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# PERRY TECHNICAL INSTITUTE

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COURSE CATALOG | 2011-2012



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TECHNICAL  
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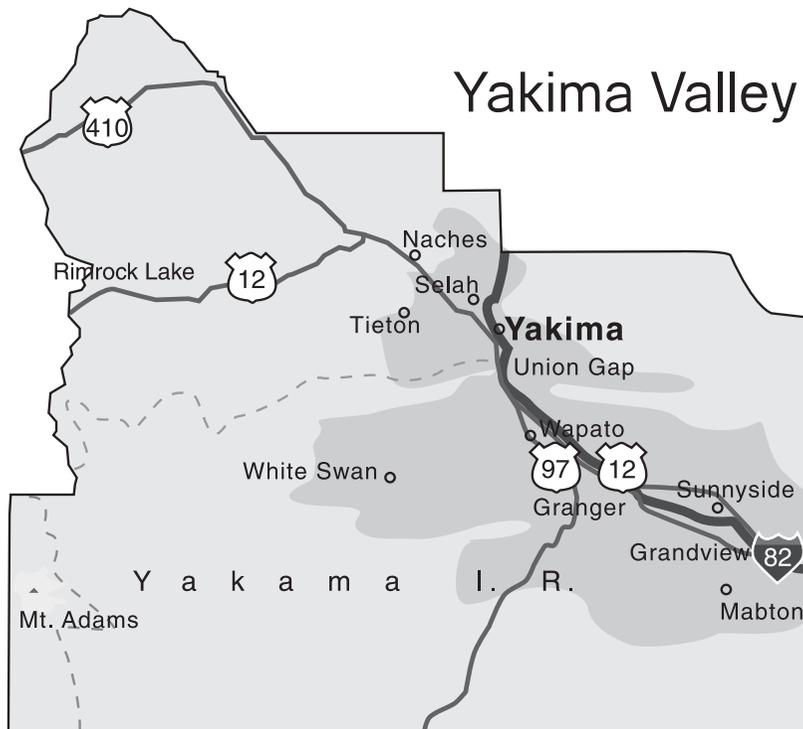
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# ACCSC

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Date of Publication  
June 2011



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Perry Technical Institute does not discriminate on the basis of race, color, national origin, sex, sexual orientation, disability or age in its programs and activities.

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## ❖ message from the president

Welcome to Perry Technical Institute. By choosing to advance your education here, you are participating in a proud history of well-trained professionals. Our graduates have gone on to lead fulfilling lives in exciting and challenging careers. We have high expectations for you as you work to join their ranks.

The training you receive at Perry is founded on the very same principles that led Harriet I. Perry to open the institute in 1940 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 an ever-expanding industrial market.

Our skilled faculty will challenge you, our dedicated staff will support you, and our diverse student body will inspire you as you work to fulfill your dreams. The work will be difficult. The road to success is very often paved with hardship and trial, but if you commit yourself to this instruction you will find what generations of Perry graduates have discovered: a life well-lived in a career you love.

Once again, welcome to Perry. We look forward to sharing in your future success.



Christine Coté

A handwritten signature in cursive that reads "Christine S. Coté".

Christine Coté  
President  
Perry Technical Institute

Catalog certified as true and correct in content and policy.  
June 2011

## ❖ 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)

# J. M. PERRY INSTITUTE OF TRADES

## ❖ 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. The first warehouse was constructed in 1911 and enlarged in the following years. The Northern Pacific and Union Pacific railroads were among the company's largest ice contracts.

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 for the establishment of the 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 airport. Four small farms and houses were located on the property, which was purchased for \$23,000, or approximately \$440 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. This modern building included shops, classrooms, administration 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 Mechanic; 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.

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. The Arlington, Virginia-based organization is a private, non-profit, independent accrediting agency which is recognized by the United States Department of Education as an organization which works to ensure quality education for more than 220,000 students at more than 820 accredited institutions across the United States.

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 shop area to accommodate the growing number of women enrolling at the school.

In 1998, crews began constructing a 14,160 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 Machine Technology Program to relocate to the new building and move out of its outdated shop on the west end of campus. The 17,100 square foot building was dedicated on June 23, 2006.

The hangar building on the west end of campus was recently completely renovated. The building houses the Heating, Ventilation, Air Conditioning & Refrigeration Technology Program, the Visual Communication & Graphic Technology Program and the Office Administration Programs. The state-of-the-art facility was dedicated as the Eugene Shields Technical Training Center in July 2009.

Over the years, Perry Technical Institute has grown and adapted its curriculum to meet the changing needs of industry. The school's mission, however, has remained unchanged. We serve industry by equipping workers with both technical skills and positive work habits. We serve 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 West Washington Avenue on approximately 40 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; the Information Technology & Communication Systems Program; Visual Communication & Graphics Program; Student Services; a 700-seat auditorium; and the Deli. The Eugene Shields Technical Training Center on the west end of campus houses the Heating, Ventilation, Air Conditioning & Refrigeration Technology Program; the Business Technology & Accounting Program; the Medical Office Administration & Coding Program; and the Legal Assistant/Paralegal Program. The Instrumentation Building, located east of the main building, houses the Instrumentation & Industrial Automation Technology Program and the Machine Technology Program. The Smith Electrical Technology building is located behind the main building and the Burnham Prince Automotive/Agriculture Building is on the northwest end of campus.

## ❖ academic calendar 2011-2012

### AUTO, BTA, HVAC/R, ITCS, MACHINE, MOAC, LAP, VCG AND WELDING

SUMMER QUARTER 2011	June 21 July 4 August 1-12 September 5 September 22 September 22	Summer Quarter Begins Independence Day, No Classes Summer Break Labor Day, No Classes Graduation Summer Quarter Ends
FALL QUARTER 2011	September 26 November 11 November 24-25 December 16 December 16 Dec. 19-Jan. 2	Fall Quarter Begins Veteran's Day, No Classes Thanksgiving Holiday, No Classes Graduation Fall Quarter Ends Winter Break
WINTER QUARTER 2012	January 3 January 16 February 20 March 22 March 23	Winter Quarter Begins Martin Luther King, Jr. Day, No Classes President's Day, No Classes Winter Quarter Ends Graduation
SPRING QUARTER 2012	March 26 April 2-6 May 28 June 21 June 21	Spring Quarter Begins Spring Break Memorial Day, No Classes Graduation Spring Quarter Ends

### ELECTRICAL AND INSTRUMENTATION

SUMMER TRIMESTER 2011	June 21 July 4 August 1-12 September 5 October 20 October 20	Summer Trimester Begins Independence Day, No Classes Summer Break Labor Day, No Classes Graduation Summer Trimester Ends
FALL TRIMESTER 2011/2012	October 24 November 11 November 24-25 Dec. 19-Jan. 2 January 3 January 16 February 20 February 23 February 23	Fall Trimester Begins Veteran's Day, No Classes Thanksgiving Holiday, No Classes Winter Break Return to Class Martin Luther King, Jr. Day, No Classes President's Day, No Classes Graduation Fall Trimester Ends
SPRING TRIMESTER 2012	February 27 April 2-6 May 26 June 21 June 21	Spring Trimester Begins Spring Break Memorial Day, No Classes Graduation Spring Trimester Ends

## ❖ admissions

Perry Technical Institute welcomes prospective applicants who are seeking education in one of the 10 training programs offered. Perry Technical Institute admits students of any race/color, sex, 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, 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.

### ADMISSIONS PROCEDURES

To apply for admission, applicants should contact an Enrollment Assistant at Perry Technical Institute to request program information and take a tour of the school facilities. Once the applicant has made a decision to apply for admission to Perry Technical Institute, the applicant must complete an application for admission; provide proof of satisfactory completion of high school or equivalent education; and pay a \$35 registration fee. Candidates will confirm they have already received a catalog or will receive one at the time of acceptance to Perry Technical Institute. The Enrollment Office will review the application for admission and notify the applicant in writing the status of admission to the school.

### ADMISSIONS 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 admission to Perry Technical Institute with \$35 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) Sign enrollment contract and attend mandatory student orientation.

Additional documentation may be required depending on the individual program requirements.

We enroll students based on the date on which their admissions 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 \$35 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:

Automotive	Monday – Friday	8:00 – 3:30
ITCS (Enrolled Prior to 1/1/2011)	Monday – Friday	8:00 – 3:30
ITCS (Enrolled Following 1/1/2011)	Monday – Thursday	7:30 – 4:00
Office Admin.	Monday – Friday	8:00 – 3:30
VCGT	Monday – Friday	8:00 – 3:30
HVAC/R	Monday – Friday	8:00 – 3:43
Electrical	Monday – Thursday	7:00 – 4:00
Machine	Monday – Thursday	7:30 – 4:00
Welding	Monday – Thursday	7:30 – 4:00

**INSTRUCTOR NOTIFICATION** Students are required to notify the instructor before the scheduled start time each day they are absent or late. Students must also notify instructors when leaving early or arriving tardy from a scheduled break or lunch. Failure to do so 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 stated break periods. Student attendance is solely 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.

Students leaving campus for an externship are also required to scan their cards at the time they leave or return.

**ABSENCE** is defined as failure to clock in by the scheduled start time and failure to clock out at the scheduled end time (missing an entire school day). Students will be placed on probation until the end of the school term when they have accumulated three (3) days of absences during the term.

**TARDINESS** is defined as clocking in after the scheduled start time as defined in paragraph one above.

**LEAVE EARLY** is defined as clocking out before the scheduled end time as defined in paragraph one above. This includes leaving in the middle of the day at other than stated break periods for any given amount of time.

A student who is tardy and/or leaves early, as defined above, three (3) times in a 20-school-day period will be placed on probation for 20 school-days, or until the end of the term, whichever comes first.

**CLASS CUT** is defined as an absence on an unauthorized basis from a class at other than stated break periods, or leaving a class prior to the end of the scheduled instruction period without instructor permission. This will result in immediate probation.

**DISMISSAL** Students may be dismissed when they have accumulated five (5) days of absences during the term. Following three consecutive days of absences without notification, students will be dismissed.

A student scanning or keying another student's card/ID number will be dismissed. Grades, financial aid and Department of Veteran's Affairs agencies sponsoring students are dependent on accurate records of attendance.

**LEAVE OF ABSENCE** A leave of absence is granted only to students who wish temporarily to interrupt their education for the following reasons: medical emergency, military leave, or other approved family crisis. A leave of absence will not be granted for failure to make satisfactory academic progress. The leave request must be for a minimum of three (3) consecutive days in length.

A request for leave must be made to the Dean of Education, in writing prior to absence, excluding emergencies, or time away from school will be considered an absence. The written request to the Dean of Education must include a third-party verification of the reason for the leave of absence. Upon approval by the Dean of Education, a Leave of Absence Form must be completed and submitted to the Registrar's Office. The Department of Veterans Affairs and the Financial Aid Office will be notified immediately when the student is granted a leave of absence. A leave of absence will be a maximum of 30 days. Failure to return to class following the leave of absence will result in dismissal. In the event of an emergency situation, leave requests must be submitted within five days of returning to class.

#### **SATISFACTORY ACADEMIC PROGRESS 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 or trimester with a minimum GPA of 2.0, and the minimum grades established for each subject within the department.

#### **PROBATION**

If a student has not met the criteria of satisfactory progress at any point during the term the student will be placed on 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) and the Financial Aid Office and the original is 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/TRIMESTERS**

A student failing to maintain satisfactory progress or withdrawing from a class in the middle of a term may petition to repeat the quarter or trimester. Upon successful completion of the repeated quarter or trimester, the student will be granted

the grade for the quarter or trimester successfully completed in lieu of the previous grade.

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

All failures requiring the retake of courses will be charged the current academic year quarterly or trimester 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 any student for any of the following reasons:

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

The 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. 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 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.

#### **CLASS/PROGRAM CANCELLATIONS**

Perry Technical Institute makes every effort to meet the needs and desires of its students; however, special circumstances may require the school to cancel classes or programs due to 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 our 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 www.perrytech.edu.

**CLOCK HOUR/CREDIT HOUR CONVERSION SYSTEM**

**DEFINITION OF A CLOCK HOUR** A clock hour is defined as a full 60 minutes.

**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.

**Quarters**

- 10 Clock Hours of Lecture = 1 Credit Hour
- 20 Clock Hours of Lab = 1 Credit Hour
- 30 Clock Hours of Externship = 1 Credit Hour

**Trimesters**

- 15 Clock Hours of Lecture = 1 Credit Hour
- 30 Clock Hours of Lab = 1 Credit Hour
- 45 Clock Hours of Externship = 1 Credit Hour

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 term. Note: Course crossover may occur in some programs.

- Example 1: EL – Electrical Technology  
104 – 1st trimester
- Example 2: BTA – Business Technology & Accounting  
320 – 3rd quarter

**LETTERING SYSTEM**

- AU Automotive Technology
- BTA Business Technology & Accounting Program
- CE Continuing Education
- EL Electrical Technology
- IN Instrumentation & Industrial Automation Technology
- ITC Information Technology & Communication Systems
- LAP Legal Assistant/Paralegal
- MA Machine Technology
- MOA Medical Office Administration & Coding
- RE Heating, Ventilation, Air Conditioning & Refrigeration Technology
- VCG Visual Communication & Graphic 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
- I Incomplete
- W Withdraw
- WP Withdraw/Pass
- WF Withdraw/Fail
- CT Challenge test

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 are given a grade (progress report) upon completion of each term. A copy is sent to the student's counselor (if applicable) and the documentation is maintained in the school's database.

**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**

- 1) Completion of:
  - 86.5 credit hours for Automotive Technology
  - 137.5 credit hours for Business Technology & Accounting Program
  - 136 credit hours for Electrical Technology
  - 214.5 credit hours for HVAC/R Technology
  - 201 credit hours for ITCS
  - 132 credit hours for Instrumentation & Industrial Automation Technology
  - 90 credit hours for Legal Assistant/Paralegal
  - 171 credit hours for Machine Technology
  - 139 credit hours for Medical Office Administration & Coding
  - 83.5 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

**CERTIFICATE OF COMPLETION**

Each student satisfactorily completing a course of training is granted a Certificate of Completion.

**ENROLLMENT CAPACITY**

Automotive	16 each day section, 18 night section, 50 total
BTA	24 each section, 48 total
Electrical	22 each section, 132 total
HVAC/R	22 each section, 88 total
ITCS	24 each section, 96 total
Instruments	22 each section, 132 total
LAP	24 each section, 24 total
Machine	10 each section, 40 total
MOAC	24 each section, 48 total
Welding	20 each section, 20 total

### RE-ENROLLMENT TO PERRY TECHNICAL INSTITUTE

Students intending to re-enroll after withdrawing or being dismissed from Perry Technical Institute are required to complete a Re-Enrollment Form that may be obtained from the Registrar.

The form will be reviewed by the specified school officials, their responses noted and signed.

The student must write a letter addressed to the Dean of Education which 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 an official transcript. Fees are assessed for additional transcripts. Official transcripts are \$10 and unofficial transcripts are \$3.

## ❖ student services

### 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 Perry's Admissions Office or through the Perry website, [www.perrytech.edu](http://www.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. 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 Registrar.

### LEARNING RESOURCE SYSTEM

Perry Technical Institute has a comprehensive learning resource system in place to ensure that students have access to resources which will enhance their learning experience.

The learning resource system consists of a customized online database for student and faculty use which accesses full-text electronic resources including reference, periodicals, journals, newspapers and magazines. The databases are provided through the Washington State Library, ProQuest and MyiLibrary. In addition, each department has resources available to students. Training on how to locate and use information through the learning resource system is provided.

The PTI Learning Resource Center is located off the main corridor. Hours of operation are Monday through Friday, from 7:30 a.m. through 4:30 p.m. A current student ID card is required to use the library.

In addition, Perry Technical Institute has a partnership with Davis High School Media Center which provides access to Perry students, faculty and administration. The Davis High School Media Center, located at 212 South Sixth Avenue, is open Monday through Thursday from 3-8 p.m. and on alternating Saturdays from 10 a.m. to 1 p.m. during the school year. The Media Center offers computers, books, a variety of online resources, free tutoring, computer assistance and proofreading.

## ❖ 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) and the Perry Technical Institute Data Sheet. These forms are 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** Students must be making Satisfactory Academic Progress in order to remain eligible for financial aid. Students must complete each quarter or trimester with a minimum GPA of 2.0.

If at the end of the enrollment period, the student is not making satisfactory academic progress, financial aid funds will be terminated. The student will be responsible for funding the next enrollment period and if upon completion of that period the student has the minimum GPA of 2.0 he/she may regain financial aid eligibility.

No student will be allowed to repeat quarters or trimesters that result in a total time of enrollment exceeding 1.5 times the specified time for the program.

If, due to extenuating circumstances, the student fails to meet academic progress requirements, he or she may appeal the termination of his or her financial aid. Appeals are completed on the Financial Aid General Appeal Form. Based upon its own review of a student's circumstances, the Financial Services Office may make allowable exceptions to the stated satisfactory progress requirements. All such waivers will be reviewed on an individual basis and will take into consideration special circumstances and improved academic performance.

**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 and attendance standards.

**State Need Grant (SNG) Requirements:**

- 1) A student who has been on probation who fails to make satisfactory academic progress at the end of the term will have his/her SNG terminated. If a student wishes to appeal this decision, see Reinstatement of Aid.
- 2) Eligibility for SNG will be monitored every term.
- 3) If less than 50% of credits are completed the SNG will be denied as per the Higher Education Coordinating Board.

### WITHDRAWALS (REFUNDS)

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. After the 60% point in the payment period or period of enrollment, a student has earned 100% of the FSA Program funds.

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% of the payment period or period of enrollment, the percentage earned is 100%.

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
7. WA State Opportunity Grant

### REFUNDING STATE NEED GRANTS

If a student withdraws and his/her last date of attendance is prior to or at 50% of the term, the SNG repayment will be based on the percent of the term not completed, according to the SNG repayment policy.

### ❖ veteran education benefits

Perry Technical Institute is approved for training for the following veteran's programs:

**Chapter 30** - (Montgomery GI Bill – Active Duty Education Assistance Program)

**Chapter 31** - (Disabled – Vocational Rehabilitation)

**Chapter 35** - (Survivors and Dependents Education Assistance Program)

**Chapter 1606** - (Montgomery GI Bill – Selected Reserve Education Assistance Program)

**Chapter 1607** - (Montgomery GI Bill – Reserve Education Assistance Program)

**Chapter 33** - (Post-911 GI Bill – Perry Technical Institute will qualify beginning on October 1, 2011)

To apply for benefits, you may obtain an application at Perry Technical Institute or your local VA office. 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.

### MILITARY ACTIVE DUTY POLICY

- 1) A student leaving for active duty 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.
- 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 will receive a waiver equal to the amount of prior tuition unless Financial Aid funds were used to pay for that portion.

## ❖ perry technical foundation scholarships

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

The demand for technical training is rising, but so are the costs. The average total cost of completing a two-year training program at Perry is more than \$25,000 and approximately 85% of our students receive some form of financial aid. While some students qualify for state and federal assistance, Perry receives no direct funding from government agencies.

Perry Technical Foundation helps Perry Tech students by seeking support from alumni, community members, foundations and corporations. These gifts enable the foundation to offer scholarships to deserving students working toward their career goals. We believe our partnership with the community is essential to fulfilling our mission of providing technical training within the community to provide the nation with a qualified workforce.



## ❖ trimester tuition schedule

### ELECTRICAL AND INSTRUMENTATION

	<b>Electrical</b>	<b>Instrumentation</b>
Summer Trimester - June 21, 2011	\$3,962.00	\$3,962.00
Fall Trimester - October 24, 2011	\$4,183.00	\$3,962.00
Spring Trimester – February 27, 2012	\$4,183.00	\$3,962.00
Summer Trimester – June 25, 2012	\$4,727.00	\$4,238.00
Fall Trimester – October 29, 2012	\$4,727.00	\$4,238.00
<b>Additional Costs (estimates):</b>	<b>Electrical</b>	<b>Instrumentation</b>
Books and Tools	\$3,500.00	\$3,500.00
Field Trips	650.00	750.00
First Aid/CPR Class	22.00	22.00
Student Accident Insurance (per term)	26.00	26.00
Technology Fee (per term)	20.00	20.00
Lab Fee (per term)	60.00	
Electrical Training Certificate	40.60	
ISA Student Membership Dues		20.00
Field Training Fee (per term)	100.00	
Graduation Fee (per term)	7.00	7.00

## ❖ quarter tuition schedule

### AUTO, BTA, MOAC, HVAC/R, ITCS, LAP, MACHINE, VCG AND WELDING

Summer Quarter – June 21, 2011	\$2,971.50
Fall Quarter – September 26, 2011	\$2,971.50
Winter Quarter – January 3, 2012	\$2,971.50
Spring Quarter – March 26, 2012	\$2,971.50
Summer Quarter – June 25, 2012	\$3,178.50
Fall Quarter – September 20, 2012	\$3,178.50

<b>Additional Costs (estimates):</b>	<b>Auto</b>	<b>LAP</b>	<b>MOAC</b>	<b>BTA</b>	<b>VCG</b>	<b>HVAC/R</b>	<b>ITCS</b>	<b>Machine</b>	<b>Welding</b>
Books and Tools	\$3,917.00	\$2,620.00	\$3,135.00	\$2,620.00	\$3,320.00	\$2,300.00	\$3,900.00	\$3,575.00	\$910.00
Field Trips	150.00	100.00	100.00	100.00	100.00		750.00	300.00	100.00
First Aid/CPR Class	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Student Accident Insurance (per term)	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	20.00
Technology Fee (per term)	15.00	15.00	15.00	15.00	15.00	15.00	15.00		15.00
Lab Fee (per term)	50.00	30.00	30.00	30.00	45.00	100.00	35.00	45.00	100.00
Graduation Fee (per term)	10.50	10.50	7.00	7.00	7.00	5.25	5.25	5.25	10.50
Protective Clothing Rental (per term)	35.00					50.00			
Electrical Training Certificate						40.60	40.60		
TSA Membership Dues							20.00		
FCC License Exam							70.00		
Access Certification Exam			81.44	81.44	81.44				
Excel Certification Exam			81.44	81.44	81.44				
Powerpoint Certification Exam			81.44	81.44	81.44				
Word Certification Exam			81.44	81.44	81.44				
Industry Certifications			575.00					100.00	360.00

\*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

Students pay tuition on a quarterly or trimester basis. Tuition is due at the start of each program quarter or trimester. Students with a balance owing will not be allowed to continue into the next enrollment period. There is an optional Tuition Payment Plan (TPP) available which may be subject to a fee and late charges.

### 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.

### RETURNED CHECK PROCESSING FEE

A charge of \$32 is assessed each time a student's check is returned by a bank withholding payment.

### REFUND POLICY

In accordance with federal and state regulations, Perry Technical Institute provides fair and equitable adjustment to all students. If the student is entitled to a refund, the refund must be paid within 30 calendar days of the student's official date of termination.

- 1) An applicant to the school who is rejected will receive a full refund.
- 2) An applicant whose class is cancelled will receive a full refund.
- 3) All monies paid by an applicant will be refunded if the applicant cancels within five business days (except Sundays and holidays) following the date the contract is signed or an initial payment is made, as long as the applicant has not begun training.
- 4) If the applicant cancels after the fifth business day after signing the contract or making initial payment, but prior to attending class, the school will retain the \$35 registration fee and refund any other monies paid by the applicant.
- 5) A student who has not visited the school facility prior to enrollment will have the opportunity to withdraw within three days following either attendance at a regularly scheduled orientation or following a tour of the school facilities and inspection of equipment with a full refund.
- 6) The school reserves the right to cancel a class start date due to insufficient enrollment. If this occurs, the student may request a full refund of all monies paid or apply all monies paid to the next scheduled class start date.

When calculating refunds, the official date of a student's termination is the last date of recorded attendance:

- 1) When notification of withdrawal or cancellation is received in writing on an official Perry Technical Institute Termination of Enrollment Form.
- 2) When the student is dismissed for a violation of a published school policy.
- 3) When a student, without notice, fails to attend class for three consecutive days.

The term "period of enrollment for which the student has been

charged" is determined by dividing the total number of days that make up the period of enrollment for which the student has been charged into the number of days remaining in that period. Termination date for adjustment computation is the last recorded date of student attendance.

The following schedule is used to calculate refunds:

If the student completes this amount of training:	School refunds to student:
Through the first 10%	90%
10% through 25%	75%
25% through 60%	50%
More than 60%	0%

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.

There is no refund for books purchased.

## ❖ 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 AGREEMENT WITH YAKIMA VALLEY COMMUNITY COLLEGE

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 four 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.

\*The Automotive Technology, Business Technology & Accounting, Legal Office Assistant/Paralegal and Medical Office Administration & Coding, Information Technology & Communication Systems Programs do not 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 of Technology  
2101 Wilson Blvd., Suite 302  
Arlington, VA 22201  
Telephone: (703) 247-4212  
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, he/she is encouraged to follow the chain of command and communicate informally first with the instructor, then the Department Head and then the Dean of Education. If the student is still unsatisfied, he/she is asked to file a PTI Complaint Form at the Registrar'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

If a student does not feel that the school has adequately addressed a complaint or concern, the student may consider contacting the Accrediting Commission of Career Schools and Colleges. All complaints considered by the commission must be in written form, with permission from the complainant(s) for the Commission to forward a copy of the complaint to the school for a response. 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 Blvd., Suite 302  
Arlington, VA 22201  
Telephone: (703) 247-4212

A copy of the Commission's Complaint Form is available by contacting Perry's Registrar.

### 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 ENVIRONMENT POLICY

Perry Technical Institute prohibits the unlawful manufacture, possession, use, sale, dispensation, or distribution of controlled substances and the possession or use of alcohol by students and employees on its property and at any school-related activity. Further information on Perry Technical Institute's policies can be found in the Student Handbook. Any violation of these policies will result in appropriate disciplinary actions up to and including dismissal, even for a first offense.

As initiated by students on Appendix B of the Student Handbook, all current students will be required to submit to random drug testing. Students with "Reasonable Suspicion" may be required to be tested for illegal drug or alcohol abuse. Refusal to do so may result in dismissal from the school.

Violations of the law will also be referred to the appropriate law enforcement authorities. Students may be referred to abuse help centers. If such a referral is made, a leave of absence may be required, and re-enrollment will be subject to successful completion of any prescribed counseling or treatment program.

### UNLAWFUL HARASSMENT POLICY

All members of Perry Technical Institute's community, including, the faculty, students, and staff, have the right to be free from sexual harassment by any other member of Perry Technical Institute's community. Should a student feel that he/she has been harassed, the student should immediately inform the Dean of Education and/or the President.

Sexual harassment refers to, among other things, sexual conduct that is unwelcome, offensive, or undesirable to the recipient, including unwanted sexual advances.

All students and employees must be allowed to work and study in an environment free from unsolicited and unwelcome sexual overtures and advances. Unlawful sexual harassment will not be tolerated.

### LIABILITY

Perry Technical Institute is not responsible for loss or damage to personal property or for personal injury 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 on the rearview mirror at all times. If a student forgets his/her parking permit or it is lost or stolen, he/she should report to the Main Office immediately to obtain a temporary permit or to purchase a new permit. Each student is allowed two temporary parking permits per term and after two temporary permits must purchase a new parking permit for \$3. 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 Main Office if their vehicle information changes

### **NON-DISCRIMINATION POLICY**

Perry Technical Institute does not discriminate on the basis of race, color, national origin, 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:

Registrar  
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

### **STUDENT RECORDS**

Students have the right to review, inspect or release their confidential education records. A student requesting to review his/her education records shall make the request in writing to the PTI Registrar. The Registrar must be presented with proper identification which may include the student's identification 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 information upon which a student's enrollment is based. These records (physical or electronic) must be securely maintained and protected against damage or loss (e.g., fire, water, theft, tampering, etc.).

Perry Technical Institute maintains an official transcript for all formerly enrolled students (i.e., 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. The transcripts (physical or electronic) are securely maintained indefinitely and protected against damage or loss (e.g., fire, water, theft, tampering, etc.).

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.)

### **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 or desirable 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 [www.perrytech.edu](http://www.perrytech.edu).

## ❖ automotive technology

Perry Technical Institute's Automotive Technology Program is designed to help students achieve 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 this program is to provide students with a broad base of knowledge and the skills necessary for employment in the automotive industry. The eight recognized areas of automotive repair are addressed in the program. The eight areas include engine performance; engine repair; automatic transmission and transaxle; manual drive train and axles; suspension and steering; brakes; electrical/electronic; and heating and air conditioning systems.

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 automotive department offers the opportunity to obtain Section 609 Certification and the Mobile Air Conditioning Society Certification.

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 86.5 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	AU 101	Intro to Automotive Technology	48	4.5
	AU 101L	Intro to Automotive Technology Lab	60	3.0
	AU 102	Automotive Engine Repair	50	5.0
	AU 102L	Automotive Engine Repair Lab	70	3.5
	AU 103	Basic Automotive Electrical Systems	48	4.5
	AU 103L	Basic Automotive Electrical Systems Lab	<u>60</u>	<u>3.0</u>
			336	23.5
Quarter 2	AU 201	Automotive Chassis Systems	70	7.0
	AU 201L	Automotive Chassis Systems Lab	130	6.5
	AU 202	Advanced Automotive Electrical Systems	50	5.0
	AU 202L	Advanced Automotive Electrical Systems Lab	<u>86</u>	<u>4.0</u>
			336	22.5
Quarter 3	AU 301	Automotive Engine Performance & Drivability	80	8.0
	AU 301L	Automotive Engine Performance & Drivability Lab	140	7.0
	AU 302	Automotive Climate Control Systems	35	3.5
	AU 302L	Automotive Climate Control Systems Lab	60	3.0
	AU 303	Customer Service	7	0.5
	AU 303L	Customer Service Lab	<u>14</u>	<u>0.5</u>
			336	22.5
Quarter 4	AU 401	Automotive Drive Train Systems	70	7.0
	AU 401L	Automotive Drive Train Systems Lab	145	7.0
	AU 402	Externship	<u>121</u>	<u>4.0</u>
			336	18.0
	Program Totals		1344	86.5

### AUTOMOTIVE TECHNOLOGY COURSE DESCRIPTIONS

#### AU 101 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 101L Intro to Automotive Technology Lab

Apply technical knowledge acquired in classroom to lab assignments.

#### AU 102 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 102L Automotive Engine Repair Lab**

Apply technical knowledge acquired in classroom to lab assignments

**AU 103 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 103L Basic Automotive Electrical Systems Lab**

Apply technical knowledge acquired in the classroom to lab assignments.

**AU 201 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 201L Automotive Chassis Systems Lab**

Apply technical knowledge acquired in classroom to lab assignments.

**AU 202 Advanced Automotive Electrical Systems**

This course covers electronic theory; wiring diagrams; test equipment; and 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 202L Advanced Automotive Electrical Systems Lab**

Apply technical knowledge acquired in classroom to lab assignments.

**AU 301 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 inter-related 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 301L Automotive Engine Performance & Drivability Lab**

Apply technical knowledge acquired in classroom to lab assignments.

**AU 302 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 302L Automotive Climate Control Systems Lab**

Apply technical knowledge acquired in classroom to lab assignments.

**AU 303 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.

**AU 303L Customer Service Lab**

Apply technical knowledge acquired in classroom to lab assignments.

**AU 401 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, driveshafts, 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, diagnose and repair automatic and manual drive trains.

**AU 401L Automotive Drive Train Systems Lab**

Apply technical knowledge acquired in classroom to lab assignments.

**AU 402 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.

## **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. Tool and book costs are approximately \$3,917. The book and tool list will be provided no later than the first day of class. The estimated price does not include mark-up for program students or sales tax.

## **AUTOMOTIVE TECHNOLOGY EQUIPMENT LIST**

Students in the Automotive Technology Program utilize the following equipment:

- Computers
- Automotive fluid service equipment
- Automotive component cleaning equipment
- Engine diagnostic equipment
- Rotary wheel hoists
- Engine and transmission lifting equipment
- Hunter P-511 vehicle alignment system
- Snap-on electrical diagnostic equipment
- McPherson strut compressor
- Automatic transmission holders
- Differential set-up equipment



## ❖ 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, 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 and PowerPoint. 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 American 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 software applications specialist, bookkeeper, office administrator, secretary and office/clerical positions.

The Business Technology & Accounting Program is 18 months in length (six quarters). The student will earn 137.5 credit hours which are 2,016 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	BTA 101	Computer Applications	30	3.0
	BTA 101L	Computer Applications Lab	30	1.5
	BTA 105	Business English I	30	3.0
	BTA 105L	Business English I Lab	30	1.5
	BTA 110	Keyboarding I	12	1.0
	BTA 110L	Keyboarding I Lab	18	.5
	BTA 115	Word Processing	30	3.0
	BTA 115L	Word Processing Lab	30	1.5
	BTA 120	Spreadsheets	30	3.0
	BTA 120L	Spreadsheets Lab	30	1.5
	BTA 130	Business Math	30	3.0
	BTA 130L	Business Math Lab	<u>36</u>	<u>1.5</u>
			336	24.0
Quarter 2	BTA 201	Business English II	30	3.0
	BTA 201L	Business English II Lab	30	1.5
	BTA 205	Database & Integration	44	4.0
	BTA 205L	Database & Integration Lab	44	2.0
	BTA 210	Keyboarding II	12	1.0
	BTA 210L	Keyboarding II Lab	18	.5
	BTA 215	Business Presentation	40	4.0
	BTA 215L	Business Presentation Lab	46	2.0
	BTA 220	Career Planning I	18	1.5
	BTA 220L	Career Planning I Lab	12	.5
	BTA 230	Business Etiquette	18	1.5
	BTA 230L	Business Etiquette Lab	<u>24</u>	<u>1.0</u>
			336	22.5
Quarter 3	BTA 310	Fundamentals of Accounting	36	3.5
	BTA 310L	Fundamentals of Accounting Lab	40	2.0
	BTA 320	Business Communications	24	2.0
	BTA 320L	Business Communications Lab	27	1.0
	BTA 325	Office Administration	24	2.0
	BTA 325L	Office Administration Lab	30	1.5
	BTA 330	Human Relations	15	1.5
	BTA 330L	Human Relations Lab	20	1.0
	BTA 335	Introduction to Business	30	3.0
	BTA 335L	Introduction to Business Lab	30	1.5
	BTA 340	Introduction to Marketing	30	3.0
	BTA 340L	Introduction to Marketing Lab	<u>30</u>	<u>1.5</u>
			336	23.5

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			Clock Hours	Credit Hours
Quarter 4	BTA 410	Principles of Accounting I	36	3.5
	BTA 410L	Principles of Accounting I Lab	40	2.0
	BTA 420	Entrepreneurship	30	3.0
	BTA 420L	Entrepreneurship Lab	40	2.0
	BTA 425	Business Ethics	30	3.0
	BTA 425L	Business Ethics Lab	30	1.5
	BTA 430	Economics	30	3.0
	BTA 430L	Economics Lab	35	1.5
	BTA 435	Business Law	30	3.0
	BTA 435L	Business Law Lab	<u>35</u>	<u>1.5</u>
			336	24.0
Quarter 5	BTA 510	Principles of Accounting II	48	4.5
	BTA 510L	Principles of Accounting II Lab	43	2.0
	BTA 520	Federal & State Tax Accounting	43	4.0
	BTA 520L	Federal & State Tax Accounting Lab	48	2.0
	BTA 525	Human Resources	38	3.5
	BTA 525L	Human Resources Lab	33	1.5
	BTA 530	Computerized Accounting Concepts (QuickBooks)	43	4.0
	BTA 530L	Computerized Accounting Concepts Lab	<u>40</u>	<u>2.0</u>
			336	23.5
Quarter 6	BTA 610	Payroll Accounting Concepts	30	3.0
	BTA 610L	Payroll Accounting Concepts Lab	30	1.5
	BTA 620	Accounting Integration (project-based using QuickBooks)	40	4.0
	BTA 620L	Accounting Integration Lab	40	2.0
	BTA 625	Customer Service	36	3.5
	BTA 625L	Customer Service Lab	40	2.0
	BTA 630E	Externship	<u>120</u>	<u>4.0</u>
			336	20.5
	Program Totals		2016	137.5

## BUSINESS TECHNOLOGY & ACCOUNTING COURSE DESCRIPTIONS

### BTA 101 Computer Applications I

This course covers the basics of computer hardware, software, networks and the internet. The objective is to prepare the student to take the MCAS certification exam.

### BTA 101L Computer Applications I Lab

Directed lab with structured learning.

### BTA 105 Business English I

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

### BTA 105L Business English I Lab

Directed lab with structured learning.

### BTA 110 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.

### BTA 110L Keyboarding I Lab

Directed lab with structured learning.

### BTA 115 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 MCAS certification exam for Word.

### BTA 115L Word Processing Lab

Directed lab with structured learning.

### BTA 120 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 MCAS certification exam for Excel.

### BTA 120L Spreadsheets Lab

Directed lab with structured learning.

### BTA 130 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 130L Business Math Lab

Directed lab with structured learning.

**BTA 201 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 201L Business English II Lab**

Directed lab with structured learning.

**BTA 205 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 MCAS certification exam for Access. Students will gain exposure to Microsoft Outlook and receive "hands-on" integration of the entire Microsoft Office Suite.

**BTA 205L Database & Integration Lab**

Directed lab with structured learning.

**BTA 210 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.

**BTA 210L Keyboarding II Lab**

Directed lab with structured learning.

**BTA 215 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.

**BTA 215L Business Presentation Lab**

Directed lab with structured learning.

**BTA 220 Career Planning I**

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

**BTA 220L Career Planning I Lab**

Directed lab with structured learning.

**BTA 230 Business Etiquette**

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

**BTA 230L Business Etiquette Lab**

Directed lab with structured learning.

**BTA 310 Fundamentals of Accounting**

Students will be introduced to the accounting equation, financial statements, journalizing, posting, and the accounting cycle for proprietorship and merchandising businesses.

**BTA 310L Fundamentals of Accounting Lab**

Directed lab with structured learning.

**BTA 320 Business Communications**

Students learn various forms of written business communications and effective verbal communications including proper telephone skills.

**BTA 320L Business Communications Lab**

Directed lab with structured learning.

**BTA 325 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 325L Office Administration Lab**

Directed lab with structured learning.

**BTA330 Human Relations**

This course develops the personal and professional skills needed to be successful in business. Topics include confidence building, seeking to understand, beginning with clarity, knowing your personality profile, coping with difficult people, and balancing professional and personal priorities individually and in a team environment.

**BTA 330L Human Relations Lab**

Directed lab with structured learning.

**BTA 335 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 335L Introduction to Business Lab**

Directed lab with structured learning.

**BTA 340 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 340L Introduction to Marketing Lab**

Directed lab with structured learning.

**BTA 410 Principles of Accounting I**

This course teaches the basic principles and practices of accounting for inventories, assets, liabilities, partnership Income, corporation stock, long term debt, Investments, statement of cash flows and financial statement analysis.

**BTA 410L Principles of Accounting I Lab**

Directed lab with structured learning.

**BTA 420 Entrepreneurship**

This course focuses on developing and manufacturing a product, obtaining licenses, writing a business plan, selecting suppliers, setting prices, selecting a financial institution, and developing advertisements for a small business.

**BTA 420L Entrepreneurship Lab**  
Directed lab with structured learning.

**BTA 425 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 425L Business Ethics Lab**  
Directed lab with structured learning.

**BTA 430 Economics**  
This course is designed to promote economic literacy and help students appreciate how economics affects their everyday lives.

**BTA 430L Economics Lab**  
Directed lab with structured learning.

**BTA 435 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 435L Business Law Lab**  
Directed lab with structured learning.

**BTA 510 Principles of Accounting II**  
This course will expand on Principles of Accounting I while students move into financial and managerial accounting. This course will introduce accounting concepts pertaining to fair value accounting, financial statement analysis, cost accounting and performance evaluation.

**BTA 510L Principles of Accounting II Lab**  
Directed lab with structured learning.

**BTA 520 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 520L Federal & State Tax Accounting Lab**  
Directed lab with structured learning.

**BTA 525 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 525L Human Resources Lab**  
Directed lab with structured learning.

**BTA 530 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 530L Computerized Accounting Concepts Lab**  
Directed lab with structured learning.

**BTA 610 Payroll Accounting Concepts**  
This course will provide students with first-hand 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 610L Payroll Accounting Concepts Lab**  
Directed lab with structured learning.

**BTA 620 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 620L Accounting Integration Lab**  
Directed lab with structured learning.

**BTA 625 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 625L Customer Service Lab**  
Directed lab with structured learning.

**BTA 630E 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.

#### **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. Tool and book costs are approximately \$2,620. The book and tool list will be provided no later than the first day of class. The estimated price does not include mark-up for program students or sales tax.

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

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

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

## ❖ electrical technology

Perry's 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 throughout the program.

The Washington State Department of Labor & Industries recognizes two years of training received from Perry's Electrical Technology Program toward the General Journeyman 01 certification. Graduates must accumulate an additional 4,000 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 course 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 (six trimesters). The student will earn 136 credit hours which are 2,784 clock hours. Tuition is payable on a trimester basis. There are three trimesters in an academic year.

### PROGRAM OUTLINE

			Clock Hours	Credit Hours
Trimester 1	EL 101	Applied Electrical Math	65	4.0
	EL 102	Safety Orientation/School Rules	8	.50
	EL 103	Industrial First Aid & CPR	8	.50
	EL 104	Safety Meetings	15	1.0
	EL 105	DC Fundamentals	105	7.0
	EL 106	National Electric Code/WAC Code	138	9.0
	EL 107	Introduction to Voltage Systems	25	1.5
	EL 108	Wiring Practices & Switch Hook-ups	50	3.0
	EL 109L	Lab & Shop Projects	<u>50</u>	<u>1.5</u>
		464	28.0	
Trimester 2	EL 201	AC Theory Single Phase	100	6.5
	EL 202	AC Motors	30	2.0
	EL 203	DC Motors & Generators	30	2.0
	EL 204	NEC Review & Testing	30	2.0
	EL 205	National Electric Code Articles 430 & 440	35	2.0
	EL 206	Electro-Mechanical Motor Controls	104	6.5
	EL 207	Safety Meetings	15	1.0
	EL 208L	Lab & Shop Projects	<u>120</u>	<u>4.0</u>
		464	26.0	
Trimester 3	EL 301	Introduction to Digital	45	3.0
	EL 302	Programmable Logic Controllers	115	7.5
	EL 303L	Lab & Shop Projects	115	3.5
	EL 304	NEC Review & Testing	14	0.5
	EL 305	Blueprint Reading	50	3.0
	EL 306	NEC & Load Sizing Calculations	110	7.0
	EL 307	Safety Meetings	<u>15</u>	<u>1.0</u>
		464	25.5	
Trimester 4	EL 401	AC Theory, Three Phase & Power Factor	60	4.0
	EL 402	Three-Phase Systems & Distribution	50	3.0
	EL 403	Transformer Connections	55	3.5
	EL 404	NEC Articles 450, 500, 680	40	2.5
	EL 405	NEC & Calculations Review	30	2.0
	EL 406	Utility Regulations & WAC Code Rules	44	2.5
	EL 407	Conduit Bending & Wiring Practices	40	2.5
	EL 408L	Lab & Shop Projects	130	4.0
	EL 409	Safety Meetings	<u>15</u>	<u>1.0</u>
		464	25.0	
Trimester 5	EL 501E	Externship	464	10.0

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			Clock Hours	Credit Hours
Trimester 6	EL 601	Solid State Electronic Fundamentals	90	6.0
	EL 602	Transistors & Operational Amplifiers	40	2.5
	EL 603	Variable Speed Drives	50	3.0
	EL 604	NEC & Theory Review & Test	50	3.0
	EL 605L	Lab & Shop Projects	75	2.5
	EL 606	Safety Meetings	15	1.0
	EL 607	Resume/Job Search	20	1.0
	EL 608E	Externship	<u>124</u>	<u>2.5</u>
			464	21.5
Program Totals			2784	136.0

## ELECTRICAL TECHNOLOGY COURSE DESCRIPTIONS

### EL 101 Applied Electrical Math

Mathematics used for electrical theory utilizing Ohm's Law and Watt's Law; problem solving and transposing; series, parallel and combination series-parallel electrical circuits; algebraic formulas; exponents; and electronic unit's conversion of measure. Application for mathematics will continue throughout the program sections.

### EL 102 Safety/Orientation/School Rules

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

### EL 103 Industrial First Aid & CPR

First aid and CPR training. First aid and CPR certificate awarded upon successful completion of class.

### EL 104 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 105 DC Fundamentals

Electrical safety, atomic structure, basic electrical definitions, electron flow theory through electrical circuits, conventional current flow, and series, parallel and series-parallel circuit solving (Ohm's Law and Watt's Law). Introduction to basic green technologies of solar and wind turbine fundamentals.

### EL 106 National Electric 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). RCW 19.28 Laws and WAC 296-46B Rules and Regulations supersede the NEC minimum standards that are enforced and practiced in industry.

### EL 107 Introduction to Voltage Systems

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

### EL 108 Wiring Practices & Switch Hook-ups

Introduction to proper drawings and schematics utilizing conductors, cables, switches, receptacles, and lighting fixtures.

### EL 109L Lab & Shop Projects

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 fixtures wiring.

### EL 201 AC Theory Single-Phase

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

### EL 202 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 203 DC Motors & Generators

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 204 NEC Code Review & Testing

Code evaluation, reviewing the code covered in the E1 section.

### EL 205 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 206 Electro-Mechanical 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 pressure sensors will be utilized in discussion and lab exercises.

**EL 207 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 208L 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 301 Introduction to Digital**

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

**EL 302 Programmable Logic Controllers**

The programmable logic controller, focus 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 303L 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. Also by monitoring devices and troubleshooting the written program.

**EL 304 NEC Review & Testing**

Code evaluation of previously covered code articles.

**EL 305 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 306 NEC & Load Sizing Calculations**

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

**EL 307 Safety Meeting**

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 401 AC Theory, Three-Phase & Power Factor**

Single-phase RL, RC, RLC parallel circuits, vectors, powerfactor, and correction. Understanding the relationships between current, voltage, and power in three-phase configurations. Three-phase RL, RC, RLC circuits, and vectors.

Application of power factor and power factor corrections to save energy and increase system capacity.

**EL 402 Three-Phase Systems, Distribution & Power-Factor Corrections**

Operational characteristics of three-phase generators—including hydro, solar and wind – and their connection to transformers for the purpose of cross-country power transmission. Circuit characteristics of the transmission and distribution system, the purpose and function of power substations and local power distribution concepts.

**EL 403 Transformer Connections**

ASA, NEMA and industrial standards for transformer lead identification and polarity requirements. Practical application of single-phase isolation type transformer configurations. Practical application of three-phase configurations for isolation type transformers. Practical application of single and three-phase buck and boost autotransformers.

**EL 404 National Electric Code Articles 450, 500 & 680 NEC**

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

NEC Article 500 – Requirements for the use of the Class, Division, Group and Zone system and the general installation requirements for electrical wiring and apparatus utilized in hazardous locations.

NEC Article 680 – Applying the provisions of Article 680 to swimming pools, spas, hot tubs, fountains, and similar installations.

**EL 405 NEC & Calculations Review**

Evaluation of previously covered code and wire sizing calculations.

**EL 406 Pacific Power Requirements, WAC & Utility Regulations**

Requirements of our local serving utility, Pacific Power. Topics covered will include, but are not limited to, service lateral burial depths, overhead service height requirements, and conduit sizing in relation to service ampacities, 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 407 Conduit Bending 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 408L 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 409 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 501E Externship**

On-the-job training projects doing hands-on electrical wiring installations in residential and commercial buildings. All trainee electrical installations are supervised by a journeyman electrician and inspected by the Department of Labor and Industries. Completion of an externship packet is required.

### **EL 601 Solid State Electronic Fundamentals**

Function and operation of diodes, SCRs, triacs, diacs, UJTs and their use in rectification and control of current by the switching of PN junctions.

### **EL 602 Operational Amplifiers**

Construction, theory and operation of transistors and their applications to control voltage levels. Basic operation and theory of the op-amp.

### **EL 603 Variable Speed Drives**

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

### **EL 604 NEC & Theory Review & Testing**

Code and theory evaluation, covering material in previous sections of the training program. Including Article 690 of the NEC with Green Technology Solar Photovoltaic Systems.

### **EL 605L Lab & Shop Projects**

Lab time will give the 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. Variable frequency drives used with motors and motor controllers will allow the students the hands-on training to help reinforce the classroom teaching to keep up with industry demands. Introducing green technology with solar energy sources and storing and conveying electricity through solar cells.

### **EL 606 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 607 Resume/Job Search**

Preparation for an effective job search. Resume preparation, interviewing skills, and the job application process.

### **EL 608E Externship (Field Wiring)**

Students who have had 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.

## **ELECTRICAL TECHNOLOGY**

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

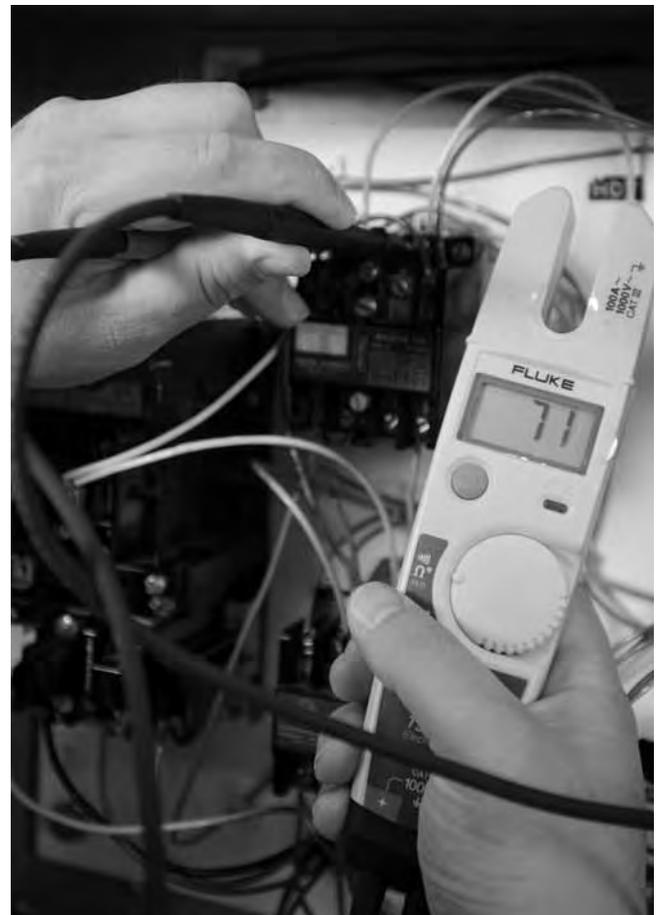
The book and tool list for students in the Electrical Technology Program is intended to be a minimum requirement to complete the program. Tool and book costs are approximately \$3,500. The book and tool list will be provided no later than the first day of class. The estimated price does not include mark-up for program students or sales tax.

## **ELECTRICAL TECHNOLOGY**

### **EQUIPMENT LIST**

Students in the Electrical Technology Program utilize the following equipment:

- Computers
- Electrical hand tools
- Large motor bench
- 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 will be credited with 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.

Students have the opportunity to gain industry certifications in several areas, giving them competitive advantages in the employment market. Technician certifications offered include Universal R-410A 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 will earn 214.5 credit hours which are 2,784 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.

### PROGRAM OUTLINE

			Clock Hours	Credit Hours
Quarter 1	RE 101	Electrical & Tool Safety	10	1.0
	RE 102	First Aid	5	0.5
	RE 103	Applied Mathematics for Electricity & Electronics	40	4.0
	RE 104	Electrical/HVAC/R Tools & Equipment	15	1.5
	RE 105	Refrigerant EPA Regulations	7	0.5
	RE 106	The Refrigeration System, Electrical & Mechanical	65	6.5
	RE 107	Equipment Retrofit of Oils & Refrigerants	5	0.5
	RE 108	Electrical/HVAC/R Computer Software	14	1.0
	RE 109	Electrical Fundamentals	30	3.0
	RE 110	Interpreting Schematic & Ladder Diagrams	27	2.5
	RE 111L	Silver Brazing Lab	10	0.5
	RE 112L	Laboratory Projects/Shop Work	<u>120</u>	<u>6.0</u>
		348	27.5	
Quarter 2	RE 200	The Refrigeration System, Electrical/Mechanical	45	4.5
	RE 201	Interpreting Schematic & Ladder Wiring Diagrams	45	4.5
	RE 202	Fundamentals of Electricity	40	4.0
	RE 203	Electric Heat Operating & Safety Controls	68	6.5
	RE 204L	Laboratory Projects/Shop Work	<u>150</u>	<u>7.5</u>
		348	27	
Quarter 3	RE 301	Industrial & Electrical Safety	20	2.0
	RE 302	Proper Use of Tools & Equipment	30	3.0
	RE 303	Proper Use & Handling of HCFC/HFC Refrigerants	20	2.0
	RE 304	Indoor Air Quality	30	3.0
	RE 305	Electrical Motors & Diagrams	37	3.5
	RE 306	Controls & Theory	20	2.0
	RE 307	Heating & Cooling Equipment	30	3.0
	RE 308L	Laboratory Projects/Shop Work	47	2.0
	RE 309L	Sheet Metal Lab	14	0.5
	RE 310L	Application of Heating & A/C Lab	75	3.5
	RE 311L	Application of Controls Lab	<u>25</u>	<u>1.0</u>
		348	25.5	
Quarter 4	RE 400	Electrical Diagrams	20	2.0
	RE 401	Heating & Cooling Equipment	20	2.0
	RE 402	Theory of Combustion	20	2.0
	RE 403	Psychrometrics	20	2.0
	RE 404L	Application of Heating & A/C Lab	67	3.0
	RE 405	Residential Duct Design	28	2.5
	RE 406L	Application of Controls Lab	25	1.0
	RE 407	Residential Load Calculations	30	3.0
	RE 408	Air Distribution & Balance	20	2.0
RE 409	Oil Heat	20	1.0	

(cont. on next page)

			Clock Hours	Credit Hours
	RE 410L	Oil Heat Lab	10	0.5
	RE 411L	Laboratory Projects/Shop Work	<u>68</u>	<u>3.0</u>
			348	24.0
Quarter 5	RE 501	WAC & NEC for HVAC/R	25	2.5
	RE 502	Commercial Systems & Components	50	5.0
	RE 503	Troubleshooting Commercial Systems	25	2.5
	RE 504	Electrical Theory, Circuits, Controls & Wiring Schematics	62	6.0
	RE 505	Commercial Compressors	15	1.5
	RE 506	Refrigerant Retrofits	20	2.0
	RE 507	Evaporators, Condensers & Cooling Towers	10	1.0
	RE 508L	Laboratory Projects/Shop Work	<u>141</u>	<u>7.0</u>
			348	27.5
Quarter 6	RE 601	WAC & NEC for HVAC/R	25	2.5
	RE 602	Commercial Systems & Components	20	2.0
	RE 603	Electrical Theory-Circuits, Controls & Wiring Schematics	45	4.5
	RE 604	Heat Load & Piping Calculations for Commercial Equipment	40	4.0
	RE 605	Commercial Ice & Ice Cream Machines	35	3.5
	RE 606	Ultra-Low Temperature Systems	20	2.0
	RE 607	Troubleshooting Commercial Systems	32	3.0
	RE 608L	Laboratory Projects/Shop Work	<u>131</u>	<u>6.5</u>
			348	28.0
Quarter 7	RE 701	Energy Management Systems	55	5.5
	RE 702	Central Fan Systems	20	2.0
	RE 703	Pneumatic Systems	20	2.0
	RE 704	Industrial Chiller & Boiler Systems	65	6.5
	RE 705	Water Treatment for HVAC Systems	15	1.5
	RE 706	Hydronic Heating Systems	30	3.0
	RE 707	Residential/Commercial HVAC/R Systems Review I	45	4.5
	RE 708L	Laboratory Projects	<u>98</u>	<u>4.5</u>
			348	29.5
Quarter 8	RE 801	Industrial & Ammonia Plant Safety	30	3.0
	RE 802	Ammonia Refrigeration & Electrical Systems	40	4.0
	RE 803	Industrial Compressors	40	4.0
	RE 804	Industrial Maintenance	30	3.0
	RE 805	Industrial Electrical Systems	40	4.0
	RE 806	Residential/Commercial HVAC/R Systems Review II	38	3.5
	RE 808E	Externship	<u>130</u>	<u>4.0</u>
			348	25.5
	Program Totals		2784	214.5

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

### RE 101 Electrical & Tool Safety

Safety topics for both the classroom and shop environment. Specific tools, procedures and equipment.

### RE 102 First Aid

First aid and CPR training. First aid card given upon successful completion of class.

### RE 103 Applied Mathematics for Electricity & Electronics

Mathematics used for electrical theory, series/parallel/combination electrical circuits, algebraic formulas, exponents, electronic units of measure, Ohm's Law, Watt's Law/Power, areas and volume. Application for mathematics will continue to be covered during second quarter of instruction.

### RE 104 Electrical/HVAC/R Tools & Equipment

Safety practices and working concepts of electrical measuring instruments, hand tools, including tools and equipment such as Voltmeter, Ammeter, Ohmmeter, refrigerant recovery equipment, vacuum pumps, oxy-acetylene torches, thermistor vacuum gages and gage manifolds.

### RE 105 Refrigerant EPA Regulations

The rules and regulations concerning the handling of refrigerants. Upon successful completion, student will become universally certified under the 608 provisions of the Environmental Protection Agency.

### RE 106 The Refrigeration System, Electrical & Mechanical

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, along with fluid flow, state change, heat transfer both sensible and latent. Motor operation, function, troubleshooting, replacement and maintenance.

#### **RE 107 Equipment Retrofit of Oils & Refrigerants**

Retrofitting existing systems with an alternative refrigerant due to costs and/or environmental concerns. Alternative refrigerants characteristics including changes in pressures, temperatures, charging techniques, and compatible oils.

#### **RE 108 Electrical HVAC/R Computer Software**

Training on computers using software specifically tailored to the needs of the refrigeration technician. Software concentrates on the fundamentals required to be successful in the trade including electrical fundamentals; series, parallel and combination electrical circuits; operation of electrical components; operation of volt and ohmmeters; electrical troubleshooting by application and use of electrical diagrams and electrical meters; area and volume calculations; types of heat and heat transfer; gas laws; temperature scales (Fahrenheit, Celsius, Rankin and Kelvin); absolute and gage pressures; pressure enthalpy diagrams; and function and operation of compressor, evaporator, condenser and metering devices.

#### **RE 109 Electrical Fundamentals**

Electrical safety, atomic structure, electron flow theory, voltage current resistance relationships (Ohm's Law); heating, operating and safety controls; heat and magnetism produced by current flow; electrical, series and parallel circuits; resistive and inductive loads; conductors (hot, neutral and safety ground); and measuring instruments. 120-volt circuits.

#### **RE 110 Interpreting Schematic & Ladder Diagrams**

Tracing of electric circuits and the study of controls, their use and installation. Conversion of schematic to ladder diagrams. The development of electrical diagrams so as to meet required system operation. Sequence of operation of equipment by "reading" electrical diagrams. Troubleshooting by use of electrical diagrams.

#### **RE 111L Silver Brazing Lab**

Introduction to proper joining of copper to copper and copper to steel tubing by use of oxy-acetylene torches.

#### **RE 112L Laboratory Projects/Shop Work**

Practical application of classroom instruction on actual equipment. Application and use of electrical and HVAC/R tools and equipment. Introduction to servicing residential refrigerators and freezers. Lab time includes the following: electrical checks, wiring and operations of relays, capacitors, cold controls, defrost controls, heaters, thermostats, compressor and fan motors. Mechanical checks of the refrigeration system. Repair of customer equipment on campus.

#### **RE 200 The Refrigeration System, Electrical & Mechanical**

Expansion of material on the four main components of a mechanical compression refrigeration system includes motor operation, function, troubleshooting and wiring.

#### **RE 201 Interpreting Schematic & Ladder Wiring Diagrams**

Tracing of electric circuits and the study of controls, their use and installation. Conversion of schematic to ladder diagrams. The development of electrical diagrams so as to meet required

system operation. Sequence of operation of equipment by "reading" electrical diagrams. Troubleshooting by use of electrical diagrams.

#### **RE 202 Fundamentals of Electricity**

Expansion of material on electrical fundamentals including electrical safety, voltage current resistance relationships, Ohm's Law, heat and magnetism produced by current flow, electrical circuits, series and parallel circuits and 120-, 240- and 24-volt circuits.

#### **RE 203 Electric Heat Equipment Operating & Safety Controls**

Electrical/electrical mechanical/solid state and mechanical operating and safety controls. Introduction to operating and safety controls as related to domestic refrigeration systems and electric forced air furnaces. Theory, application and operation of these controls so as to allow students to apply this knowledge on various equipment types. 120-, 240- and 24-volt controls. Introduction to residential forced air electric furnaces and controls. Topics include maintenance, airflow calculations, temperature rise, and reading and developing wiring diagrams. Operation and troubleshooting of electric heat sequencers, transformers, thermostats, motors, capacitors, heating elements, safety devices, relays and contactors.

#### **RE 204L Laboratory Projects/Shop Work**

This section of the course is used for practical application of principles introduced in the classroom. Lab time includes an emphasis on electrical measurements for troubleshooting and hands-on wiring of equipment. Electrical checks, wiring and operations of relays, capacitors, single and multi-speed single phase fractional horsepower motors (shaded pole, PSC, CSR) heaters, low-voltage heat/cool thermostats, compressor and fan motors. Shop time is used for wiring, troubleshooting and maintaining controls as well as actual operation and troubleshooting of electric furnaces and their controls.

#### **RE 301 Industrial & Electrical Safety**

Review and reinforcement of shop safety procedures and techniques. Introduction to fall protection and ladder safety with emphasis on application of all safety-related concepts in the workplace or shop environments. Proper lockout/tagout of electrical equipment, as well as equipment safety grounding procedures. NEC compliance Articles 100 and 250.

#### **RE 302 Proper Use of Tools & Equipment**

Proper use and application of tools utilized in the HVAC trade. Examples of tools would include refrigerant recovery equipment, vacuum pumps, electronic scales and micron gauges. Proper use of digital multi-meters, ammeters and temperature analyzers is emphasized.

#### **RE 303 Proper Use & Handling of HCFC/HFC Refrigerants**

The safe handling of refrigerants. Proper HVAC system charging. Refrigerant recovery and applications of R-22, HFC refrigerants R-410A & R-422B.

#### **RE 304 Indoor Air Quality**

The fundamentals of air filtration, including all types of air filters associated with residential and light commercial HVAC systems, from disposable air filters to state-of-the-art electronic air cleaners. Humidification and types of humidifiers are

covered as well. State of the art green technology such as heat and energy recovery ventilators and economizers are introduced.

### **RE 305 Electric Motors & Diagrams**

Interpretation of both ladder and pictorial type wiring diagrams. ARI standard graphic electrical symbols are introduced and applied to electrical diagrams. All types of single-phase motors are discussed. Introduction to green technology ECM motors as well.

### **RE 306 Controls & Theory**

Introduction to specific controls and control strategies that relate to residential and light commercial HVAC/R systems. Types of controls included range from residential and commercial programmable setback thermostats to HVAC system protection controls and safeties. NEC compliance, Article 725 and Table 11A.

### **RE 307 Heating & Cooling Equipment**

Residential and light commercial HVAC equipment, both packaged and split systems. Heating systems covered include fossil fuel units, such as natural and LP gas units. High efficiency condensing and standard efficiency furnaces are covered. Oil-based heating systems, electric heating and heat pump systems. Introduction to geothermal heat pump systems.

### **RE 308L Laboratory Projects/Shop Work**

Typical lab projects will include tasks such as soldering, steel pipe threading, wiring and proper refrigerant charging of A/C units.

### **RE 309L Sheet Metal Lab**

Basic sheet metal fabrication concepts. Fabrication of several sheet metal projects using not only purchased sheet metal hand tools, but the heavier shop fabrication equipment associated with HVAC duct systems. Examples include hand-operated brakes, manual and electro-mechanical shears.

### **RE 310L Application of Heating & A/C Lab**

Application of concepts learned in the classroom to operational HVAC equipment. Hands-on orientation and application of mechanical and electrical concepts as they relate to residential and light commercial HVAC/R equipment.

### **RE 311L Application of Controls Lab**

Application of control strategies to wire and operate several types of HVAC equipment. Types of systems include heat pumps, oil, gas and electric forced air HVAC systems. Both packaged and split systems are addressed.

### **RE 400 Electrical Diagrams**

Interpretation of both ladder and pictorial type wiring diagrams relating to residential and light commercial HVAC systems. Additional ARI standard graphic electrical symbols are introduced and applied to electrical diagrams. NEC compliance using Article 300.

### **RE 401 Heating & Cooling Equipment**

Residential and light commercial HVAC equipment, both packaged and split systems. Heating systems covered include fossil fuel units such as natural, LP gas units, oil heating systems, electric heating and heat pump systems. Systems

covered range from standard efficiency to extremely energy efficient high efficiency units. Evaporative cooling principles and equipment are introduced.

### **RE 402 Theory of Combustion**

Combustion process relating to fossil fuel heating systems. Fuel types included are natural, LP gas and oil. Venting of combustion by-products by induced draft and gravity draft. Proper combustion vent sizing utilizing equipment manufacturer approved AGA/GAMA sizing tables.

### **RE 403 Psychrometrics**

Introduction to psychrometrics: defined as the study of air and its properties. The psychrometric chart is utilized for better understanding the process of conditioning air.

### **RE 404L Application of Heating & A/C Lab**

Application of concepts learned in the classroom to operational HVAC equipment. Hands-on orientation involving application of mechanical and electrical concepts as they relate to residential and light commercial HVAC equipment.

### **RE 405 Residential Duct Design**

Introduction to duct design process. Residential duct design utilizing sections of the Manual D (ACCA) duct design process as outlined in Refrigeration and Air Conditioning Technology, 6th edition, Whitman, Johnson, Tomczyk and Silberstein.

### **RE 406L Application of Controls Lab**

Application of control strategies learned in the classroom to wire and operate several types of HVAC equipment. Types of systems include heat pumps, oil, gas and electric forced air HVAC systems. Both packaged and split systems are addressed.

### **RE 407 Residential Load Calculations**

Residential load calculation referencing the Manual J load calculation method published by Air Conditioning Contractors of America (ACCA). Correct sizing of the heating and cooling equipment is covered. Green technology methods of construction, such as the Leadership in Energy and Environmental Design (LEED) green building rating system is covered.

### **RE 408 Air Distributions & Balance**

Basics of air distribution and balancing residential and light commercial HVAC air delivery systems. Introduction to several types of air system side components such as grills, registers and diffusers. Proper application of each type of air delivery component is introduced. Introduction to equipment typically used for air balancing.

### **RE 409 Oil Heat**

Application of knowledge learned in the classroom to the lab/shop environment. All laboratory/shop tasks are performed on functional oil furnaces. The scope of tasks involves electrical wiring, mechanical operation and combustion analysis of oil heating systems.

### **RE 410L Oil Heat Lab**

Oil heating systems focusing on high pressure, gun-type oil burners that utilize number two fuel oil. Ignition primary control systems include both stack and cadmium cell types. Other subjects covered include fuel pump pressure regulation, fuel

nozzle sizing, venting and combustion analysis. Combustion analysis is performed on oil furnaces using both chemical and digital analysis tools.

#### **RE 411 Laboratory Projects/Shop Work**

Completion of several lab projects including wiring, combustion analysis tasks performed on functional HVAC equipment. Combustion analysis is performed on natural gas furnaces using both chemical and digital analysis tools. Airflow calculation and ductwork leakage rates are tested using state of the art duct pressurizing equipment.

#### **RE 501 WAC & NEC for HVAC/R**

RCW 19.28, WAC 296-46A, WAC 296-401B and articles from the NEC will be covered.

#### **RE 502 Commercial Systems & Components**

The use of pressure controls relating to commercial equipment including low-pressure controls, high-pressure controls, oil pressure safety controls and fan cycling controls. Operating pressures and temperatures required for the different applications of commercial equipment. Different refrigerant controls used in commercial refrigeration including thermal expansion valves, automatic expansion valves, capillary tubes, electronic expansion valves to save energy, crankcase pressure regulators, evaporator pressure regulators, solenoid valves, oil pumps, head pressure control valves, and pressure differential valves. Floating head pressure control valves, liquid pressure amplifiers, mechanical sub cooling and ambient sub-cooling will be discussed as means to save energy on new and existing equipment. Proper installation methods focusing on refrigerant containment to preserve the environments will be covered. Proper setting and proper wiring methods as specified by NEC will be covered for a wide variety of control applications.

#### **RE 503 Troubleshooting Commercial Systems**

Mechanical and electrical problems that occur within commercial equipment. Recognizing symptoms, identifying the problem and formulating a solution. Manufacturers' performance charts will be used to show students the effects of running systems that are not properly maintained and the effects to system capacity, energy consumption, and equipment life span will be discussed. Proper usage of meters and instruments as well as safety procedures will be covered.

#### **RE 504 Electrical Theory, Circuits, Controls & Wiring Schematics**

Operations of electrical controls as applied to commercial refrigeration including relays, contactors, motor starters, fan delays, temperature-actuated controls and a variety of switching devices. Defrost controls that incorporate the use of fan delays and temperature terminators as a means to save energy will be covered as well as conventional defrost controls. Single-phase 120/240-volt, three-phase 240/480-volt as well as Delta High Leg will be covered. Wiring and operating characteristics of a wide variety of motors including the newer higher efficiency motors will be covered. Manufacturers' electrical schematics and control strategies as applied to commercial systems. Wiring and control strategies. Installation, setting and proper wiring methods as specified by NEC will be covered for a wide variety of control/motor applications.

#### **RE 505 Commercial Compressors**

Replacement of compressors and related electrical starting

components. Testing of motor windings and related electrical starting components. Interpretation of manufacturers' electrical performance charts under all conditions. Operations and evaluation of commercial compressors for all applications. Introduction to newer and more efficient compressors for the commercial refrigeration section will be covered including Discus Scroll and Screw compressor technology. Efficiency tests of compressors in and out of systems. Installation and proper wiring methods as specified by NEC will be covered for a wide variety of compressor applications.

#### **RE 506 Refrigerant Retrofits**

Replacement refrigerants used in place of the CFC and HCFC refrigerant now banned by EPA. Proper techniques for oil changes and charging procedures for the alternative refrigerants will be covered. The use of HFC refrigerants and the importance of retrofitting to the more environmentally friendly refrigerants will be covered as well as proper containment and recovery. Also, students will be made aware of the statistics of refrigerant leaks to the environment and procedures to help eliminate sources of leaks. The effect of retrofits affecting motor amp draw as well as possible fan installation and electrical control adjustments to prevent motor overheating and motor overload.

#### **RE 507 Evaporators, Condensers & Cooling Towers**

Components that transfer heat within the refrigeration system including evaluating, servicing, maintaining, repairing and replacement of the various components. Emphasis will be put on the efficiency of water units compared to that of air units as well as the effect of, lack of maintenance on system performance and energy consumption. Installation, setting and proper wiring methods as specified by NEC will be covered for a wide variety of motor applications.

#### **RE 508L Laboratory Projects/Shop Work**

Hands-on evaluation and repair of a wide variety of live refrigeration equipment. Drawing of electrical diagrams and the wiring of systems to match their electrical diagram. Recognizing a symptom, identifying the problem and formulating a solution. Ability to set, adjust and evaluate a wide variety of refrigerant and electrical controls under different conditions. Installation, setting and proper wiring methods as specified by NEC will be covered for a wide variety of control applications.

#### **RE 601 WAC & NEC for HVAC/R**

RCW 19.28, WAC 296-46A, WAC 296-401B, and articles from the NEC will be covered.

#### **RE 602 Commercial Systems & Components**

The use of pressure controls relating to commercial equipment including low-pressure controls, high-pressure controls, oil pressure safety controls and fan cycling controls. Operating pressures and temperatures required for the different applications of commercial equipment. Different refrigerant controls used in commercial refrigeration including thermal expansion valves, automatic expansion valves, capillary tubes, electronic expansion valves to save energy, crankcase pressure regulators, evaporator pressure regulators, solenoid valves, oil pumps, head pressure control valves, and pressure differential valves. Floating head pressure control valves, liquid pressure amplifiers, mechanical sub cooling and ambient sub-cooling will be discussed as means to save energy on new and existing equipment. Proper installation methods focusing on refrigerant containment to preserve the environments will be

covered. Proper setting and proper wiring methods as specified by NEC will be covered for a wide variety of control applications.

### **RE 603 Electrical Theory-Circuits, Controls & Wiring Schematics**

Operations of electrical controls as applied to commercial refrigeration including relays, contactors, motor starters, fan delays, temperature-actuated controls and a variety of switching devices. Defrost controls that incorporate the use of fan delays and temperature terminators as a means to save energy will be covered as well as conventional defrost controls. Single-phase 120/240-volt, three-phase 240/480-volt as well as Delta High Leg will be covered. Wiring and operating characteristics of a wide variety of motors including the newer higher efficiency motors will be covered. Manufacturers' electrical schematics and control strategies as applied to commercial systems. Wiring and control strategies. Installation, setting and proper wiring methods as specified by NEC will be covered for a wide variety of control/motor applications.

### **RE 604 Heat Load & Piping Calculations for Commercial Equipment**

Calculation of the heat gain due to infiltration and product load for medium and low temperature applications. Proper piping and installation of commercial equipment using sizing charts and piping schematics to learn the various piping techniques involved with commercial systems for medium and low temperature applications. Proper sizing of equipment based on BTUH requirements as well as voltages, amp draw and phase of electricity available. Installation, setting and proper wiring methods as specified by NEC will be covered for a wide variety of installation applications.

### **RE 605 Commercial Ice & Ice Cream Machines**

Examination of a wide variety of ice and ice cream machines. Water-related problems as well as operational, mechanical and electrical problems involving ice and ice cream machines. Installation of well as service will be covered. Emphasis is put on the reading and interpretation of the manufacturers' wiring schematics. Installation, setting and proper wiring methods as specified by NEC will be covered for a wide variety of ice and ice cream machine applications.

### **RE 606 Ultra-Low Temperature Systems**

Ultra-low temperature systems including training on cascade and compound systems. Pressures and temperatures as well as wiring methods and wiring schematics for ultra-low temperature equipment will be covered. Installation, setting and proper wiring methods as specified by NEC will be covered for a variety of low temperature applications.

### **RE 607 Troubleshooting Commercial Systems**

Mechanical and electrical problems that occur with commercial equipment. Recognizing symptoms, identifying the problem and formulating a solution. Proper usage of meters and instruments as well as safety procedures will be covered.

### **RE 608L Laboratory Projects/Shop Work**

Hands-on evaluation and repair of a wide variety of live refrigeration equipment, including ice machines, ice cream machines and ultra-low temperature units. Basic arc and acetylene welding will be covered. Drawing of electrical diagrams and the wiring of systems to match their electrical

diagram. Recognizing a symptom, identifying the problem and formulating a solution. Ability to set, adjust and evaluate a wide variety of refrigerant and electrical controls under different conditions. Installation, setting and proper wiring methods as specified by NEC will be covered for a wide variety of control applications

### **RE 701 Energy Management Systems**

Control terminology and fundamentals of computer control as applied to HVAC/R and building maintenance. This type of control systems provides energy savings throughout the entire building. Types of control systems, network wiring, types of inputs and outputs and system configurations. NEC compliance using Chapters 2, 3 and 9. Lab work will include: Wiring direct digital control simulators (including communication cables), component wiring of input boards, output boards, modems, sensors and controlled devices.

### **RE 702 Central Fan Systems**

Types of fan systems used in large industrial facilities: including proportional motor control operation of dampers, economizers that allow for free cooling from the use of outside air, heating valves, chilled water valves, preheat coils, desiccant wheels, and reheat wheels and the humidification requirements which can make a more comfortable and efficient building. Electrical control of these systems will be covered in detail. This includes the NEC compliance, using Chapters 2, 3 and 9.

### **RE 703 Pneumatic Systems**

Fundamentals of pneumatic systems: including air supply, sensors, actuators, transmitters and receiver controllers. Operation and maintenance of these components will be discussed for use in HVAC systems. Electrical wiring of end control devices, air compressors and refrigerated air dryers will be taught. This includes the NEC compliance, using Chapter 2, 3 and 9.

### **RE 704 Industrial Chiller & Boiler Systems**

Industrial air conditioning systems using chilled water. Compressor types, evaporator chiller barrels, water-cooled condensers, air-purgers, absorption systems and low-pressure refrigerant. Electrical safety, diagnostics and troubleshooting; oil temperature and pressure safety controls, capacity control wiring, high-pressure refrigerant and water flow controls. Operation and maintenance of large industrial boilers including high and low pressure design, water tube and fire tube models, vertical and horizontal types. The types of fuel systems used. Blow down heat recovery. Steam trap maintenance. Boiler safety controls including low-water cutoff, high-water cutoff, water-makeup and ignition systems. This includes the NEC compliance, using Chapters 2, 3 and 9.

### **RE 705 Water Treatment for HVAC Systems**

Fluid coolers, cooling towers and boilers require technicians to maintain the water quality for proper heat exchange. Metal corrosion and higher energy costs are the results of neglect of these components. Students will learn why chemical treatment is necessary, the types of chemicals used, conductivity testing, PH balance and chemical feed systems.

### **RE 706 Hydronic Heating Systems**

Systems that heat with hot water or steam including boiler types, system piping, water pumps, expansion tanks and

ignition control systems. Boiler control wiring including high-limit safety controls, aquastats and pressure relief valves will be covered. Geothermal heat pumps, open and closed loop piping systems, electrical controls, troubleshooting and related campus equipment will be covered. This includes the NEC compliance, using Chapters 2, 3 and 9.

### **RE 707 Residential/Commercial HVAC/R Systems**

#### **Review I**

Review of residential/commercial HVAC/R systems will be conducted throughout the seventh quarter. Students will be preparing for employment in companies repairing various types of HVAC/R equipment. This overview of material will reinforce information taught in previous sections of the program. The troubleshooting, wiring and repair of these systems will be discussed. This includes the NEC compliance, using Chapters 2, 3 and 9.

#### **RE 708L Laboratory Projects**

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

### **RE 801 Industrial & Ammonia Plant Safety**

Safety precautions when using anhydrous ammonia for refrigeration. Safe handling and response to ammonia spills including industrial plant safety. Working with heavy equipment and high voltage equipment in an industrial facility. Safety working around three-phase 480-volt equipment. Process Safety Management (PSM), industrial plant safety plans and evacuation plans for facilities that contain 10,000 pounds or more of ammonia including code compliance, operator training, emergency response procedures and risk reduction. This includes the NEC compliance, using Chapters 2, 3 and 9.

### **RE 802 Ammonia Refrigeration & Electrical Systems**

Components used in ammonia systems including direct expansion systems, brine systems, flooded systems, accumulators, evaporative condensers, hot gas defrost, water defrost, and associated controls. Evaporators and components used with flooded systems including gravity flooded, liquid re-circulation systems, surge tanks, low pressure receivers, float switches, metering devices and oil draining procedures. Cold storage and controlled atmosphere storage facilities including the refrigeration systems, room temperatures, long-term storage requirements, oxygen and carbon dioxide control, humidity control and nitrogen purging. This includes the NEC compliance, using Chapters 2, 3 and 9.

### **RE 803 Industrial Compressors**

Types of compressors found in industrial HVAC/R systems: including operation and maintenance of reciprocating, centrifugal and screw compressors. Three-phase 240/480-volt systems including; Wye/Delta, part winding start and autotransformers will be covered. Disassembly and repair of industrial compressors including taking measurements using inside and outside micrometers, and calipers to determine the condition of internal parts. Cylinders, crankshafts, pistons and rods along with inspection of suction and discharge valves. This includes the NEC compliance, using Chapters 2, 3 and 9.

### **RE 804 Industrial Maintenance**

Maintenance requirements for industrial facilities including

preventive maintenance for compressors, drive motors, water treatment and refrigeration equipment. Maintenance of evaporative condensers, defrost systems and OSHA compliance. Recognition of electrical safety hazards in and around the mechanical equipment room. This includes the NEC compliance, using Chapters 2, 3 and 9.

### **RE 805 Industrial Electrical Systems**

The examination and interpretation of complex electrical circuits will be taught. Conversion of schematic to ladder diagrams and the sequence of operation of the assigned equipment. Three-phase 240/480-volt systems wiring used in the operation and safety controls associated with industrial HVAC/R systems including part winding start, Y-Delta start, across the line start, compressor-starting systems. Frequency drives, Oil temperature and pressure safety controls. Capacity control wiring, refrigerant pressure and water flow controls. This includes the NEC compliance, using Chapters 2, 3 and 9.

### **RE 806 Residential/Commercial HVAC/R Systems Review II**

Review of residential/commercial HVAC/R systems will be conducted throughout the seventh quarter. Students will be preparing for employment in companies repairing various types of HVAC/R equipment. This overview of material will reinforce information taught in previous sections of the program. The troubleshooting, wiring and repair of these systems will be discussed. This includes the NEC compliance, using Chapters 2, 3 and 9.

### **RE 808E Externship**

In lieu of on-campus training, during the last 20 school days, students are allowed the opportunity to take full-time employment with their future employer. Completion of externship packet is required.

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

The book and tool list for students in the Heating, Ventilation, Air Conditioning & Refrigeration Program is intended to be a minimum requirement to complete the program. Tool and book costs are approximately \$2,300. The book and tool list will be provided no later than the first day of class. The estimated price does not include mark-up for program students or sales tax.

### **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 can 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 are credited with 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 201 credit hours which are 2,688 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	ITC 101	Applied Mathematics for Electronics I	110	11.0
	ITC 102	Electronics: DC/AC Fundamentals	130	13.0
	ITC 104L	Laboratory Instruction	<u>96</u>	<u>4.5</u>
			336	28.5
Quarter 2	ITC 201	Applied Mathematics for Electronics II	110	11.0
	ITC 202	Personal Computers A+	130	13.0
	ITC 204L	PC A+ Laboratory Instruction	<u>96</u>	<u>4.5</u>
			336	28.5
Quarter 3	ITC 301	Communications & Wireless Electronics I	130	13.0
	ITC 302	Digital Electronics I	60	6.0
	ITC 304L	Laboratory Instruction	<u>146</u>	<u>7.0</u>
			336	26.0
Quarter 4	ITC 401	Communications & Wireless Electronics II	120	12.0
	ITC 402	Digital Electronics II	80	8.0
	ITC 404L	Laboratory Instruction	<u>136</u>	<u>6.5</u>
			336	26.5
Quarter 5	ITC 501	Cisco Networking I	60	6.0
	ITC 501L	Cisco Laboratory Instruction I	106	5.0
	ITC 502	Cisco Networking II	50	5.0
	ITC 502L	Cisco Laboratory Instruction II	<u>120</u>	<u>6.0</u>
			336	22.0
Quarter 6	ITC 601	Cisco Networking II (continued)	30	3.0
	ITC 601L	Cisco Laboratory Instruction II (continued)	60	3.0
	ITC 602	Cisco Networking III	80	8.0
	ITC 602L	Cisco Laboratory Instruction III	<u>166</u>	<u>8.0</u>
			336	22.0
Quarter 7	ITC 701	Basic Telephony & Cabling Standards	80	8.0
	ITC 702	Voice Communication Systems I	116	11.5
	ITC 703	Employment Search: Resumes & Interview Skills	20	2.0
	ITC 705L	Laboratory Instruction	<u>120</u>	<u>6.0</u>
			336	27.5
Quarter 8	ITC 802	Voice Communications	110	11.0
	ITC 805L	Laboratory Instruction	106	5.0
	ITC 806	Externship	<u>120</u>	<u>4.0</u>
			336	20.0
		Program Totals	2688	201

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

### **ITC 101 Applied Mathematics for Electronics I**

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

### **ITC 102 Electronics: Direct Current Fundamentals, Advanced DC, AC**

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.

### **ITC 104L Laboratory Instruction**

Application of the technical knowledge acquired in the classroom to practical electronic circuits. 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 201 Applied Mathematics for Electronics II**

A continuation of Quarter 1 Mathematics for Electronics. Emphasis is placed on the math necessary to understand AC circuits and decibel power calculations.

### **ITC 202 Personal Computers A+**

Theory, operation, assembly and maintenance of personal computer hardware and peripheral devices, in a hands-on environment. Operation of PC operating systems, including; software installation, management, utilities and troubleshooting. Introduction to local and wide area computer networks. Network protocols, topologies, and services are covered to enable the student to understand basic networking models. Preparation for the CompTIA A+ Certification.

### **ITC 204L Laboratory Instruction**

Software and hardware installation is accomplished which allow the student to install, maintain and troubleshoot computer systems. Server and workstation configuration and connection to the network is accomplished as well to help grasp the networking model.

### **ITC 301 Communications & Wireless Electronics I**

Advanced DC and AC electronics, transistors, and integrated circuit operational amplifiers utilized as voltage amplifiers, active filters and oscillators. Radio frequency theory, noise, bandwidth, AM, FM and digital modulators.

### **ITC 302 Digital Electronics I**

Boolean algebra and binary arithmetic provide the basis for the understanding of complex digital logic circuits. Logic gates and combinational logic.

### **ITC 304L Laboratory Instruction**

Application of the technical knowledge acquired in the classroom to practical power supplies, transistor amplifiers and switches, and operational amplifier circuits. The concepts of teamwork, analytical problem solving and troubleshooting are reinforced.

### **ITC 401 Communications & Wireless Electronics II**

A continuation of Communications & Wireless Electronics RF transmission, propagation, waveguides, transmission lines and antenna systems are covered. RF system installation, maintenance and troubleshooting are presented to prepare the student for entry into the cellular telephone, microwave communications, wireless networking and associated fields. The students prepare and test for the FCC GROL certification.

### **ITC 402 Digital Electronics II**

A continuation of Digital Electronics. Analysis, design and operation of digital circuits.

### **ITC 404L Laboratory Instruction**

Application of the technical knowledge acquired in the classroom to digital circuits, and practical AM and FM radio circuits. Spectrum analyzers and power/SWR measurements on radio transmitter and antenna systems. Radio receiver alignment, testing and troubleshooting.

### **ITC 501 Cisco Networking I**

(Networking for Home and Small Businesses v4.0) This Cisco Networking Academy course teaches students the skills needed to obtain entry-level home network installer jobs. It also helps students develop some of the skills needed to become network technicians, computer technicians, cable installers, and help desk technicians. It provides a hands-on introduction to networking and the Internet using tools and hardware commonly found in home and small business environments.

### **ITC 501L Cisco Laboratory Instruction I**

Application of the technical knowledge acquired in ITC 501 Cisco Networking I.

### **ITC 502 Cisco Networking II**

(Working at a Small-to-Medium Business or ISP v4.1) This Cisco Networking Academy course prepares students for jobs as network technicians and helps them develop additional skills required for computer technicians and help desk technicians. It provides a basic overview of routing and remote access, addressing, and security. It also familiarizes students with servers that provide e-mail services, Web space, and authenticated access. Students learn about the soft skills required for help desk and customer service positions. Helps them prepare for the CCENT certification exam. Network monitoring and basic troubleshooting skills are taught in context.

### **ITC 502L Cisco Laboratory Instruction II**

Application of the technical knowledge acquired in ITC 502 Cisco Networking II.

### **ITC 601 Cisco Networking II (continued)**

### **ITC 601L Cisco Laboratory Instruction II (continued)**

### **ITC 602 Cisco Networking III**

(Introducing Routing and Switching in the Enterprise v4.0) This Cisco Networking Academy course familiarizes students with the equipment applications and protocols installed in enterprise networks, with a focus on switched networks, IP telephony requirements, and security. It also introduces advanced routing protocols such as Enhanced Interior Gateway Routing Protocol (EIGRP) and Open Shortest Path First (OSPF) Protocol. Hands-on exercises, including configuration, installation, and troubleshooting, reinforce student learning.

### **ITC 602L Cisco Laboratory Instruction III**

Application of the technical knowledge acquired in ITC 601 Cisco Networking III.

### **ITC 701 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 section 3 or 4)

### **ITC 702 Voice Communication 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 is accomplished. 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.

### **ITC 703 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 705L Laboratory Instruction**

Application of the technical knowledge acquired in the classroom to industry standard telephone systems and related equipment. Hands-on experience with industry standard tools and practices is accomplished in the installation of copper and fiber optic cable systems for voice and data networks. Numerous system installation labs and projects enable the student to apply knowledge gained in the classroom to actual field installations. Proper installation practices are covered in accordance with the National Electrical Code and industry standards.

### **ITC 802 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.

### **ITC 805L Laboratory Instruction**

Application of the technical knowledge acquired in the classroom to industry standard telephone systems and related equipment. Hands-on experience with industry standard tools and practices is accomplished in the installation of copper and fiber optic cable systems for voice and data networks. Numerous system installation labs and projects enable the student to apply knowledge gained in the classroom to actual telephone equipment and data network cable installations.

### **ITC 806 Externship**

The student has 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 the following material will be covered in the on-campus learning environment: Limited Energy Systems: Alarms & 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 distribution systems and intercom systems are covered.

### **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. Tool and book costs are approximately \$3,900. The book and tool list will be provided no later than the first day of class. The estimated price does not include mark-up for program students or sales tax.

### **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
- T1 CSU/DSU
- Digital multi-meters
- Oscilloscopes, signal generators and power supplies
- Spectrum analyzers/ cell site test sets
- AM/FM signal generators/modulators
- Antenna system testers
- In-line watt meters
- Telephone key system and PBX
- 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 (six trimesters). The student will earn 132.0 credit hours which are 2,688 clock hours. Tuition is payable on a trimester basis. There are three trimesters in an academic year.

### PROGRAM OUTLINE

			Clock Hours	Credit Hours
Trimester 1	IN 101	Math for Electronics	137	9.0
	IN 102	Electrical Fundamentals	112	7.5
	IN 103	Solid State Devices	32	2.0
	IN 104L	Lab & Shop Projects	<u>167</u>	<u>5.5</u>
			448	24.0
Trimester 2	IN 201	Electrical Fundamentals	90	6.0
	IN 202	Solid State Devices	40	2.5
	IN 203	Operational Amplifiers	84	5.5
	IN 204	Physics I	46	3.0
	IN 205L	Lab & Shop Projects	<u>188</u>	<u>6.0</u>
			448	23.0
Trimester 3	IN 301	Instrument Maintenance & Calibration	64	4.0
	IN 302	Physics II	114	7.5
	IN 303	Calculus I	57	3.5
	IN 304L	Lab & Shop Projects	<u>213</u>	<u>7.0</u>
			448	22.0
Trimester 4	IN 401	Instrumentation & Process Control	90	6.0
	IN 402	Motor Control	25	1.5
	IN 403	Calculus II	58	3.5
	IN 404L	Lab & Shop Projects	<u>275</u>	<u>9.0</u>
			448	20.0
Trimester 5	IN 501	Instrumentation & Process Control	30	2.0
	IN 502	Digital Fundamentals	87	5.5
	IN 503	Programmable Logic Controllers	90	6.0
	IN 504	Networking Fundamentals	35	2.0
	IN 505L	Lab & Shop Projects	<u>206</u>	<u>6.5</u>
			448	22.0
Trimester 6	IN 601	Analytical Instrumentation	64	4.0
	IN 601L	Lab & Shop Projects	68	2.0
	IN 602	Industrial Computing	124	8.0
	IN 603	Employment Preparation	72	4.5
	IN 604E	Externship	<u>120</u>	<u>2.5</u>
			448	21.0
	Program Totals		2688	132.0

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

### **IN 101 Math for Electronics**

Numbers, addition, subtraction, multiplication and division of polynomials, equations, powers of ten, units and dimensions, special products and factoring, algebraic fractions, fractional equations, graphs, simultaneous equations, exponents and radicals, quadratic equations, angles, trigonometric functions, trigonometric tables, solution of right triangles, and trigonometric identities and equations.

### **IN 102 Electrical Fundamentals**

Electric circuits, starting with the nature of electricity, Ohm's Law and electrical calculations, conductors, insulators, resistors, series resistive circuits, parallel resistive circuits, series-parallel resistive circuits, voltage cells, batteries and capacitance.

### **IN 103 Solid State Devices**

Basic definitions, semiconductor diodes, rectifier diode circuits, basic DC power supply and transformer usage.

### **IN 104L 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; and use of networks by locating computers, printers and files that are networked. MS Word will be incorporated into technical report writing skills, use of word processing for lab assignments, applying classroom theory to practical lab assignments. Safety is stressed at all times.

### **IN 201 Electrical Fundamentals**

Network analysis techniques, network theorems, magnetism, magnetic circuits, inductance, capacitance, series and parallel AC circuits, and power in AC circuits.

### **IN 202 Solid State Devices**

Semiconductor diodes, 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 203 Operational Amplifiers**

Introduction to OP amps, first experiences with an OP amp, inverting and non-inverting amplifiers, comparators and controls, differential, instrumentation and bridge amplifiers and integrated circuit timers.

### **IN 204 Physics I**

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

### **IN 205L Lab & Shop Projects**

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

### **IN 301 Instrument Maintenance & Calibration**

Loop concepts, calibration methods, analog transmitters, transducers, controllers, process variables and ISA books are included.

### **IN 302 Physics II**

Uniformly accelerated motion is covered in this section of physics. Projectile motion; 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 303 Calculus I**

Analytic geometry, equations of curves and curve sketching, functions, derivatives, formulas for calculating derivatives.

### **IN 304L Lab & Shop Projects**

Applying classroom theory to practical lab assignments and simulators. Safety is stressed at all times.

### **IN 401 Instrumentation & Process Control**

Process and instrumentation diagramming, loop sheets, electrical diagramming, valves, proportional, integral and derivative controls, tuning controllers, fluid power systems and smart devices.

### **IN 402 Motor Control**

Lockout/tagout, electric symbols, ladder diagramming, contactors, single-phase, three-phase and DC motors, variable speed devices.

### **IN 403 Calculus II**

Applications of derivatives, anti-differentiation, trigonometric functions and definite integral calculus.

### **IN 404L Lab & Shop Projects**

Applying classroom theory to practical lab assignments and simulators. Safety is stressed at all times.

### **IN 501 Instrumentation & Process Control**

Advanced control concepts, flame safety and boiler operation.

### **IN 502 Digital Fundamentals**

Introductory digital concepts, number systems, operations and codes, logic gates, Boolean algebra and logic simplification, combinational logic, functions of combinational logic and related devices.

### **IN 503 Programmable Logic Controllers**

Overview of PLCs, PLC hardware components, fundamentals of logic, basics of PLC programming, developing PLC ladder and wiring diagrams and basic PLC functions.

### **IN 504 Networking Fundamentals**

Introduction to networks, network components and real-world networks.

### **IN 505L Lab & Shop Projects**

Applying classroom theory to practical lab assignments and simulators. Safety is stressed at all times.

### **IN 601 Analytical Instrumentation**

Applications and implementation of process analyzer systems. Chemistry as it pertains to process analyzers. Theory and operation of electrochemical and compositional process analyzers.

### **IN 601L Lab & Shop Projects**

Applying classroom theory to practical lab assignments and simulators. Safety is stressed at all times.

### **IN 602 Industrial Computing**

Configurations of distributive process control, hardware implementations and plant loop communications all utilizing control simulators. 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.

### **IN 603 Employment Preparation**

Personal resume development to be used in job search. Development of a list of potential employers for setting interview schedules. Interviewing techniques and feedback from practice interviews.

### **IN 604E 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. Students not receiving an externship opportunity 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 Program is intended to be a minimum requirement to complete the program. Tool and book costs are approximately \$3,500. The book and tool list will be provided no later than the first day of class. The estimated price does not include mark-up for program students or sales tax.

### **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 transmitters
- Control valves
- Recorders
- Variable frequency drives
- Motor control stations
- Pumps
- PLC labs
- HMI labs
- Hydraulic labs
- Smart communication devices
- Distributed control system



## ❖ legal assistant/paralegal

Perry Technical Institute's Legal Assistant/Paralegal Program provides a combination of training in traditional office skills, soft skills and specialized legal skills.

Students gain a solid understanding of computers including entry-level keyboarding operations, basic computer maintenance and desktop publishing. Students learn the soft skills needed in 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 develop a solid understanding of civil law, criminal law, legal terminology, legal research, writing techniques and legal documents as they prepare for externships and employment opportunities.

The program prepares students to take the Microsoft Office Specialist (MOS) certification examination in Microsoft Word, Excel, Access and PowerPoint. Students will also prepare to take the Accredited Legal Secretary (ALS) and the Certified Legal Assistant (CLA) examinations.

The Legal Assistant/Paralegal Program is the launching pad towards entry-level legal office jobs in businesses such as private legal firms and government offices. Paralegals are trained to assist attorneys with legal tasks such as preparing case material and data prior to litigation while understanding and properly using legal terminology.

The Legal Assistant/Paralegal Program is 12 months in length (four quarters). The student will earn 90 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	BTA 101	Computer Applications	30	3.0
	BTA 101L	Computer Applications Lab	30	1.5
	BTA 105	Business English I	30	3.0
	BTA 105L	Business English I Lab	30	1.5
	BTA 110	Keyboarding I	12	1.0
	BTA 110L	Keyboarding I Lab	18	.5
	BTA 115	Word Processing	30	3.0
	BTA 115L	Word Processing Lab	30	1.5
	BTA 120	Spreadsheets	30	3.0
	BTA 120L	Spreadsheets Lab	30	1.5
	BTA 130	Business Math	30	3.0
	BTA 130L	Business Math Lab	<u>36</u>	<u>1.5</u>
			336	24.0
Quarter 2	BTA 201	Business English II	30	3.0
	BTA 201L	Business English II Lab	30	1.5
	BTA 205	Database & Integration	44	4.0
	BTA 205L	Database & Integration Lab	44	2.0
	BTA 210	Keyboarding II	12	1.0
	BTA 210L	Keyboarding II Lab	18	.5
	BTA 215	Business Presentation	40	4.0
	BTA 215L	Business Presentation Lab	46	2.0
	BTA 220	Career Planning I	18	1.5
	BTA 220L	Career Planning I Lab	12	.5
	BTA 230	Business Etiquette	18	1.5
	BTA 230L	Business Etiquette Lab	<u>24</u>	<u>1.0</u>
		336	22.5	
Quarter 3	LAP 301	Paralegal Fundamentals I	30	3.0
	LAP 301L	Paralegal Fundamentals I Lab	30	1.5
	LAP 305	Paralegal Ethics	30	3.0
	LAP 305L	Paralegal Ethics Lab	30	1.5
	LAP 310	Civil Litigation	36	3.5
	LAP 310L	Civil Litigation Lab	40	2.0
	LAP 315	Legal Terminology & Transcription	15	1.5
	LAP 315L	Legal Terminology & Transcription Lab	20	1.0
	LAP 320	Customer Service	24	2.0
	LAP 320L	Customer Service Lab	27	1.0
	LAP 325	Legal Research & Writing	24	2.0
	LAP 325L	Legal Research & Writing Lab	<u>30</u>	<u>1.5</u>
			336	23.5

(cont. on next page)

Quarter 4			Clock Hours	Credit Hours
	LAP 401	Medical Terminology	20	2.0
	LAP 401L	Medical Terminology Lab	20	1.0
	LAP 405	Employment Preparation	20	2.0
	LAP 405L	Employment Preparation Lab	15	.5
	LAP 410	Criminal Law	35	3.5
	LAP 410L	Criminal Law Lab	30	1.5
	LAP 415	Paralegal Fundamentals II	36	3.5
	LAP 415L	Paralegal Fundamentals II Lab	40	2.0
	LAP 430E	Externship	<u>120</u>	<u>4.0</u>
			336	20.0
	Program Totals		1344	90.0

## LEGAL ASSISTANT/PARALEGAL COURSE DESCRIPTIONS

### BTA 101 Computer Applications

This course covers the basics of computer hardware, software, networks and the internet. The objective is to prepare students to take the MOS certification exam. Students learn Microsoft Publisher to create posters, newsletters, flyers and more, covering topics such as page layout, command frames, table frames, WordArt, background pages and much more.

### BTA 101L Computer Applications Lab

Directed lab with structured learning.

### BTA 105 Business English I

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

### BTA 105L Business English I Lab

Directed lab with structured learning.

### BTA 110 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.

### BTA 110L Keyboarding I Lab

Directed lab with structured learning.

### BTA 115 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 115L Word Processing Lab

Directed lab with structured learning.

### BTA 120 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 120L Spreadsheets Lab

Directed lab with structured learning.

### BTA 130 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 130L Business Math Lab

Directed lab with structured learning.

### BTA 201 Business English II

This course emphasizes basic punctuation, grammar rules, and 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. Students will practice 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 201L Business English II Lab

Directed lab with structured learning.

### BTA 205 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 gain exposure to Microsoft Outlook and receive hands-on integration of the entire Microsoft Office Suite.

### BTA 205L Database & Integration Lab

Directed lab with structured learning.

### BTA 210 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.

### BTA 210L Keyboarding II Lab

Directed lab with structured learning.

### BTA 215 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.

**BTA 215L Business Presentation Lab**

Directed lab with structured learning.

**BTA 220 Career Planning I**

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

**BTA 220L Career Planning I Lab**

Directed lab with structured learning.

**BTA 230 Business Etiquette**

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

**BTA 230L Business Etiquette Lab**

Directed lab with structured learning.

**LAP 301 Paralegal Fundamentals I**

This course provides a thorough introduction to not only the legal system in general, but to specific areas of the law and the paralegal's integral role as a member of the legal team. The student will gain a comprehensive understanding of the laws in our society, the importance of ethical and professional responsibilities, and the skills needed to thrive in this environment.

**LAP 301L Paralegal Fundamentals I Lab**

Directed lab with structured learning.

**LAP 305 Paralegal Ethics**

This course provides a study of legal ethics from the perspective of the paralegal to prepare students for the ethical dilemmas they will face on the job. The ABA Model Rule that applies to attorneys is introduced and students will learn to act in accordance with rules for the ethical conduct of attorneys. Students will also study the Washington Rules of Professional Conduct. Hypotheticals and cases on each topic will be provided for further real-world application.

**LAP 305L Paralegal Ethics Lab**

Directed lab with structured learning.

**LAP 310 Civil Litigation**

Students will learn the litigation process in detail in a variety of contexts, providing relevance of litigation to other legal specialties, such as personal injury, real estate, employment, and intellectual property law. Students will also be exposed to a variety of sample legal documents, such as complaints, interrogatories and deposition summaries, as well as case studies.

**LAP 310L Civil Litigation Lab**

Directed lab with structured learning.

**LAP 315 Legal Terminology & Transcription**

Students will master all the skills necessary to produce a transcript that accurately reflects court proceedings, depositions, legal stipulations, hearings, and intra/interoffice meetings.

**LAP 315L Legal Terminology & Transcription Lab**

Directed lab with structured learning.

**LAP 320 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.

**LAP 320L Customer Service Lab**

Directed lab with structured learning.

**LAP 325 Legal Research & Writing**

Students will take a hands-on approach to researching, documenting, and citing during the legal research and writing process. Students will receive an introduction to research, analytical principles, and the legal process. They will then take an in-depth exploration of the legal writing process.

**LAP 325L Legal Research & Writing Lab**

Directed lab with structured learning.

**LAP 401 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.

**LAP 401L Medical Terminology Lab**

Directed lab with structured learning.

**LAP 405 Employment Preparation**

This course develops the personal and professional skills needed to be successful in business. Topics include confidence building, seeking to understand, beginning with clarity, knowing your personality profile, coping with difficult people, and balancing professional and personal priorities individually and in a team environment.

**LAP 405L Employment Preparation Lab**

Directed lab with structured learning.

**LAP 410 Criminal Law**

This course covers the essentials of both substantive criminal law and criminal procedure. Students will learn about criminal responsibility and the procedural aspects of the entire criminal justice system from arrest to appeal and habeas corpus.

**LAP 410L Criminal Law Lab**

Directed lab with structured learning.

**LAP 415 Paralegal Fundamentals II**

This course will provide a continuation of the paralegal's role in the legal organization. Students will also focus on three sections of document preparation that include goals, forms, instruments, pleadings, American jurisprudence, contracts, real estate transactions, wills, trusts, bankruptcy, criminal practices, federal practices, and domestic relations. In this course students will also undertake a business office filing simulation.

**LAP 415L Paralegal Fundamentals II Lab**

Directed lab with structured learning.

### **LAP 430E 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.

### **LEGAL ASSISTANT/PARALEGAL BOOK AND TOOL LIST**

The book and tool list for students in the Legal/Paralegal Program is intended to be a minimum requirement to complete the program. Tool and book costs are approximately \$2,620. The book and tool list will be provided no later than the first day of class. The estimated price does not include mark-up for program students or sales tax.

### **LEGAL ASSISTANT/PARALEGAL EQUIPMENT LIST**

Students in the Legal Assistant/Paralegal Program utilize the following equipment:

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



## ❖ machine technology

Perry Technical Institute's Machine Technology Program teaches students the machine trade through the integration of machining theory and practical application in the machine shop. They 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 the students study to develop the skills demanded by today's industry.

The goal of the Machine Technology 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 Machine Technology Program is 24 months in length (eight quarters). The student will earn 171 credit hours which are 2,688 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	MA 101	Shop Safety	15	1.5
	MA 102	First Aid	6	0.5
	MA 103	Mathematics for Machine Technology I	50	5.0
	MA 104	Elementary Blueprint Reading I	35	3.5
	MA 105	Machine Tool Practices I	40	4.0
	MA 106L	Machine Lab	<u>190</u>	<u>9.5</u>
			336	24.0
Quarter 2	MA 201	Mathematics for Machine Technology II	50	5.0
	MA 202	Elementary Blueprint Reading II	36	3.5
	MA 203	Machine Tool Practices II	40	4.0
	MA 204L	Machine Lab	<u>210</u>	<u>10.5</u>
			336	23.0
Quarter 3	MA 301	Mathematics for Machine Technology III	50	5.0
	MA 302	Intermediate Blueprint Reading I	36	3.5
	MA 303	Machine Tool Practices III	40	4.0
	MA 304L	Machine Lab	<u>210</u>	<u>10.5</u>
			336	23.0
Quarter 4	MA 401	Mathematics for Machine Technology IV	50	5.0
	MA 402	Intermediate Blueprint Reading II	36	3.5
	MA 403	Machine Tool Practices IV	40	4.0
	MA 404L	Machine Lab	<u>210</u>	<u>10.5</u>
			336	23.0
Quarter 5	MA 501	Geometric Dimensioning & Tolerancing I	26	2.5
	MA 502	Computer Numerical Control Programming I	30	3.0
	MA 503	Fundamentals of Tool Design I	40	4.0
	MA 505L	Machine Lab	<u>240</u>	<u>12.0</u>
			336	21.5
Quarter 6	MA 601	Geometric Dimensioning & Tolerancing II	26	2.5
	MA 602	Computer Numerical Control Programming II	30	3.0
	MA 603	Fundamentals of Tool Design II	40	4.0
	MA 605L	Machine Lab	<u>240</u>	<u>12.0</u>
			336	21.5
Quarter 7	MA 701	Geometric Dimensioning & Tolerancing III	26	2.5
	MA 702	Computer Numerical Control Programming III	30	3.0
	MA 703	Fundamentals of Tool Design III	40	4.0
	MA 704E	Externship	<u>240</u>	<u>8.0</u>
			336	17.5

(cont. on next page)

			Clock Hours	Credit Hours
Quarter 8	MA 801	Geometric Dimensioning & Tolerancing IV	26	2.5
	MA 802	Computer Numerical Control Programming IV	30	3.0
	MA 803	Fundamentals of Tool Design IV	40	4.0
	MA 804E	Externship	<u>240</u>	<u>8.0</u>
			336	17.5
	Program Totals		2688	171.0

## MACHINE TECHNOLOGY COURSE DESCRIPTIONS

### MA 101 Shop Safety

This course covers the fundamental safety procedures for each group of machine tools in the shop. General shop safety considerations including proper clothing, eye protection, and lifting are also covered.

### MA 102 First Aid and CPR

First aid and CPR instruction.

### MA 103 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, percents, and rates are also covered.

### MA 104 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 105 Machine Tool Practice 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 106L 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 201 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 202 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 203 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 are 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 204L 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 301 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 302 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 303 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 304L 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 401 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 402 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 403 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, a basic introduction to computer numerical control machines will be discussed. The basic theories of arc, MIG, and TIG welding will also be covered.

### **MA 404L 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. The fundamental operations of arc, MIG, and TIG welding will be covered.

### **MA 501 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 502 CNC Programming I**

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 and structure.

### **MA 503 Fundamentals of Tool Design I**

This course covers the principles of custom tool design. Topics include tool designer responsibilities, tool layout, break-even charts, mechanical properties of materials, and heat-treating. In addition, cutting tool chip formation, cutting forces, and power requirements are also covered.

### **MA 505L Machine Lab**

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

### **MA 601 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 602 CNC Programming II**

As a continuation of CNC Programming I, this course covers the manual programming 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 603 Fundamentals of Tool Design II**

Covers the principles of custom tool design. Topics include workholding, locating, fool proofing, clamping, drill jigs, and fixture classification. Power clamping, standard fixture mounting and tool positioning are also covered.

### **MA 605L Machine Lab**

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

### **MA 701 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 702 CNC Programming III**

As a continuation of CNC Programming II, 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.

### **MA 703 Fundamentals of Tool Design III**

This course covers the principles of custom tool design. Topics include power press types, power press accessories, forging, forming, compound dies, and gauging. CNC laser machines, deep drawing, and coordinate measuring machines are also covered.

### **MA 704E Externship**

Students work in various local machine shops under the supervision of an approved employer. They must maintain a 3.0 GPA minimum 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.

### **MA 705L Machine Lab**

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

### **MA 801 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 802 CNC Programming IV**

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

### **MA 803 Fundamentals of Tool Design IV**

This course covers the principles of custom tool design. Topics include welding fixtures, riveting fixtures, use of modular tooling, collaborative engineering, and rapid prototyping. In addition, 3-D solid modeling and quick change tooling are also covered.

### **MA 804E Externship**

Students work in various local machine shops under the supervision of an approved employer. They must maintain a 3.0 GPA minimum 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.

### **MA 805L Machine Lab**

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

### **MACHINE TECHNOLOGY BOOK AND TOOL LIST**

The book and tool list for students in the Machine Technology Program is intended to be a minimum requirement to complete the program. Tool and book costs are approximately \$3,575. The book and tool list will be provided no later than the first day of class. The estimated price does not include mark-up for program students or sales tax.

### **MACHINE TECHNOLOGY EQUIPMENT LIST**

Students in the Machine Technology 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
- Axis turning center
- Wire EDM machine



## ❖ medical office administration & coding program

Perry Technical Institute's Medical Office Administration 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 and PowerPoint; the National Certification for Medical Office Assistants (NCMOA) exam; and 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 office professionals. Graduates of this program will be prepared for positions such as: medical office assistant, medical coder, medical office computer specialist, receptionist, reimbursement specialist, coder 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 139 credit hours which are 2,016 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	BTA 101	Computer Applications	30	3.0
	BTA 101L	Computer Applications Lab	30	1.5
	BTA 105	Business English I	30	3.0
	BTA 105L	Business English I Lab	30	1.5
	BTA 110	Keyboarding I	12	1.0
	BTA 110L	Keyboarding I Lab	18	.5
	BTA 115	Word Processing	30	3.0
	BTA 115L	Word Processing Lab	30	1.5
	BTA 120	Spreadsheets	30	3.0
	BTA 120L	Spreadsheets Lab	30	1.5
	BTA 130	Business Math	30	3.0
BTA 130L	Business Math Lab	<u>36</u>	<u>1.5</u>	
		<b>336</b>	<b>24.0</b>	
Quarter 2	BTA 201	Business English II	30	3.0
	BTA 201L	Business English II Lab	30	1.5
	BTA 205	Database & Integration	44	4.0
	BTA 205L	Database & Integration Lab	44	2.0
	BTA 210	Keyboarding II	12	1.0
	BTA 210L	Keyboarding II Lab	18	.5
	BTA 215	Business Presentation	40	4.0
	BTA 215L	Business Presentation Lab	46	2.0
	BTA 220	Career Planning I	18	1.5
	BTA 220L	Career Planning I Lab	12	.5
	BTA 230	Business Etiquette	18	1.5
BTA 230L	Business Etiquette Lab	<u>24</u>	<u>1.0</u>	
		<b>336</b>	<b>22.5</b>	
Quarter 3	MOA 301	Anatomy & Physiology	30	3.0
	MOA 301L	Anatomy & Physiology Lab	30	1.5
	MOA 305	Health Care Law & Ethics	30	3.0
	MOA 305L	Health Care Law & Ethics Lab	30	1.5
	MOA 315	Medical Terminology	35	3.5
	MOA 315L	Medical Terminology Lab	40	2.0
	MOA 320	Medical Career Planning	15	1.5
	MOA 320L	Medical Career Planning Lab	20	1.0
	MOA 325	Human Diseases	30	3.0
	MOA 325L	Human Diseases Lab	25	1.0
	MOA 330	Computers in Health Care	25	2.5
MOA 330L	Computers in Health Care Lab	<u>26</u>	<u>1.0</u>	
		<b>336</b>	<b>24.5</b>	

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			Clock Hours	Credit Hours
Quarter 4	MOA 401	Customer Service in the Medical Industry	38	3.5
	MOA 401L	Customer Service in the Medical Industry Lab	38	1.5
	MOA 405	Basic Diagnostic Coding	43	4.0
	MOA 405L	Basic Diagnostic Coding Lab	40	2.0
	MOA 410	Basic Procedures Coding	43	4.0
	MOA 410L	Basic Procedures Coding Lab	48	2.0
	MOA 415	Medical Office Procedures	48	4.5
	MOA 415L	Medical Office Procedures Lab	<u>38</u>	<u>1.5</u>
			336	23.0
Quarter 5	BTA 320	Business Communication	25	2.5
	BTA 320L	Business Communication Lab	30	1.5
	MOA 505	Medical Reimbursement	36	3.5
	MOA 505L	Medical Reimbursement Lab	30	1.5
	MOA 510	Health Care Delivery Systems	30	3.0
	MOA 510L	Health Care Delivery Systems Lab	30	1.5
	MOA 515	Intermediate Diagnostic Coding	40	4.0
	MOA 515L	Intermediate Diagnostic Coding Lab	40	2.0
	MOA 520	Intermediate Procedure Coding	35	3.5
	MOA 520L	Intermediate Procedure Coding Lab	<u>40</u>	<u>2.0</u>
			336	25.0
Quarter 6	MOA 601	Advanced Coding	30	3.0
	MOA 601L	Advanced Coding Lab	30	1.5
	MOA 605	Specialty Coding	40	4.0
	MOA 605L	Specialty Coding Lab	40	2.0
	MOA 610	Health Care Records	36	3.5
	MOA 610L	Health Care Records Lab	40	2.0
	MOA 615E	Medical Coding Practicum Externship	<u>120</u>	<u>4.0</u>
			336	20.0
	Program Totals		2016	139.0

## MEDICAL OFFICE ADMINISTRATION & CODING PROGRAM COURSE DESCRIPTIONS

### BTA 101 Computer Applications I

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

### BTA 101L Computer Applications I Lab

Directed lab with structured learning.

### BTA 105 Business English I

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

### BTA 105L Business English I Lab

Directed lab with structured learning.

### BTA 110 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.

### BTA 110L Keyboarding I Lab

Directed lab with structured learning.

### BTA 115 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 115L Word Processing Lab

Directed lab with structured learning.

### BTA 120 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 120L Spreadsheets Lab

Directed lab with structured learning.

### BTA 130 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 130L Business Math Lab

Directed lab with structured learning.

### BTA 201 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 201L Business English II Lab**

Directed lab with structured learning.

**BTA 205 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 gain exposure to Microsoft Outlook and receive hands-on integration of the entire Microsoft Office Suite.

**BTA 205L Database & Integration Lab**

Directed lab with structured learning.

**BTA 210 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.

**BTA 210L Keyboarding II Lab**

Directed lab with structured learning.

**BTA 215 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.

**BTA 215L Business Presentation Lab**

Directed lab with structured learning.

**BTA 220 Career Planning I**

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

**BTA 220L Career Planning I Lab**

Directed lab with structured learning.

**BTA 230 Business Etiquette**

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

**BTA 230L Business Etiquette Lab**

Directed lab with structured learning.

**MOA 301 Anatomy & Physiology**

A study of the structure and function of the human body utilizing a system approach. Emphasis placed on the gross and microscopic 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 301L Anatomy & Physiology Lab**

Directed lab with structured learning.

**MOA 305 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.

**MOA 305L Health Care Law & Ethics Lab**

Directed lab with structured learning.

**MOA 315 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 315L Medical Terminology Lab**

Directed lab with structured learning.

**MOA 320 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 320L Medical Career Planning Lab**

Directed lab with structured learning.

**MOA 325 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 325L Human Diseases Lab**

Directed lab with structured learning.

**MOA 330 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. Prerequisites: Completion of six semester credits in software applications courses, or passing the school's computer proficiency exam.

**MOA 330L Computers in Health Care Lab**

Directed lab with structured learning.

**MOA 401 Customer Service in the Medical Industry**

This course emphasizes how to provide excellent customer service. Effective verbal communication and telephone skills are taught. Problem resolution skills and how to handle difficult situations are important elements of this course. Soft skills such as patience and empathy are stressed.

**MOA 401L Customer Service in the Medical Industry Lab**

Directed lab with structured learning.

**MOA 405 Basic Diagnostic Coding**

This course is an introduction to basic diagnostic coding and presents students with the characteristics and conventions of ICD-9-CM and ICD-10-CM (International Classification of Diseases, 9th and 10th Edition, Clinical Modification), and other diagnosis coding systems or code sets (DSM-IV, ICD-0, etc.). Focus is placed on using official coding guidelines correctly and the course includes extensive practice coding exercises.

**MOA 405L Basic Diagnostic Coding Lab**

Directed lab with structured learning.

**MOA 410 Basic Procedure Coding**

This course is an introduction to basic procedural coding and presents students with the characteristics of CPT-4 (Current Procedural Terminology), HCFPCS (Health Care Financing Administration Common Procedure Coding System) Level II codes, and ICD-10-PCS. The course focuses on correct code assignment and includes extensive practice coding exercises.

**MOA 410L Basic Procedures Coding Lab**

Directed lab with structured learning.

**MOA 415 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, telephone triage, preparing patients charts, 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.

**MOA 415L Medical Office Procedures Lab**

Directed lab with structured learning.

**BTA 320 Business Communication**

Students learn various forms of written business communication including routine business correspondence (e-mail, memo, 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).

**BTA 320L Business Communication Lab**

Directed lab with structured learning.

**MOA 505 Medical Reimbursement**

Students will study federal, state, 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. An overview of billing systems for hospitals, nursing homes, home health care, hospice, surgical centers, and rehabilitation centers including proper submission of UB-92 billing forms will be provided. Emphasis is also placed on the definition of data items and edits to support facility billing practices; the

examination of billing system management reports; and legal issues related to reimbursement processing.

**MOA 505L Medical Reimbursement Lab**

Directed lab with structured learning.

**MOA 510 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.

**MOA 510L Health Care Delivery Systems Lab**

Directed lab with structured learning.

**MOA 515 Intermediate Diagnostic Coding**

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

**MOA 515L Intermediate Diagnostic Coding Lab**

Directed lab with structured learning.

**MOA 520 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 (ICD-9-CM Volume III or ICD-10-PCS – compares and contrasts the two systems at an introductory level).

**MOA 520L Intermediate Procedure Coding Lab**

Directed lab with structured learning.

**MOA 601 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 601L Advanced Coding Lab**

Directed lab with structured learning.

**MOA 605 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 605L Specialty Coding Lab**

Directed lab with structured learning.

### **MOA 610 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). Special emphasis on privacy, confidentiality, security, HIPAA requirements, release of information, and professional ethics will be stressed in this section.

### **MOA 610L Health Care Records Lab**

Directed lab with structured learning.

### **MOA 615E 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 assignment 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.

### **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. Tool and book costs are approximately \$3,135. The book and tool list will be provided no later than the first day of class. The estimated price does not include mark-up for program students or sales tax.

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

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

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



## ❖ welding technology

The Welding Technology Program is designed to equip students with welding skills while providing a gateway for entry into a variety of related careers.

During the course of the program, students will be immersed in classroom theory and hands-on lab instruction in welding, fitting, and related metalworking processes. The program will provide students with a foundation that includes safety principles and the essentials of print reading and fabrication plans for welders. Students will also be able to study and apply oxyacetylene cutting, brazing, soldering, gas metal arc welding, flux core arc welding, and carbon arc cutting.

The curriculum will advance into gas tungsten arc welding and pipe welding. Students will be required to demonstrate their skills by completing an advanced welding capstone project. Students will also be encouraged to sit for the American Welding Society (AWS) certification tests. Welding certifications include gas tungsten arc welding, gas metal arc, plate and pipe welding. Classroom and shop training prepares students to enter the industry as qualified entry-level welders.

The Welding Technology Program is 12 months in length (four quarters). The student will earn 83.5 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 Hour	Credit Hours
Quarter 1	WLD 110	Welding Safety	30	3.0
	WLD 110L	Welding Safety Lab	30	1.5
	WLD 120	Print Reading & Fabrication Plans	40	4.0
	WLD 120L	Print Reading & Fabrication Plans Lab	60	3.0
	WLD 130	Welding Math	12	1.0
	WLD 130L	Welding Math Lab	18	.5
	WLD 140	Oxyacetylene, Carbon Arc & Plasma	30	3.0
	WLD 140L	Oxyacetylene, Carbon Arc & Plasma Lab	46	2.0
	WLD 150	Grind & Finish	16	1.5
	WLD 150L	Grind & Finish Lab	24	1.0
	WLD 160	Basic Metallurgy	<u>30</u>	<u>3.0</u>
			336	23.5
Quarter 2	WLD 210	Introduction to Shielded Metal Arc Welding	60	6.0
	WLD 210L	Introduction to Shielded Metal Arc Welding Lab	134	6.5
	WLD 220	Introduction to Gas Metal Arc Welding	40	4.0
	WLD 220L	Introduction to Gas Metal Arc Welding Lab	<u>102</u>	<u>5.0</u>
			336	21.5
Quarter 3	WLD 310	Flux Cored Arc Welding	60	6.0
	WLD 310L	Flux Cored Arc Welding Lab	134	6.5
	WLD 320	Gas Tungsten Arc Welding	40	4.0
	WLD 320L	Gas Tungsten Arc Welding Lab	<u>102</u>	<u>5.0</u>
			336	21.5
Quarter 3	WLD 310	Flux Cored Arc Welding	60	6.0
	WLD 310L	Flux Cored Arc Welding Lab	134	6.5
	WLD 320	Gas Tungsten Arc Welding	40	4.0
	WLD 320L	Gas Tungsten Arc Welding Lab	<u>102</u>	<u>5.0</u>
			336	21.5
Quarter 4	WLD 410	Full Penetration Welds	30	3.0
	WLD 410L	Full Penetration Welds Lab	60	2.0
	WLD 420	Advanced Welding Applications	20	2.0
	WLD 420L	Advanced Welding Applications Lab	52	2.5
	WLD 430	Introduction to Pipe Welding	20	2.0
	WLD 430L	Introduction to Pipe Welding Lab	34	1.5
	WLD 440E	Externship	<u>120</u>	<u>4.0</u>
			336	17.0
	Program Totals		1344	83.5

## WELDING TECHNOLOGY COURSE DESCRIPTIONS

### WLD 110 Welding Safety

This course offers an introduction to safety practices and procedures that will be most commonly adhered to in the welding industry. General safety considerations will include proper clothing, eye protection, and lifting techniques.

### WLD 110L Welding Safety Lab

Directed lab with structured learning.

### WLD 120 Print Reading & Fabrication Plans

Students will develop the ability to interpret blueprints used in welding and fabrication. This course will expose students to sketching, lines, views, visualization, dimensioning, and welding symbols.

### WLD 120L Print Reading & Fabrication Plans Lab

Directed lab with structured learning.

### WLD 130 Welding Math

In this course, students will learn and apply math concepts to the welding industry. These concepts will include whole numbers, common fractions, decimal fractions, averages/percentages, metric conversion, geometric computation, angular measurement, and cost estimation.

### WLD 130L Welding Math Lab

Directed lab with structured learning.

### WLD 140 Oxyacetylene, Carbon Arc & Plasma

Students will study the history and identify the equipment used in oxyacetylene, carbon arc, and plasma welding. They will list and describe the properties and distribution systems as well as explain safety issues that pertain to these welding types. Students will also define, describe, and demonstrate braze welding as well as soldering.

### WLD 140L Oxyacetylene, Carbon Arc & Plasma Lab

Directed lab with structured learning.

### WLD 150 Grind & Finish

This course will expose students to the materials and techniques used to grind and finish various finishes. Students will be able to apply these techniques during the directed lab experience.

### WLD 150L Grind & Finish Lab

Directed lab with structured learning.

### WLD 160 Basic Metallurgy

Students will study and analyze the various changes that take place in metals when they are cut or joined with thermal processes such as welding or thermal cutting. Students will expand upon this knowledge by developing a higher understanding of mechanical property changes.

### WLD 210 Introduction to 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 210L Introduction to Shielded Metal Arc Welding Lab

Directed lab with structured learning.

### WLD 220 Introduction to Gas Metal Arc Welding

Students will 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.

### WLD 220L Introduction to Gas Metal Arc Welding Lab

Directed lab with structured learning.

### WLD 310 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 310L Flux Cored Arc Welding Lab

Directed lab with structured learning.

### WLD 320 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 320L Gas Tungsten Arc Welding Lab

Directed lab with structured learning.

### WLD 410 Full Penetration Welds

Students will apply brazing and soldering techniques to advance their welding skills in the flat and horizontal positions. Students will use more advanced welding techniques in the vertical and overhead positions. This course will also explore open root full penetration welds using fast freeze electrodes in preparation for pipe welding.

### WLD 410L Full Penetration Welds Lab

Directed lab with structured learning.

### WLD 420 Advanced Welding Applications

Students will gain advanced knowledge of pipe welding, shielded metal arc welding, and gas tungsten arc welding. Students will be given the opportunity to complete an advanced welding project using the knowledge and skills acquired during the program.

### WLD 420L Advanced Welding Applications Lab

Directed lab with structured learning.

### WLD 430 Introduction to Pipe Welding

Students will study techniques for producing acceptable weld beading on pipe in addition to troubleshooting when working with pipe welds.

### WLD 430L Introduction to Pipe Welding Lab

Directed lab with structured learning.

### **WLD 430E 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.

### **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. Tool and book costs are approximately \$910. The book and tool list will be provided no later than the first day of class. The estimated price does not include mark-up for program students or sales tax.

### **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
- Forming breaks
- Shearing-stomp shears and hydraulic assisted
- Punching
- Variety of hand tools



## ❖ administration

### **Christine Coté, President**

B.A. – Central Washington University

### **Nathan Hull, Dean of Education**

B.S. – Central Washington University

B.A. – Eastern Washington University

Washington Residency Certificate (Secondary)

Microsoft Certified Application Specialist

### **Tracy Stoffer, Director of Finance/Human Resource**

B.S. – Central Washington University

Certified Public Accountant

### **Erin Fishburn, Foundation Director**

B.S. – Portland State University

### **Leanne LaBissoniere, Director of Public Relations**

B.A. – Central Washington University

### **Nicole Trammell Woolpert, Marketing Director**

B.S. – Central Washington University

Certificate – Graphics, Perry Technical Institute

### **Carol Helms, Financial Aid Director**

A.A. – Yakima Valley Community College

### **Jill Cope, Registrar**

B.A. – Minot State University

### **Jeanine Benoit, IT Systems Administrator**

Certificate – Telecommunications, Perry Technical Institute

### **Kaila Lockbeam**

Facilities & Safety Manager

## ❖ student services

### **Jennifer Arnett, Career Services Coordinator**

A.A. – Yakima Valley Community College

### **Marty Walters, Counselor**

B.A. – Eastern Washington University

M.A. – Marymount University

M.A. – Marymount University

### **Cindy Fiscus**

Learning Resource/Accreditation Specialist

### **Chelsea Snodgrass**

Campus Store/Purchasing Coordinator

A.A. – Yakima Valley Community College

B.S. – Central Washington University

## ❖ recruitment

### **Raul Luna, Student Recruitment Manager**

Certificate – Graphics, Perry Technical Institute

### **Derek Smith, Student Recruiter**

A.O.S. – Western Culinary Institute

### **Manuel Medrano, Student Recruiter**

## ❖ faculty

### **AUTOMOTIVE TECHNOLOGY**

#### **Jason Lamiquiz, Department Head**

A.A.S. – Yakima Valley Community College

ASE Master Automobile Technician

ASE Advanced Level Engine Performance

#### **Dusty Morrill, Instructor**

ASE Master Automobile Technician

ASE Advanced Level Engine Performance

### **BUSINESS TECHNOLOGY & ACCOUNTING**

### **MEDICAL OFFICE ADMINISTRATION & CODING**

### **LEGAL ASSISTANT/PARALEGAL**

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

American Academy of Professional Coders – Certified

Professional Coder

Microsoft Certified Application Specialist

#### **Jennifer McMurtrey, Instructor**

A.A. – Columbia Basin College

B.S. – University of Phoenix

Microsoft Certified Application Specialist

#### **Wendy Aguilar, Instructor**

A.A. – Yakima Valley Community College

B.S. – Central Washington University

Business Accounting Certificate – Heald Business College

#### **Becki Willard, Instructor**

A.A. – San Bernardino Valley College

Paralegal Certificate – San Bernardino Valley College

#### **Doreen Pastrana, Instructor**

### **ELECTRICAL TECHNOLOGY**

#### **Nathan Klebaum, Department Head**

Certificate – Electrical, Perry Technical Institute

Washington State General Electrical Journeyman 01

Certificate

#### **Mike Tucker, Instructor**

Certificate – Electrical, Perry Technical Institute

A.A.S. – Yakima Valley Community College

Washington State General Master Electrician 01 Certificate

**Jon Bolin, Instructor**

Certificate – Electrical, Perry Technical Institute  
 Washington State General Electrical Journeyman 01  
 Certificate

**Forrest Buchmann, Instructor**

Certificate – Electrical, Perry Technical Institute  
 Washington State General Master Electrician 01 Certificate

**Ron Zike, Instructor**

Washington State General Master Electrician 01 Certificate

**Jason Lidke, Instructor**

Certificate – Electrical, Perry Technical Institute  
 Washington State General Electrical Administrator (01)  
 Certificate

**Maria Werremeyer, Lead Field Journeyman Electrician**

Certificate – Electrical, Perry Technical Institute  
 Washington State General Electrical Journeyman 01  
 Certificate

**Todd Thomas, Field Journeyman Electrician**

Certificate – Electrical, Perry Technical Institute  
 Washington State General Electrical Journeyman 01  
 Certificate  
 Washington State General Electrical Administrator 01  
 Certificate

**Phil Quenzer, Field Journeyman Electrician**

Certificate – Electrical, Perry Technical Institute  
 Washington State General Electrical Journeyman 01  
 Certificate

**HEATING, VENTILATION, AIR CONDITIONING & REFRIGERATION TECHNOLOGY****Marc Mitchell, Department Head**

Certificate – HVAC/R, Perry Technical Institute  
 A.A.S. – Yakima Valley Community College  
 Washington State 06A Master Electrical Specialty License  
 EPA 608 Universal Certification

**Craig Heckart, Instructor**

Certificate – HVAC/R, Perry Technical Institute  
 Washington State 06A Electrical Specialty License  
 EPA 608 Universal Certification

**Dan Henderson, Instructor**

Certificate – HVAC/R, Perry Technical Institute  
 A.A.S. – Yakima Valley Community College  
 Washington State 06A Master Electrical Specialty License  
 Washington State 07 Electrical Specialty License  
 EPA 608 Universal Certification

**Van Henderson, Instructor**

Certificate – HVAC/R, Perry Technical Institute  
 Washington State 06A Electrical Specialty License  
 EPA Refrigerant Certification Type Universal

**INFORMATION TECHNOLOGY & COMMUNICATION SYSTEMS****Michael Smith, Department Head**

Certificate – Instrumentation & Industrial Electronics, Perry  
 Technical Institute  
 A.A.S. – Yakima Valley Community College

**Francisco Magana, Instructor**

Certificate – Telecommunications, Perry Technical Institute  
 Certified Internet Web Master

**Josh Phillips, Instructor**

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

**Andy Fischer, RCDD, Instructor**

Certificate – Telecommunications, Perry Technical Institute  
 A.A.S. – Telecommunications, Yakima Valley Community  
 College  
 Registered Communications Distribution Designer

**INSTRUMENTATION & INDUSTRIAL AUTOMATION TECHNOLOGY****Tony Nirk, Department Head**

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

**Shon McIntyre, Instructor**

Certificate – Telecommunications, Perry Technical Institute

**Gerry Ries, Instructor**

Certificate – Instrumentation, Perry Technical Institute  
 ISA Certified Control Systems Technician

**Larry Dagdagan, Instructor**

Certificate – Instrumentation, Perry Technical Institute

**Dave Sylvanus, Instructor**

Certificates – Instrumentation and Machine, Perry Technical  
 Institute  
 A.A.S. – Instrumentation and Machine, Yakima Valley  
 Community College  
 ISA Certified Control System Technician (CCST) Level II  
 Washington State 07 Nonresidential Maintenance Specialty  
 Electrician

**Doug Oswald, Instructor**

Certificate – Instrumentation, Perry Technical Institute

**MACHINE TECHNOLOGY****Dan Steinmetz, Department Head****Jay Wellner, Instructor**

Certificate – Machine, Perry Technical Institute

**WELDING TECHNOLOGY****Matt Medearis, Instructor**

American Welding Society Certified Welding Inspector  
 American Welding Society Certified Welder  
 Washington Association of Building Officials Certified Welder

## ❖ phone list

To call the following, please dial (509) 453-0374 and ask for the extension.

Operator .....0  
Cashier.....218

### **President's Office**

President .....216  
Executive Assistant .....214

### **Foundation Office**

Foundation Director .....206

### **Facilities & Safety**

Facilities & Safety Manager .....214  
Administrative Assistant .....356

### **Student/Instructional Services**

Dean of Education .....211  
Education/Attendance Coordinator.....355  
Learning Resource/Accreditation Specialist.....217  
Registrar.....227  
Registration Specialist .....267  
Enrollment Coordinator .....205  
Enrollment Representative.....350  
Career Services Coordinator .....226  
Counselor.....200

### **Student Financial Services**

Financial Aid Director .....208  
Financial Services Assistant .....218  
Financial Aid Specialist.....209  
Financial Aid Loan Coordinator.....212  
Student Accounts Specialist .....202

### **Recruiting/Marketing**

Student Recruitment Manager.....220  
Student Recruiter .....228  
Student Recruiter .....226  
Marketing Director.....228  
Public Relations Director .....219

### **Business Services/Human Resources**

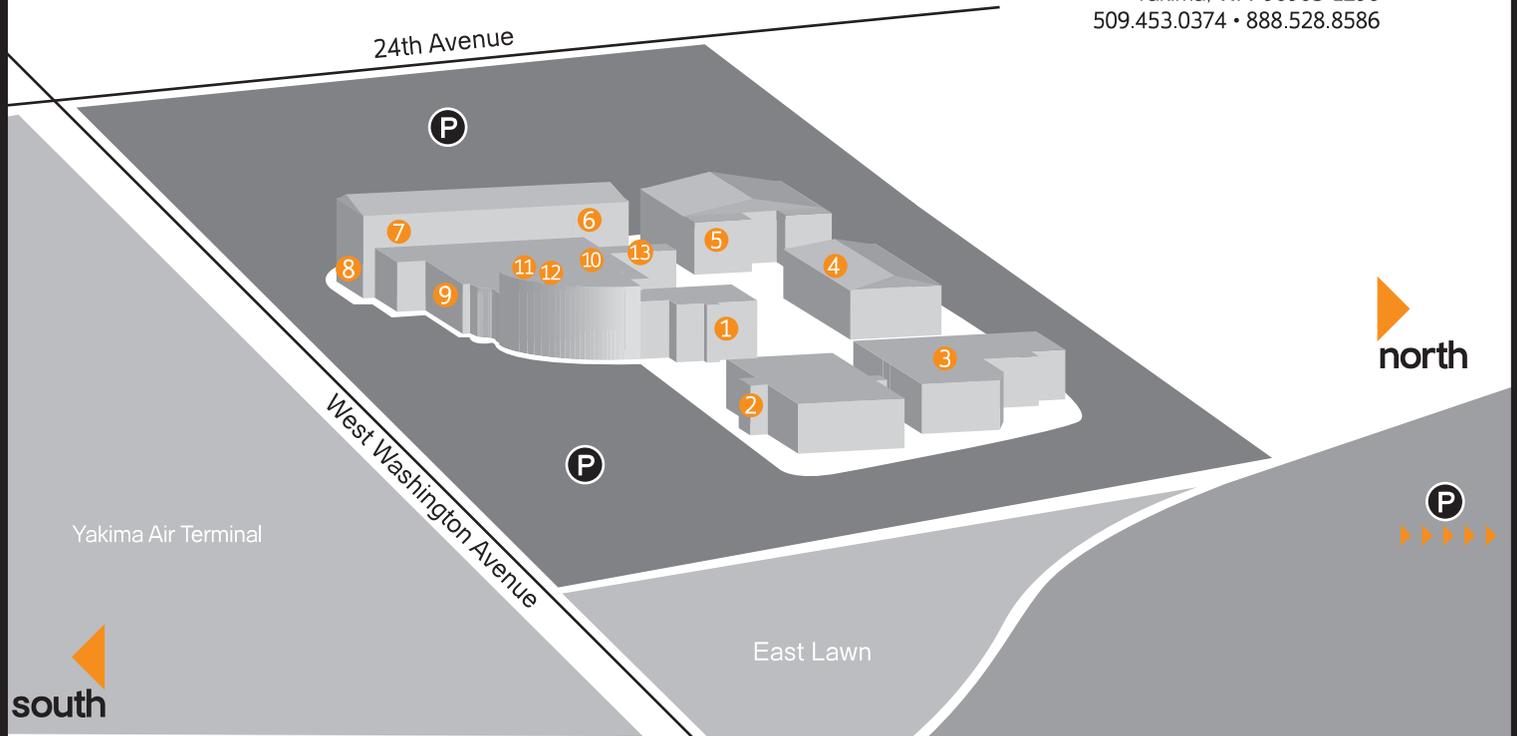
Director of Finance/Human Resources.....207  
Administrative Assistant .....215  
Human Resources Manager .....210  
Accounts Payable/Payroll Technician.....213  
Financial Services Assistant .....238  
Campus Store/Purchasing Coordinator .....204





PERRY  
TECHNICAL  
INSTITUTE

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



## ❖ the campus

- |   |           |
|---|-----------|
| 1) Main Office  |           |
| President's Office  | 1st Floor |
| Dean of Education   | 1st Floor |
| Admissions  | 1st Floor |
| Financial Services  | 1st Floor |
| Foundation Office   | 1st Floor |
| Attendance  | 1st Floor |
| Business Services/HR  | 2nd Floor |
| Recruitment   | 2nd Floor |
| Public Relations & Marketing  | 2nd Floor |
| 2) Instrumentation & Industrial Automation Technology                             |           |
| 3) Machine Technology   |           |
| 4) Electrical Technology  |           |
| 5) Automotive Technology  |           |
| 6) Business Technology & Accounting   | 2nd Floor |
| 7) Legal Assistant/Paralegal and Medical Office Administration & Coding           | 2nd Floor |
| 8) Heating, Ventilation, Air Conditioning & Refrigeration Technology              | 1st Floor |
| 9) Visual Communication & Graphic Technology                                      |           |
| 10) Information Technology & Communication Systems                                |           |
| 11) Student Services • Career Services, Counseling and Learning Resource Services |           |
| 12) The Hangar Campus Store   |           |
| 13) Welding Technology  |           |



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