shall be inspected by the Department of Labor & Industries. In addition to holding a current (01) journey level electrician certificate, the (01) journey level electricians must also have training in instruction and meet the minimum requirements of a classroom instructor. Journey level electricians shall not engage in any of the electrical installations.

#### **EL 240E Externship**

On-the-job training projects doing hands-on electrical wiring installations in residential and commercial buildings. All trainee electrical installations are supervised by an (01) journey level electrician and inspected by the Department of Labor & Industries. Students who have a job offer as an electrician may leave the program and work in the field under a training extern agreement with Perry Technical Institute, the employer, and the student. Completion of an externship packet is required including a WAC and RCW compliance form to ensure students are supervised 100% of the time by an (01) journey level electrician at a ratio of no more than one student to one (01) journey level electrician. If the student does not obtain an externship, completion of an electrical capstone project is required.

#### **ELECTRICAL TECHNOLOGY TOOL LIST**

The book and tool list for students in the Electrical Technology Program is intended to be a minimum requirement to complete the program. The book and tool list will be provided no later than the first day of class. For specifics on cost of books, training materials, uniforms, and tools, please refer to page 13.

#### **ELECTRICAL TECHNOLOGY EQUIPMENT LIST**

Students in the Electrical Technology Program utilize the following equipment:

- Computers
- Electrical hand tools
- Motor control labs
- PLC simulators
- PLC labs
- Transformer connection labs
- Power factor correction labs
- Conduit bending equipment
- Oscilloscopes and related electronic equipment

## ❖ heating, ventilation, air conditioning & refrigeration technology

[Updated August 2015]

Reference page 29

Perry Technical Institute's Heating, Ventilation, Air Conditioning & Refrigeration Technology Program covers all aspects of the field, from refrigeration fundamentals to direct digital control and energy management systems. Students learn the curriculum through classroom and extensive hands-on training in lab-related instruction.

Perry Technical Institute's HVAC/R Program is approved by the Washington State Department of Labor & Industries as a 06A HVAC/R Specialty Electrical Training Program. Graduates may be credited with up to one year (or 2,000 hours) towards the two years (or 4,000 hours) required by the State of Washington to be eligible to take the certification exam for the 06A HVAC/R Specialty Electrical License.

The program prepares students to gain industry certifications in several areas, giving them competitive advantages in the employment market. Some of the technician certifications offered include Universal R-410A Safety, OSHA Safety, EPA 608 Refrigerant, EPA 609 Refrigerant, and Green Mechanical Systems.

Classroom and shop training prepares students to enter the HVAC/R industry as qualified entry-level technicians.

The HVAC/R Technology Program is 24 months in length (eight quarters). The student may earn 174.5 credit hours which are 2,872 clock hours. Labor & Industries does not separate break times and credits 2,000 hours towards classroom participation. Tuition is payable on a quarterly basis. There are four quarters in an academic year. Quarter three and four course offerings may be offered in a sequence other than listed to accommodate seasonal working conditions.

The student to instructor ratio for the Heating, Ventilation, Air Conditioning & Refrigeration Technology Program is 22:1.

### PROGRAM OUTLINE

			<b>Clock Hours</b>	<b>Credit Hours</b>
Quarter 1	RE 110	Refrigeration Fundamentals	259	18.0
	RE 111L	Lab & Shop Projects	100	5.0
			<hr/> 359	<hr/> 23.0
Quarter 2	RE 120	Refrigeration & Electric Forced Air Heating	219	15.5
	RE 121L	Lab & Shop Projects	140	7.0
			<hr/> 359	<hr/> 22.5
Quarter 3	RE 130	Residential & Light Commercial HVAC I	229	16.0
	RE 131L	Lab & Shop Projects	130	6.5
			<hr/> 359	<hr/> 22.5
Quarter 4	RE 140	Residential & Light Commercial HVAC II	209	14.5
	RE 141L	Lab & Shop Projects	150	7.5
			<hr/> 359	<hr/> 22.0
Quarter 5	RE 210	Commercial Refrigeration I	218	15.0
	RE 211L	Lab & Shop Projects	141	7.0
			<hr/> 359	<hr/> 22.0
Quarter 6	RE 220	Commercial Refrigeration II	228	16.0
	RE 221L	Lab & Shop Projects	131	6.5
			<hr/> 359	<hr/> 22.5
Quarter 7	RE 230	Industrial Heating & Cooling Systems I	261	18.0
	RE 231L	Lab & Shop Projects	98	4.5
			<hr/> 359	<hr/> 22.5
Quarter 8	RE 240	Industrial Heating & Cooling Systems II	131	9.0
	RE 241L	Lab & Shop Projects	98	4.5
	RE 242E	Externship	130	4.0
			<hr/> 359	<hr/> 17.5
<b>Program Totals</b>			<b>2,872</b>	<b>174.5</b>

## HEATING, VENTILATION, AIR CONDITIONING & REFRIGERATION TECHNOLOGY COURSE DESCRIPTIONS

### First Aid

First aid and CPR training is contracted with an outside agency. Current certification is required.

### RE 110 Refrigeration Fundamentals

Tools, procedures, and equipment are covered/demonstrated in both the classroom and lab environment. Mathematics is used for practical electrical theory and application of series and parallel electrical circuits as found in the HVAC/R trade. Emphasis is placed on the understanding and application of the four main components of a mechanical compression refrigeration system, each of their functions within the system including the pressures and temperatures associated with each component.

### RE 111L Lab & Shop Projects

Students develop the necessary skills for the application and use of electrical and HVAC/R tools and equipment. Students learn the required skills and techniques for the proper joining of copper to copper and copper to steel tubing by use of oxyacetylene torches. Students begin practical application of refrigeration operation and troubleshooting on residential refrigerators and freezers.

### RE 120 Refrigeration & Electric Forced Air Heating

Studies expand on the four main components of the refrigeration system. This section of the program also introduces central forced air electric heating systems. Students continue reading and using schematic and ladder diagrams and learn to develop their own electrical diagrams to meet specific operations.

### RE 121L Lab & Shop Projects

Lab time includes an emphasis on electrical measurements for troubleshooting and hands-on wiring of equipment. Students complete the wiring and operation of relays, capacitors, single and multi-speed single-phase fractional horsepower motors, heaters, low-voltage heat/cool thermostats, compressors, and fan motors. Time is used for wiring, troubleshooting, and maintaining controls as well as actual operation and troubleshooting of electric furnaces and their controls.

### RE 130 Residential & Light Commercial HVAC I

Students review shop safety procedures and are introduced to fall protection and ladder safety. Safe handling of refrigerants and proper HVAC system charging are covered, including refrigerant recovery and applications of R-22, HFC refrigerants R-410A, and R-422B. Students learn the fundamentals of humidifiers and air filtration, including all types of disposable air filters to state-of-the-art electronic air cleaners. Students learn to interpret both ladder and pictorial wiring diagrams. All types of single-phase motors are discussed. The curriculum covers both packaged and split systems of residential and light commercial HVAC equipment.

### RE 131L Lab & Shop Projects

This section emphasizes the application of control strategies used to wire and operate HVAC equipment. Students develop all types of wiring diagrams utilizing actual HVAC units. Students are exposed to systems such as heat pumps, oil, gas, and electric forced air HVAC systems. Typical lab projects include tasks such as soldering, steel pipe threading, wiring, and proper refrigerant charging of A/C units. Students are introduced to basic sheet metal fabrication concepts including several sheet metal projects using not only sheet metal

hand tools, but the heavier shop fabrication equipment associated with the fabrication of HVAC duct systems.

### RE 140 Residential & Light Commercial HVAC II

In this section, students study heating systems that include fossil fuel units such as natural, LP gas units, oil heating systems, electric heating, and heat pump systems. The section covers the combustion and venting process as it relates to fossil fuel heating systems. The duct design process is introduced. Students learn to apply control strategies covered in the classroom to wire and operate several types of HVAC equipment. Residential load calculations are introduced. Students learn the basics of air distribution and balancing residential and light commercial HVAC air delivery systems. The curriculum introduces several types of air side components such as grills, registers, and diffusers as well as equipment typically used for air balancing.

### RE 141L Lab & Shop Projects

This course helps students apply the knowledge learned in the classroom to operational HVAC equipment. All laboratory/shop tasks will be performed on functional oil furnaces. The scope of tasks involves electrical wiring, mechanical operation, and combustion analysis of oil heating systems. The study of oil heating systems focuses on high pressure, gun-type oil burners. The primary control systems include both stack and cadmium cell types. Students complete several lab projects including wiring and combustion analysis on natural gas furnaces using both chemical and digital analysis tools.

### RE 210 Commercial Refrigeration I

Students begin studying and troubleshooting commercial systems and components. The course covers electrical theory, control circuits, and wiring schematics. RCW 19.28, WAC 29646A, WAC 296401B, and articles from the NEC are also covered.

### RE 211L Lab & Shop Projects

This course provides hands-on evaluation and repair of a wide variety of live refrigeration equipment. The curriculum tests the student's ability to set, adjust, and evaluate a wide variety of refrigerant and electrical controls under different operating conditions. Installation, setting, and proper wiring methods as specified by NEC are covered for a variety of control applications.

### RE 220 Commercial Refrigeration II

The curriculum covers advanced commercial systems and components, troubleshooting commercial systems, electrical theory, control circuits, and wiring schematics. RCW 19.28, WAC 296-401B, and articles from the NEC are also covered.

### RE 221L Lab & Shop Projects

This course provides hands-on evaluation and repair of a wide variety of live refrigeration equipment. The curriculum tests the student's ability to set, adjust, and evaluate a variety of refrigerant and electrical controls under different operating conditions. Installation, setting, and proper wiring methods as specified by NEC are covered for a number of control applications.

### RE 230 Industrial Heating & Cooling Systems I

Students are introduced to industrial heating and cooling systems and components, troubleshooting industrial systems, electrical theory, control circuits, wiring schematics, and piping diagrams. This includes NEC compliance, using chapters 2, 3, and 9.

**RE 231L Lab & Shop Projects**

Lab time gives students the opportunity to apply the skills they have learned. Training equipment, lab projects, computer simulators, and on-site service work allow the student to receive hands-on training to reinforce classroom instruction.

**RE 240 Industrial Heating & Cooling Systems II**

Students are introduced to advanced heating/cooling systems and related electrical and mechanical components. Troubleshooting, electrical theory, control circuits, wiring, and piping diagrams are emphasized. This includes NEC compliance, using Chapters 2, 3, and 9.

**RE 241L Lab & Shop Projects**

This course will provide students with the opportunity to evaluate and troubleshoot a wide variety of equipment. Lab time will allow students to apply the skills they have learned. Training equipment, lab projects, computer simulators, and on-site service work will provide the student with hands-on training to help reinforce classroom teaching.

**RE 242E Externship**

Qualifying students have the option of obtaining practical experience in an HVAC/R environment. All trainee HVAC/R installations are supervised by an HVAC/R 06 journeyman. Students who have a job offer as an HVAC/R technician may leave the program and work in the field under a training extern agreement with Perry Technical Institute, the employer, and the student. Completion of an externship packet is required. Externships must be approved by the Department Head. If the student does not obtain an externship, completion of the HVAC/R capstone project is required.

**HVAC/R TECHNOLOGY BOOK AND TOOL LIST**

The book and tool list for students in the Heating, Ventilation, Air Conditioning & Refrigeration Technology Program is intended to be a minimum requirement to complete the program. The book and tool list will be provided no later than the first day of class. For specifics on cost of books, training materials, uniforms, and tools, please refer to page 14.

**HVAC/R TECHNOLOGY EQUIPMENT LIST**

Students in the HVAC/R Program utilize the following equipment:

Computers

Digital multi-meter

Digital clamp-on ammeter

Digital temperature meter

Elenco oscilloscopes

Ultrasonic refrigerant leak detection

Thermistor vacuum gauge

Digital duct leakage monitor

Digital refrigerant scale

Oxyacetylene torch set

Vacuum pump

Refrigerant recovery equipment

Refrigerant gage manifold

Arc welder

Wire feed welder

## ❖ medical assistant

[Updated December 2015]

Reference page 38

The Medical Assistant Program prepares students for entry-level positions with medical offices and hospitals. Students will be equipped with valuable skills in office administration as well as clinical and patient care skills. Medical assistants are commonly employed in physicians' offices, outpatient clinics, health maintenance organizations, and hospitals. The program consists of four quarters of coursework followed by an externship with a local employer.

The goal of the Medical Assistant Program is to prepare graduates for entry-level positions as medical assistants.

The Medical Assistant Program is 12 months in length (four quarters). The courses prepare students to take the Registered Medical Assistant (RMA) examination. The student will earn 74.5 credit hours which are 1,344 clock hours. Tuition is payable on a quarterly basis. There are four quarters in an academic year.

The student to teacher ratio for the Medical Assistant Program is 24:1

### PROGRAM OUTLINE

			Clock Hours	Credit Hours
Quarter 1	MED 110	Computer Applications	80	5.0
	MED 111	Business English	60	3.5
	MED 116	Business Presentation & Communication	60	3.5
	MED 126	The Human Body in Health & Disease I	70	4.0
	MED 132	Medical Terminology	66	4.0
			<hr/> 336	20.0
Quarter 2	MED 127	Office Administration	70	4.0
	MED 128	HIPAA, Ethics, Blood Borne Pathogens	60	3.5
	MED 136	The Human Body in Health & Disease II	66	4.0
	MED 142	Pharmacology I	70	4.0
	MED 143	Clinical Procedures	70	4.0
			<hr/> 336	19.5
Quarter 3	MED 124	Career Planning	50	3.0
	MED 144	Practice Management & HER	80	4.5
	MED 210	Clinical Aspects of Coding & Billing	50	3.0
	MED 212	Pharmacology II	80	5.0
	MED 213	Clinical Procedures II	76	4.5
			<hr/> 336	20.0
Quarter 4	MED 221	Clinical Procedures III	90	5.0
	MED 222	Electronic Health Records	86	5.0
	MED 223E	Externship	160	5.0
			<hr/> 336	15.0
<b>Program Totals</b>			<b>1,344</b>	<b>74.5</b>

### MEDICAL ASSISTANT COURSE DESCRIPTIONS

#### MED 110 Computer Applications

This course covers the basics of computer hardware and software, networks, the Internet, Word, Excel, basic keyboarding, and Outlook.

#### MED 111 Business English I

A concentrated review of sentence writing, this course emphasizes sentence combining, basic mechanics, and paragraph writing.

#### MED 116 Business Presentation & Communication

This course provides instruction in developing presentation materials, public speaking, and Microsoft PowerPoint. Students will experience

a wide variety of communication skills necessary for success in medical assisting. Student will be given the opportunity to practice active listening, motivational interviewing, patient education, and communicating through an interpreter. Emphasis is also placed on the fundamentals of etiquette as they relate to business relationships inside and outside the office.

#### MED 126 The Human Body in Health & Disease I

An introduction to the structure and function of the human body utilizing a system approach. Emphasis placed on human anatomy as well as the physiology of the cell, skeletal system, muscular system,

nervous, system, cardiovascular, respiratory, urinary, reproductive, endocrine, digestive, lymphatic, special senses, and integumentary systems. Emphasis placed on the disease processes affecting the human body via an integrated approach to specific disease entities, including the study of causes, diagnosis, and treatment of disease.

#### **MED 132 Medical Terminology**

This course is designed to teach students to accurately spell, pronounce, and define common medical terms related to major disease processes, diagnostic procedures, laboratory tests, abbreviations (including legal), drugs, and treatment modalities.

#### **MED 127 Office Administration**

This course is designed to teach students reception duties, the operation of office equipment, collections, financial management, and basic math skills as they relate to medical assistant duties.

#### **MED 128 HIPAA, Ethics, & Blood Borne Pathogens**

This course examines the ethical challenges facing individuals and businesses in modern society. The course utilizes case studies of professionals working in various areas of business and provides guest speakers with real-world experiences. Students will receive blood borne pathogens training.

#### **MED 136 The Human Body in Health & Disease II**

This course is a continuation of MED 126.

#### **MED 142 Pharmacology I**

Provides a basic knowledge of pharmacology, including the legal and ethical issues; the terms and abbreviations; the involvement of governmental agencies; the role of providers and allied health professionals; reading, interpreting and documenting medication orders. This class includes the administration of medication including: safety and quality assurance, enteral, percutaneous, and parenteral routes of medication, medication for multi-system application, and medications related to body systems. This course contains a math component with regard to administering medications.

#### **MED 143 Clinical Procedures I**

Demonstrations are provided on assisting the physician in performing physical examinations. Emphasis is placed on obtaining the medical history, measure of vital signs, auditory and visual testing, exam room preparation, equipment set-up, and proper positioning and draping of patients. Patient charting and documentation is also practiced. OSHA, and PPE will be covered in this course.

#### **MED 124 Career Planning**

This course is designed to teach students how to write a professional resume package and to learn basic interviewing skills.

#### **MED 144 Practice Management & EHR**

Overview of commonly available software tools used in health care. Introduction to the electronic health record process and medical office database management software found in American health care delivery.

#### **MED 210 Clinical Aspects of Coding & Billing**

Overviews of Medicaid, Medicare, private insurance, and managed care verification and benefits are presented. Pre-authorization, referral procedures, and medical record documentation will be practiced. This course includes an introduction to the basics of diagnostic and procedure coding and presents students with the characteristics and conventions of ICD-9-CM, ICD-10-CM, CPT-4, and HCPCS coding.

#### **MED 212 Pharmacology II**

This is the second of two pharmacology classes. Students will learn the effects of medication and common drugs used with each body system including antineoplastics, analgesics, antipyretics, nutritional supplements, and alternative medicines. Students will be introduced to WA IIS. Inventory control and management processes will also be taught.

#### **MED 213 Clinical Procedures II**

Techniques are taught to enable students to perform the routine laboratory procedures conducted in physicians' offices. Information regarding laboratory mathematics and measurement, use of laboratory equipment, collection and processing of specimens, microbiology, phlebotomy, and routine blood testing is presented. Students will learn about CLIA regulations and what types of tests can be conducted in a CLIA-waived lab. Students will also learn about and practice set up and assisting techniques for various surgical procedures.

#### **MED 221 Clinical Procedures III**

This course provides a review of the material covered in Clinical Procedures I and II. Students will demonstrate competency in each of the areas taught during the previous courses, as well as cover additional material related to specialty procedures. This course will also cover externship preparation as well lab safety, electrocardiography, pulmonary testing, and urinalysis.

#### **MED 222 Electronic Health Records**

Students will use a simulated EHR to practice hands-on documentation.

#### **MED 223E Externship**

This externship provides the student an opportunity to apply the principles and practices learned in the program and utilize entry-level medical assistant skills in working with patients. The student will work under the direct supervision of qualified personnel at the participating site, and under general supervision of program faculty. Performance evaluations will be received bi-weekly from the supervising personnel at the participating site.

#### **MEDICAL ASSISTANT BOOK AND TOOL LIST**

The book and tool list for students in the Medical Assistant Program is intended to be a minimum requirement to complete the program. The book and tool list will be provided no later than the first day of class. For specifics on cost of books, training materials, uniforms, and tools, please refer to page 13.

#### **MEDICAL ASSISTANT EQUIPMENT LIST**

Students in the Medical Assistant Program utilize the following equipment:

- Computers
- Exam tables
- ECG/EKG unit
- Autoclave
- Microscopes
- Venipuncture and injection simulators



## ❖ medical office administration & coding

[Updated December 2015]

Reference page 41

Perry Technical Institute's Medical Office Administration & Coding Program provides a combination of training in traditional office skills, soft skills, and specialized medical office billing and coding procedures.

Students gain a solid understanding of computers including entry-level keyboarding operations, basic computer maintenance, the Windows operating system, and software applications. Students learn the soft skills needed in the office environment and the importance of career planning and how to develop a positive customer service environment. Students then advance into more specialized subjects. They learn the basics of working in a medical office setting. Subjects include: medical terminology, anatomy and physiology, human diseases, medical office procedures, and basic and advanced diagnostic and procedures coding.

The program prepares students to take the AAPC's Certified Professional Coder (CPC) exam.

The goal of the Medical Office Administration & Coding Program is to prepare graduates for entry-level positions in the growing field of health care. Graduates of this program will be prepared for positions such as: medical office assistant, medical coder, receptionist, reimbursement specialist, and other administrative positions in medical offices, hospitals, and other health care organizations.

The Medical Office Administration & Coding Program is 12 months in length (four quarters). The student will earn 77 credit hours which are 1,344 clock hours. Tuition is payable on a quarterly basis. There are four quarters in an academic year.

The student to instructor ratio for the Medical Office Administration & Coding Program is 24:1.

### PROGRAM OUTLINE

			<b>Clock Hours</b>	<b>Credit Hours</b>
Quarter 1	MOA 110	Computer Applications	66	4.0
	MOA 111	Business English	50	3.0
	MOA 117	The Human Body in Health & Disease	80	5.0
	MOA 132	Medical Terminology	80	5.0
	MOA 112	Keyboarding	60	3.5
			<hr/>	
			336	20.5
Quarter 2	MOA 126	Intro to CPT & ICD-10 Coding	75	4.5
	MOA 135	Computers in Healthcare	85	5.0
	MOA 133	Medical Career Planning	40	2.5
	MOA 128	Electronic Health Care Records	86	5.0
	MOA 131	Health Care Law & Ethics	50	3.0
			<hr/>	
			336	20.0
Quarter 3	MOA 136	Intermediate CPT & ICD-10 Coding	85	5.0
	MOA 143	Medical Office Procedures	90	5.5
	MOA 212	Health Care Delivery Systems	76	4.5
	MOA 137	Medical Reimbursement I	85	5.0
			<hr/>	
			336	20.0
Quarter 4	MOA 144	Advanced CPT & ICD-10 Coding	54	3.0
	MOA 210	Business Communication	77	4.5
	MOA 145	Medical Reimbursement II	85	5.0
	MOA 223E	Medical Coding Practicum Externship	120	4.0
			<hr/>	
			336	16.5
<b>Program Totals</b>			<b>1,344</b>	<b>77.0</b>

## **MEDICAL OFFICE ADMINISTRATION & CODING COURSE DESCRIPTIONS**

### **MOA 110 Computer Applications**

This course covers the basics of computer hardware and software, networks, the Internet, Outlook, Word and Excel.

### **MOA 111 Business English**

A concentrated review of sentence writing, this course emphasizes sentence combining, basic mechanics, and paragraph writing.

### **MOA 117 The Human Body in Health & Disease**

An introduction to the structure and function of the human body utilizing a system approach. Emphasis placed on the basics of human anatomy as well as the physiology of the, skeletal system, muscular system, nervous system, cardiovascular, respiratory, urinary, reproductive, endocrine, digestive, lymphatic, special senses, and integumentary systems. This course will also cover the diseases and interventions commonly used in each system.

### **MOA 132 Medical Terminology**

This course is designed to teach students to accurately spell, pronounce, and define common medical terms related to major disease processes, diagnostic procedures, laboratory tests, abbreviations, drugs, and treatment modalities.

### **MOA 112 Keyboarding**

In this course, students learn beginning typing and 10-key skills. The objectives are for students to learn how to type by touch and how to take a timed keyboarding test for accuracy and speed.

### **MOA 126 Introduction to CPT & ICD-10 Coding**

This course is an introduction to basic coding concepts. Focus is placed on using official coding guidelines correctly and the course includes extensive practice coding exercises.

### **MOA 135 Computers in Health Care**

Overview of commonly available software tools used in health care. Introduction to the electronic health record process and medical office database management software found in American health care delivery.

### **MOA 133 Medical Career Planning**

Students learn advanced interviewing skills, how to construct a portfolio of their work, and job-seeking skills. This course will guide the student through the elements of career planning, including self-understanding and exploring a variety of medical careers paths.

### **MED 128 Electronic Health Care Records**

Overview of commonly available software tools used in health care. Introduction to the electronic health record process and medical office database management software found in American health care delivery.

### **MOA 131 Health Care Law & Ethics**

This course examines the ethical challenges facing individuals and businesses in modern society. The course utilizes case studies of professionals working in various areas of business and provides guest speakers with real-world experiences. Great emphasis is placed on HIPAA and Washington State Privacy laws.

### **MOA 136 Intermediate CPT & ICD-10 Coding**

This course will serve as a continuation of basic diagnostic coding and the characteristics and conventions of ICD-10-CM coding. A brief history of ICD-9 and the transition to ICD-10-CM will be covered. Students will analyze and discuss case studies using more complex code assignments with ICD- 10-CM. This course will also provide some review in medical terminology and anatomy.

### **MOA 143 Medical Office Procedures**

This course introduces and teaches the tasks of a medical office assistant's career: How to perform administrative functions, records management, medical communications, scheduling appointments, and an introduction to patient billing and processing insurance claims. Emphasis is placed on developing a working knowledge of concepts, processes, and procedures in the billing cycle from point of service to receipt of payment. The course covers how to recognize components of a compliance plan for physician office billing, filing of appeals and focuses on decision making and critical thinking activities. Students will learn the importance of customer service in the medical industry. Effective verbal communication and telephone skills are taught. Problem resolution skills and how to handle difficult situations are important elements of this course. Students use Medisoft Practice Management to complete real world scenarios.

### **MOA 212 Health Care Delivery Systems**

Students will demonstrate an understanding of health care delivery systems. They will analyze the organization of health care delivery in hospitals, mental health and ambulatory care centers, home health agencies, and nursing homes. Students will have extensive hands-on experience with the UBO4. Emphasis is placed on hospital inpatient billing.

### **MOA 137 Medical Reimbursement I**

Students will study federal, state, and private health insurance plans including managed care systems. Students will learn the processing cycle of health insurance claims, health insurance terminology, reimbursement methodologies for professional services, and proper completion of the 1500 billing form. Students will have hands-on experience with simulated practice management software. An overview of billing system management reports and legal issues related to reimbursement processing. Students will learn math concepts associated with coinsurance, deductibles, allowables, and RVUs.

### **MOA 144 Advanced CPT & ICD-10 Coding**

This course provides students with advanced understanding of complex coding scenarios, with an emphasis on medical coding services such as medical visits, diagnostic testing and interpretation, treatments, surgeries, and anesthesia. This course covers more advanced coding concepts using step-by-step methods that give a more in-depth understanding of physician-based medical coding to ensure gathering the correct information from documents, selecting the right codes, and determining the correct sequencing of those codes.

### **MOA 210 Business Communication**

Students learn how to establish credibility in the workplace as well as the principles of interpersonal communication. This course will give students the skills they need for team communication, difficult conversations, managing meetings, and creating effective business messages.

**MOA 145 Medical Reimbursement II**

This course is a continuation of Medical Reimbursement I. Student will continue to work through the same objectives for Medical Reimbursement I.

**MOA 223E Medical Coding Practicum Externship**

The externship will provide students with coding practices in a hospital, physician's office, clinic or other health care setting with directed projects common to a clinical coding specialist on the job. Students will practice with clinical code assignments and billing methodologies, including projects and cases that replicate typical coding tasks in a physician's office, hospital outpatient clinic, ambulatory surgery, and hospital acute care settings that employ coding professionals. This practicum will focus on building speed and accuracy using actual medical records. If the student does not obtain an externship, completion of a capstone project is required.

**MEDICAL OFFICE ADMINISTRATION & CODING BOOK AND TOOL LIST**

The book and tool list for students in the Medical Office Administration & Coding Program is intended to be a minimum requirement to complete the program. The book and tool list will be provided no later than the first day of class. For specifics on cost of books, training materials, uniforms, and tools, please refer to page 13.

**MEDICAL OFFICE ADMINISTRATION & CODING EQUIPMENT LIST**

Students in the Medical Office Administration & Coding Program utilize the following equipment:

- Computers
- Copy machines
- Scanners
- Fax machines
- 10-key calculator

## ❖ precision machining & manufacturing

[Updated February 2016]

Reference page 46

Perry Technical Institute's Precision Machining & Manufacturing Program teaches students the machine trade through the integration of machining theory and practical application in the machine shop. Students use the skills they learn to plan and carry out the operations needed to make machined products that meet precise specifications.

The working properties of metals, applied mathematics, blueprint reading, computer numerical control (CNC) programming, and computer-aided manufacturing (CAM) using Mastercam are some of the subjects students study to develop the skills demanded by today's industry. The program prepares students to take the Mastercam certification exam.

The goal of the Precision Machining & Manufacturing Program is to prepare students for entry-level positions in a variety of manufacturing fields. Graduates will be qualified for positions in industries such as manufacturing, prototyping, job shops, power generation, aerospace, food processing, medical equipment, and other specialty machining industries.

The Precision Machining & Manufacturing Program is 12 months in length (four quarters). The student will earn 75 credit hours which are 1344 clock hours. Tuition is payable on a quarterly basis. There are four quarters in an academic year.

The student to instructor ratio for the Precision Machining & Manufacturing Program is 24:1.

### PROGRAM OUTLINE

			<b>Clock Hours</b>	<b>Credit Hours</b>
Quarter 1	PM 110	Industrial Mathematics I	60	4.0
	PM 111	Elementary Blueprint Reading I	30	2.0
	PM 112	Machine Tool Practices I	30	2.0
	PM 113	Machine Lab	216	11.5
			<hr/>	
			336	19.5
Quarter 2	PM 120	Industrial Mathematics II	60	4.0
	PM 121	Elementary Blueprint Reading II	30	2.0
	PM 122	Machine Tool Practices II	30	2.0
	PM 123L	Machine Lab	216	11.5
			<hr/>	
			336	19.5
Quarter 3	PM 130	GD&T I	30	2.0
	PM 131	CNC Machine Tool Operation I	60	4.0
	PM 132	Mastercam Mill Level One I	30	2.0
	PM 133L	Machine Lab	216	11.5
			<hr/>	
			336	19.5
Quarter 4	PM 140	GD&T II	30	2.0
	PM 141	CNC Machine Tool Operation II	60	4.0
	PM 142	Mastercam Mill Level One II	30	2.0
	PM 143	Machine Lab	76	4.0
	PM 144E	Machine Externship	140	4.5
			<hr/>	
			336	16.5
<b>Program Totals</b>			<b>21,344</b>	<b>75.0</b>

## PRECISION MACHINING & MANUFACTURING COURSE DESCRIPTIONS

### PM 110 Industrial Mathematics I

Operations with fractions, mixed numbers, and decimals as they relate to the machine trades. The topics covered are the basic math skills of addition, subtraction, multiplication, and division. Calculations involving exponents are also covered as well as the fundamentals of algebra found in the machine trades. Topics include using the principles of equality and rearranging of formulas to solve common shop problems.

### PM 111 Elementary Blueprint Reading I

Develops the fundamental skills needed to read and interpret industrial drawings. Topics covered include drawing layouts, drawing symbols, and the different drawing views used to describe machined parts.

### PM 112 Machine Tool Practices I

This course covers general shop safety as well as procedures for each group of machine tools. Topics including proper clothing, eye protection, lifting, first aid, and CPR. Also covered are the operation and setup of turning machines, drill presses, sawing machinery, and shop presses along with an introduction to turning machines. Topics include tooling, machine operation, the different types of lathes, including nomenclature, and set-up theories. Other topics include the use of hand tools, the use of measuring instruments such as steel rules, vernier scales, micrometers, and dial indicators. Dimensional measurements will encompass comparison measuring tools, gage blocks, and angular measuring tools. Precision layout techniques, drill bit sharpening, and tapping are also covered.

### PM 113L Machine Lab

Classroom theory on the operation of drill presses, band saws, bench grinders, and basic hand tools will be applied in the shop. Operations performed will include filing a block square, hacksaw use, precision hole layout, drill bit sharpening, drilling, and tapping. Classroom theory on the operation and set-up of engine lathes will be applied in the shop. Operations will include turning, thread cutting, grooving, drilling, and tapping. Also covered are the set-ups of four-jaw chucks and collets.

### PM 120 Industrial Mathematics II

This course covers the fundamentals of plane geometry. Common shop problems are solved by applying the geometric principles of triangles, common polygons, and circles. Other topics covered include area and volume calculations, trigonometric functions as they apply in the machine trades, calculations of angles and sides of right triangles, the Cartesian coordinate system, and the laws of sines and cosines.

### PM 121 Elementary Blueprint Reading II

Further develops the skills learned in Elementary Blueprint Reading I. Topics covered include the dimensions and symbols used to call-out common features such as counter bores, countersinks, fillets, and spot faces. Other topics include tapers, chamfers, bevels, and screw threads.

### PM 122 Machine Tool Practices II

Covers operation and set-up theories of the vertical milling machine. Topics covered include face milling, rough/finish milling, hole layout, offset boring head, drilling, and tapping. Also covered are heat treating of materials, material properties, and material application.

Introductions to the horizontal milling machine and surface grinder will include tooling, set-ups, and operation demonstrations. Milling topics covered include face milling, rough, and finish milling. Surface grinding topics include selection of grinding wheels, coolant, and work holding options. General shop procedures covered will include countersinking, counter boring, and reaming.

### PM 123L Machine Lab

Classroom theory on the operation and set-up of the vertical and horizontal milling machines will be applied in the shop. Operations will include face milling, rough/finish milling, hole layout, drilling, and tapping. Also covered are general machine set-ups including dialing vises and head tramming. Classroom theory on the operation and set-up of the surface grinder will be applied in the shop. Surface grinder operations will include block squaring and angle grinding.

### PM 130 GD&T I

This course covers the fundamental geometric dimensioning and tolerancing skills needed to interpret industrial drawings. Topics include basic dimensioning and tolerancing rules, definitions, symbols, form variation, and basic fits of mating parts. Other topics include datums, material conditions, and material boundaries. Baseline, chain, direct and alternate dimensioning methods are also covered.

### PM 131 CNC Machine Tool Operation I

This course covers the manual programming of CNC machining centers. Topics include defining numerical control, machine types and layouts, coordinate geometry, basic machine control features, programming codes, program structure, tool function, reference points, work and tool offsets, and rapid positioning. Also covered are linear interpolation, fixed cycles, and hole machining.

### PM 132 Mastercam Mill Level One I

This course teaches students how to create two and three dimensional models using Mastercam software. Topics include creating geometry, filleting, and trimming. Other topics include the use of mirror image and translation.

### PM 133L Machine Lab

Students will complete a series of projects designed to hone the skills needed in industry. They will machine a series of precision parts on CNC machining and turning centers.

### PM 140 GD&T II

A continuation of Geometric Dimensioning & Tolerancing I, this course further develops the geometric dimensioning and tolerancing skills needed to interpret industrial drawings. Topics covered include form tolerances, orientation tolerances, profile, run-out, and location tolerances.

### PM 141 CNC Machine Tool Operation II

A continuation of CNC Programming I, this course covers the manual programming of CNC machining centers. Topics include cutter diameter compensation, plane selection, circular interpolation contour milling, face milling, and machining slots and pockets. Also covered are turning and boring, lathe fixed cycles, parting off and grooving, threading, facing, and contouring.

### PM 142 Mastercam Mill Level One II

Students use Mastercam to create two and three dimensional geometry and tool paths. Topics include toolpath selection, proper

use of stock setup, tool libraries, and tool path verification.

#### **PM 143L Machine Lab**

Students will complete a series of projects designed to hone the skills needed in industry. They will machine a series of precision parts on CNC machining and turning centers.

#### **PM 144E Machine Externship**

Students work in various local machine shops under the supervision of an approved employer. Students must have a 3.0 GPA or better in current coursework, must not be under any type of probationary contract, and must complete and submit a regular work experience employer evaluation. The instructor or administration may terminate the externship at any time if the student does not adhere to the requirements stated in the Externship Training Packet. If a student does not obtain an externship, completion of a machine capstone project will be required.

### **PRECISION MACHINING & MANUFACTURING BOOK AND TOOL LIST**

The book and tool list for students in the Precision Machining & Manufacturing Program is intended to be a minimum requirement to complete the program. The book and tool list will be provided no later than the first day of class. For specifics on cost of books, training materials, uniforms, and tools, please refer to page 14.

### **PRECISION MACHINING & MANUFACTURING EQUIPMENT LIST**

Students in the Precision Machining & Manufacturing Program utilize the following equipment:

Drill Presses

Arbor and Hydraulic Presses

Precision Measuring Tools

Tool and Cutter Grinding Machines

Bandsaws

Vertical Milling Machines

Horizontal Milling Machines

Engine Lathes

Surface grinders

Computers

Gear hob

CNC Milling Machines

CNC Turning Centers

CNC Wire EDM Machines

Plunge EDM Machines





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