

# Apprenticeship

Adult and Community Education (ACE) | [aceclasses.fcps.edu](http://aceclasses.fcps.edu)



## COURSE CATALOG

CARPENTRY • ELECTRICITY  
HVAC-R • OPTICIANRY • OSHA SAFETY  
PAINTING • PLUMBING • SURVEYING

Register at <https://www.fcps.edu/academics/adult-education-academics>



Building Skills  
for Success

Fairfax County Public Schools Adult and Community Education (ACE) offers a variety of apprenticeship and trades classes at locations throughout the county, as well as virtually. This catalog provides a sampling of our classes. **For the most up to date information on classes, start dates, and fees, please visit our website at <https://www.fcps.edu/academics/adult-education-academics> or scan the QR code.**



ACE is proudly offering apprenticeship curriculum in partnership with the National Center for Construction Education & Research (NCCER). NCCER develops standardized construction and maintenance curriculum and assessments with portable credentials. These credentials are tracked through NCCER's Registry System that allows organizations and companies to track the qualifications of their craft professionals and/or check the qualifications of possible new hires.

Apprenticeship curriculum, as well as continuing education in the trades, is also recognized and supported by the Department of Labor and Industry (DOLI).

## WHAT IS APPRENTICESHIP?

Apprenticeship is a high-quality career pathway in which employers and students partner together to prepare the workforce in a given trade. Students can get on the job experience, while classes provide additional instruction plus a portable, nationally recognized credential from NCCER. ACE recently partnered with NCCER for apprenticeship curriculum, which is created and updated by more than 100 subject matter experts.

Through an apprenticeship program, you can obtain paid, relevant workplace experience while acquiring the skills and credentials that employers value. According to the U.S. Department of Labor, 94 percent of apprentices who complete an apprenticeship program retain employment, with an average annual salary of \$70,000.





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# APPRENTICESHIP PROGRAMS

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## CREDIT-BY-EXAM (CBE)

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A Credit-by-Exam (CBE) is designed to give advanced placement to students with prior training in their chosen trade. CBEs are the only way to receive credit for prior training. Exams are optional, and typically take 2–2.5 hours to complete. CBEs are for completion of apprenticeship-related instruction only. No cell phones are allowed during exams. Government-issued ID is required at check in.

**Carpentry 1 CBE** | Course AP08811

**Electricity 1 CBE** | Course AP08815

**Electricity 2 CBE** | Course AP08816

**HVAC/R 1 CBE** | Course AP08800

**HVAC/R 2 CBE** | Course AP08801

**Plumbing 1 CBE** | Course AP08845

**Plumbing 2 CBE** | Course AP08846

**Survey 1 CBE** | Course AP08853



## DIRECTED STUDY

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**Directed Study** | Course AP08065

Taught via Directed Study which is self-paced guided study for motivated students working in trades for which there are too few apprentices for a traditional class. You will meet with your instructor weekly for insights and guidance to ensure your steady progress and to document your success. This is a textbook-based program with no hands-on training: apprentices receive their hands-on training via their employer. Trades taught via directed study include carpentry and heavy equipment operator.



## DIY HOME IMPROVEMENT

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**Ceramic Tile** | Course TI05165

Introduction to tile types, applications, basic tools, and skills. Demonstration and hands-on basics for kitchen and bathroom projects: tub and shower walls, bathroom and kitchen floors, counter tops, and back splashes. Both demonstration and hands-on. 3 sessions @ 3 hours each.

**Drywall Basics** | Course TI05208

Students will cut, fasten, tape, and patch drywall while learning how to use their tools and materials to apply smooth coats of joint compound to create finished surfaces ready to receive paint. Students will practice techniques in their own workspaces under the supervision of the virtual instructor who will demonstrate, provide lectures, and answer questions. Students will need to prepare an area with a drop cloth that will allow them to work on a 2x5-foot wall panel propped up against a wall, door, or piece of furniture during virtual instruction. 4 sessions @ 2 hours each.

**Kitchen and Bath Design Seminar** | Course TI05169

Review the major design aspects for modern kitchen and bath designs and basic code requirements, layout of fixtures and appliances for function based on available spaces. Discussion includes project considerations from cabinetry and hardware to selecting the right contractors. 1 session @ 3 hours.

**Selecting a Contractor** | Course TI05147

This is a revamped class designed to inform a student on the specific requirements and options for finding the RIGHT contractor for their project. First two hours on the Department of Professional and Occupational Regulation (DPOR) legal requirements for contract jobs and the second 2 hours dedicated to the student's specific project design. 1 session @ 4 hours.

**Nuts and Bolts of PMT Careers** | Course TI05583

Overview of job opportunities, responsibilities, safety, and liability within the property maintenance career field. 1 session @ 2 hours.

**Appliance Repair Workshop** | Course TI05593

Learn to make minor repairs on disposals, range hoods, gas and electric stoves, washers, gas and electric dryers, and dishwashers. Students should purchase *Troubleshooting & Repairing Major Appliances* (ISBN-13: 978-0071770187); as well as a basic set of hand tools. 5 sessions @ 3 hours each.

**Door Locks Workshop: Installation, Maintenance, and Repair** | Course TI05595

You too can replace existing lock sets! Disassemble and reassemble several different door locks in a hands-on workshop. Develop skills for nondestructive removal of existing lock sets so they can be reused elsewhere, lubrication, and door set replacement. (Sorry, no rekeying of locks.) 1 session @ 3 hours.

Flipping Houses: The Good, Bad, and the Very Ugly | Course TI05340

Not your typical house flipping seminar, no enticement to join someone's team, just a pragmatic approach to understanding flipping by detailing the major risks and rewards. Instructor has flipped well over 100 houses as a passive investor, project manager, licensed Real Estate Broker General Contractor, or property owner. Includes property acquisitions, project management, basic financing, budgets, selling, property design, and how to handle major problems. 3 sessions @ 3 hours.



**PROPERTY MAINTENANCE TECH CERTIFICATE**

**ELEVATE YOUR CAREER TODAY**

Master general repair skills, construction-related tasks to maintain buildings & their infrastructure in 7 required courses

- Appliance Repair Workshop
- Door Locks Workshop
- Drywall, Painting & Waterproofing
- Heating & AC Systems
- Nuts & Bolts of PMT Careers
- Electrical Workshop
- Plumbing Workshop

Register today!  
[www.aceclasses.fcps.edu](http://www.aceclasses.fcps.edu)



## ELECTRICITY

### Electrical 1 | Course AP08070

Electricians install electrical systems in structures. They install wiring and other electrical components—such as circuit breaker panels, switches, and light fixtures—and they follow blueprints, the National Electrical Code® (NEC) and state and local codes. This is the first year of a comprehensive 4-year electrical curriculum that complies with DOLI standards for apprenticeship. Prerequisite AP08000.

Class meets twice a week, once in person and once virtually for the stated hours. This allows students to complete the curriculum in one semester rather than a full year. Online textbooks are included in the tuition, students may opt to purchase a hard copy text for an additional fee.

### Electricity 2: Transformers, AC Theory, and Motor Controls | Course AP08071

In year two of the apprenticeship program, electrical students will focus on AC theory. Topics covered include wire circuits, power factor, Ohms Law, voltage drop, transformers, phase angle motor controls—sizing conductors and equipment, motor control circuits, and motor circuit protection. Students must complete a special project and a math competency. Students will need to purchase textbooks separately; details are emailed after registration.

### Electricity 3: Blueprint Reading for Mechanics | Course AP08072

In year three of the apprenticeship program, students will perform intensive work with complete sets of prints including lines, symbols and basic views; plan details; construction contract documents and specifications; working and shop drawings; foundation work; wall and roof structures; reinforced concrete; masonry; structural steel; finish carpentry; mechanical; electrical; plumbing; structural integrity; and air conditioning systems. Students will need to purchase textbooks separately; details are emailed after registration.

### Electricity 4: National Electrical Code | Course AP08073

In the fourth and final year of the electrical apprenticeship program, students will focus on wiring materials, cables, conduits, conduit fill, outlets, junctions, pull boxes, services, feeders, branch circuits overcurrent protection, grounding, equipment and circuit design, transformers, electrical layouts, and hazardous locations. Electricians with five or more years of experience can take this class “a la carte” for a thorough review for the state exam. Students will need to purchase textbooks separately; details are emailed after registration.

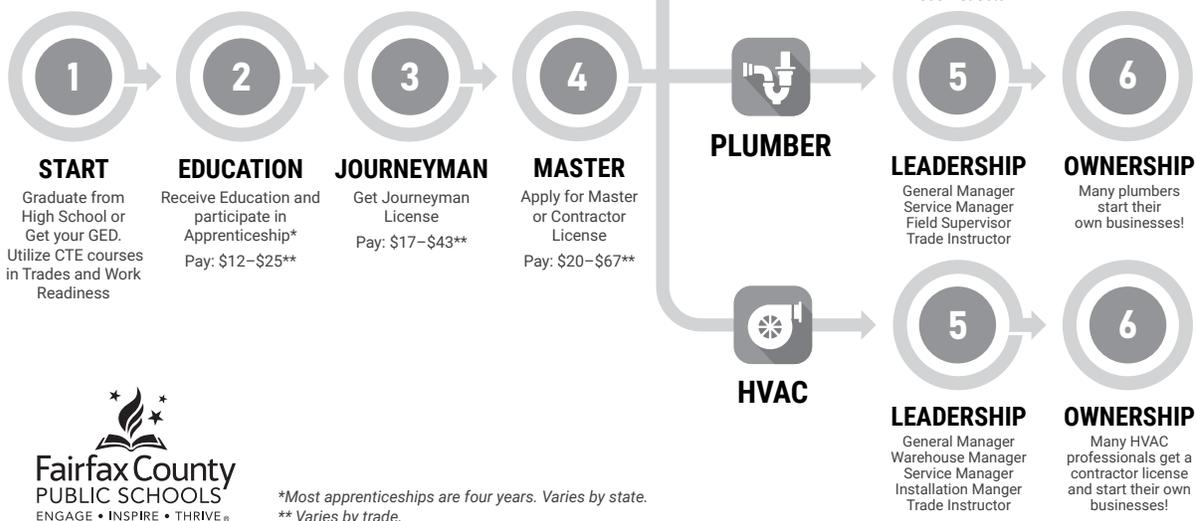
### Residential Electricity-The Basics | Course TI05199

Become familiar with electrical supplies and equipment (wires, boxes, outlets, switches, and breakers); stripping and connecting wire (terminals, wire nut, and splicing). See enclosure online or on receipt for tool list. 2 sessions @ 4.5 hours each.

ADULT AND COMMUNITY EDUCATION | APPRENTICESHIP

# CAREER PATH

You can take advantage of any of these opportunities when you choose the **electrical, plumbing, or heating and cooling trades.**



\*Most apprenticeships are four years. Varies by state.  
\*\* Varies by trade.

### Electrical License Exam Prep | Course TI05417

Course includes topical study of NEC: layout and proper use of the code to find what you need quickly and easily. Includes common installations and materials, general design, calculations, services, feeders, branch circuits, rules for general circuits, grounding various equipment, and practice test. NEC required—not included. 8 sessions @ 3 hours each.

### Electrical Workshop: Maintenance and Repair | Course TI05587

Introduction to NEC, tools, safety, replacing fixtures, switches, outlets, and more. Demonstration and hands-on workshop. 5 sessions @ 3 hours each. Student required to purchase textbook (Step by Step Guidebook on Home Wiring) and tools separately. Tool list included on receipt.

### Electrician Continuing Education | Course TI05275

Comprehensive review of the NEC changes to fulfill the continuing ed requirement for electricians with a Virginia journeyman or master license. Bring a government-issued photo ID to class and provide your trade license number and birth date at registration. On-time arrival required. Workbooks will be distributed at class. (For PG County continuing ed take TI05419) 1 session @ 3 hours.



## GENERAL CONTRACTORS

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### Obtaining Virginia Trade and Contractor's Licenses | Course TI05350

For anyone with little knowledge about where to begin in the Virginia trade licensing process. Discover how to get trade (Journeyman and Master's) and a contractor's license for Fairfax County and Virginia. Information applicable to general contracting, mechanical (HVAC), electrical, plumbing, and home improvement. 1 session @ 3 hours.

### Drywall, Painting, and Waterproofing Workshop | Course TI05581

Hang, tape joints, finish new, and repair damaged drywall. Learn professional painting tips and tricks to achieve a quality finish. Learn how to reduce bath/shower water damage to other areas. 5 sessions @ 3 hours each.

### Flipping Houses: The Good, Bad, and the Very Ugly | Course TI05340

Not your typical house flipping seminar, no enticement to join someone's team, just a pragmatic approach to understanding flipping by detailing the major risks and rewards. Instructor has flipped well over 100 houses as a passive investor, project manager, licensed Real Estate Broker General Contractor, or property owner. Includes property acquisitions, project management, basic financing,

budgets, selling, property design, and how to handle major problems. 3 sessions @ 3 hours each.

### Kitchen and Bath Design Seminar | Course TI05169

Review the major design aspects for modern kitchen and bath designs and basic code requirements, layout of fixtures and appliances for function based on available spaces. Discussion includes project considerations from cabinetry and hardware to selecting the right contractors. 1 session @ 3 hours.



### Virginia Contractor's Basic Business Course (Pre-License) | Course TI05348

Become eligible to obtain any contractor's license. Those applying for an initial contractor's license (Class A, B, or C) in Virginia must complete an 8-hour business class approved by DPOR. This class fulfills that requirement. Note: All contractors must have a specialty and all specialties require a DPOR exam. You must bring a government-issued ID to class. See enclosure. Course TI05351 should also be taken, 1 session @ 8 hours.

### Virginia Contractor's License Exam Prep | Course TI05351

Do you want to pass the contractor's business exam required for Class A or Class B Virginia contracting license? In-depth review of contractor business concerns, including mechanic's liens, labor laws, construction contracts, and risk management. See TI05348 Contractors Pre-License for state required class. 5 sessions @ 3 hours each.



## HOME INSPECTION

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### Home Inspector Pre-Licensing Course | Course TI05354

DPOR approved, meets Virginia Board for Asbestos, Lead, and Home Inspectors, home inspector pre-licensing Virginia Core course requirement of 35 hours plus one hour of "how to pass your test" and general test-taking skills for all test takers. This is a comprehensive course in residential construction for people that want to learn how to read code books and obtain a working knowledge of residential construction, all trades, interior, and exterior. Applicable for people not necessarily interested in obtaining a license. No late entry. 12 sessions @ 3 hours each.



## HVAC/R

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### HVAC/R 1 | Course AP08001

The increasing development of HVAC (heating and air-conditioning systems) technology causes employers to recognize the importance of continuous education and keeping up to speed with the latest equipment and skills. ACE's program has been designed by highly qualified subject matter experts with the importance of HVAC professionals in mind, and covers present theoretical and practical skills essential to your success as an HVAC installer or technician. This is the first year of a comprehensive 4-year HVAC curriculum that complies with DOLI standards for apprenticeship and is recognized by North American Technician Excellence (NATE).

Class meets twice a week, once in person and once virtually for the stated hours. This allows students to complete the curriculum in one semester rather than a full year. Online textbooks are included in the tuition; students may opt to purchase a hard copy text for an additional fee. Prerequisite AP08000.

### HVAC/R 2: Motors and Controls for HVAC/R | Course AP08002

In the second year of the HVAC/R apprenticeship program,

students will focus on basic air conditioning systems, refrigerant controls, electric motors, circuits and controls, functions, air filtration, safety, and trade math. Students will need to purchase textbooks separately; details are emailed after registration.

### HVAC/R 3: Trouble Shooting HVAC/R Systems | Course AP08003

For the third year of the HVAC/R apprenticeship, topics covered include troubleshooting gas, electric and oil heat; troubleshooting heat pumps, cooling systems, and accessories; preventive maintenance; system balancing; hydronics; boilers, commercial refrigeration; and chilled water systems. Lecture format. Students will need to purchase textbooks separately; details are emailed after registration.

### HVAC/R 4: For Mechanics | Course AP08004

In the final year of the HVAC/R apprenticeship program, topics covered include blueprint reading; heat load/gain calculations; air distribution systems, psychrometrics, air flow measurements; troubleshooting heating, refrigeration and HVAC/R electrical systems; wiring diagrams, NEC, and International Mechanical codes; and trade math. Students will need to purchase textbooks separately; details are emailed after registration.





## PLUMBING

### Plumbing 1 | Course AP08100

Most people are familiar with plumbers who come to their home to unclog a drain or install an appliance. In addition to these activities, however, plumbers install, maintain, and repair many different types of pipe systems. For example, some systems move water to a municipal water treatment plant and then to residential, commercial, and public buildings. Other systems dispose of waste, provide gas to stoves and furnaces, or supply air conditioning. Pipe systems in power plants carry the steam that powers huge turbines. Pipes also are used in manufacturing plants, such as wineries, to move material through production processes.

This is the first year of a comprehensive 4-year plumbing curriculum that complies with DOLI standards for apprenticeship. Class meets twice a week, once in person and once virtually for the stated hours. This allows students to complete the curriculum in one semester rather than a full year. Online textbooks are included in the tuition, students may opt to purchase a hard copy text for an additional fee. Prerequisite AP08000.

### Plumbing 2 | Course AP08101

In the second year of the plumbing apprenticeship program, students will learn about water piping materials and sizing, water heaters, trade math, sewage disposal, and drainage fixtures. Building drains, stacks, rough-in sheets, single line drawings, venting materials, and sizing are also covered. A hands-on lab featuring gas piping, as well as a math competency exam are required and scheduled at a later date outside of scheduled class time.

### Plumbing 3: Plumbing Installations and Blueprints | Course AP08102

Residential, commercial, and industrial installation practices, including cross connections and trade math (offsets) are covered in year three of the plumbing apprenticeship program. Other topics covered include elevations and grades, builder's level and transit methods, gas codes, structural integrity, and blueprint reading. Students will need to purchase textbooks separately; details are emailed after registration.

### Plumbing 4: Plumbing Code for Plumbing Mechanics | Course AP08103

The fourth and final year of the plumbing apprenticeship program is an in-depth preparation for the Virginia Journeyman licensing exam, International Plumbing Code studies, and fire sprinklers. Plumbers with five years or more experience are also welcomed to take

this class to prepare for the exam. Students will need to purchase textbooks separately; details are emailed after registration.

### Beginner's Guide to Plumbing | Course TI05206

Using a combination of lecture, board diagrams, and limited hands-on practice with models, students will learn the tools and techniques to perform simple repairs and maintenance to home plumbing systems. Topics include: "P" traps, sink strainers, shut-off valves, supply tubes, garbage disposals, and connecting and soldering pipe. 1 session @ 4.5 hrs.



### Do-It-Yourself Plumbing | Course TI05190

The basics of your plumbing system including the repairs and maintenance that you can do featuring faucets, valves, toilets, and clogged drains. This class is designed to give more details with more time with hands-on activities. 3 sessions @ 3 hours each.

### Plumbers Continuing Education | Course TI05277

Comprehensive review of the IPC changes to fulfill the continuing ed requirement for plumbers with a Virginia journeyman or master license. Bring a government-issued photo ID to class and provide your trade license number and birth date at registration. On-time arrival and purchase of workbook is required. 1 session @ 3 hours each.

### Plumbing Workshop: Maintenance and Repair | Course TI05590

Impress them at your job interview with your knowledge of basic materials, piping, fittings, and fixtures. Be a productive worker from your very first day. Class begins with basic plumbing theory and code requirements then moves on to include four sessions: plumbing supply pipes, vents, toilets, and faucets in hands-on lab activities (hand tools needed).



## SURVEYING

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The apprenticeship program prepares persons in the surveying field to be “Party Chiefs.” The next step in this career ladder is to become a Licensed Land Surveyor (LS). The Board for Architects, Professional Engineers, Land Surveyors, Certified Interior Designers and Landscape Architects (APELSCIDLA Board) can be reached at <http://www.dpor.virginia.gov/Boards/APELS>.

### **Surveying 1** | Course AP08120

This course is an introduction to surveying, APELSCIDLA rules and regulations. Survey mathematics: errors in measurement, taping/corrections, differential leveling, traverse computations, horizontal and vertical curves, topographic/photogrammetric surveys, Geodesy/GPS/GIS, emerging technologies, and fundamentals of surveying are all covered. Class meets over 32 sessions that are 3 hours each. Students will need to purchase textbooks separately; details are emailed after registration.

### **Surveying 2** | Course AP08121

Year two of the surveying programs covers license and trade info, Theory of Errors in Observations and Coordinate Geometry (COGO); analysis and adjustments of survey measurements; assorted calculations note keeping for layout; compound reverse curves; Control Surveys and Geodetic Reductions; and horizontal and vertical control networks. Classes meet for a total of 32 sessions that are each three hours long. This course also requires a 30-hour project completed on the student’s own time. Students will need to purchase textbooks separately; details are emailed after registration.

### **Surveying 3** | Course AP08122

In the third year of the surveying program, students will learn about leveling and profiles, curves, cross-sections, earthwork volumes, grading plans, public lands survey system, maps and photographs, research, schemes, and urban surveying. Sediment and erosion control; stormwater, plotting drainage divides, S.U.E., ethics and minimum standards are also covered. CADD experience required. Classes meet for a total of 32 sessions that are each three hours long. This course also requires a 30-hour project completed on the student’s own time. Students will need to purchase textbooks separately; details are emailed after registration.



### Surveying 4 | Course AP08123

Hydrology intro, stormwater and sewers, urban water cycle, cover impacts on water quality, formulas, and NRCS are all covered in year four of the surveying program. Other topics covered include inlet design, on grade/sump conditions systems head losses, VDOT standard step, culvert hydraulics inlet/outlet "barrel" control, government regulations and Chesapeake Bay TMDL. Classes meet for a total of 32 sessions that are each three hours long. This course also requires a 30-hour project completed on the student's own time. Students will need to purchase textbooks separately, details are emailed after registration.



### Surveying 5 | Course AP08124

In the fifth and final year of the surveying program, students will learn about land surveying law and case research, Dillon Rule, ordinances, Byrd Act, Statute of Frauds, Estoppel, right of way, deeds, warranty, quiet title action, and construction. Other topics covered include Evidence, Conveyances, Boundary Solutions, Unwritten Rights, Agreement, Littoral/Riparian Boundary and Rights, Easements, ALTA/NSPS Land Title Survey, VDOT, Rail/Utility Plans, VA Condo Act, FLS and PLS Content areas, Due Diligence, Tax Assessment Maps, Informal Consolidations-NOT, and use of GIS. Classes meet for a total of 32 sessions that are each three hours long. This course also requires a 30-hour project completed on the student's own time. Students will need to purchase textbooks separately, details are emailed after registration.



## APPRENTICESHIP SAFETY

### Apprenticeship Core: Introduction to Basic Construction Skills | Course AP08000

Core is a prerequisite to all other Level 1 craft curriculum. Its modules cover topics such as Basic Safety, Communication Skills and Introduction to Construction Drawings. Completing this curriculum gives students the basic skills needed to continue education in any craft area he or she chooses. Core classes meet entirely online, students are required to have a computer or tablet to access classes (smartphones are not ideal). If you need/want lab time and computer access, please ALSO register for CT04000. Online textbook is included in tuition, students may elect to purchase a hard copy on their own.



# ONLINE, SELF-PACED TRADES CLASSES

Take your class on the go! Online, self-paced classes are available anytime, anywhere. These classes all have open enrollment, the start date listed online is simply a placeholder. You will get access to all course materials 2-3 business days after enrolling. Materials are sent to the email address used to register.



## AUTOMOTIVE SERVICE EXCELLENCE

Prepare for the ASE Transit Bus H1: compressed natural gas engines exam featuring all of the necessary components, which includes a detailed, three-tiered preparatory methodology of practice, standard, and timed testing modes.

**ASE Technician Test Preparation H1:  
Compressed Natural Gas Engines (Self-Paced) |**  
Course TI09006

**ASE Technician Test Preparation H2:  
Diesel Engines (Self-Paced) |** Course TI09007

**ASE Technician Test Preparation H3:  
Drive Train (Self-Paced) |** Course TI09008

**ASE Technician Test Preparation H4:  
Brakes (Self-Paced) |** Course TI09009

**ASE Technician Test Preparation H5:  
Suspension and Steering (Self-Paced) |** Course TI09010

**ASE Technician Test Preparation H6:  
Electrical/Electronic Systems (Self-Paced) |** Course TI09011

**ASE Technician Test Preparation H7:  
Heating, Ventilation, and Air Conditioning (Self-Paced) |**  
Course TI09012

**ASE Technician Test Preparation H8:  
Preventive Maintenance (Self-Paced) |** Course TI09013

## ELECTRICAL

### Electrical Technician (Self-Paced) | Course TI08070

Electricity is quite possibly the most important source of power. Electricity powers your computer, drives the machines tools in a manufacturing shop, and lights the facilities in which people work. To maintain all this electrical equipment, electrical professionals must understand the fundamentals of electricity and the components used to generate, control, and store it. If you're looking for a stable career that is important in the everyday lives of people around you, this course could be just right for you.

The course provides an intensive overview of the skills necessary for electrical maintenance, including math, inspection, safety, quality, electrical systems, automation, motor controls, and assembly. Get started in this accelerated online course today and begin your career as an electrical technician!

### Residential Electrician | TI08071

With booming infrastructure, new energy conservation projects, and an aging workforce, the demand for skilled electricians is on the rise. In fact, the Bureau of Labor Statistics projects that jobs for electricians will increase 14 percent through the year 2024.

The Electrician Training course is designed to teach you general and electrical safety procedures, use of common hardware and materials used in an electrical system, how to read and understand building plans, and more.



In addition, you will be prepared for electrician licensing tests, generally required by most states and localities. While tests differ, you will need to understand electrical theory, the National Electrical Code®, local electrical codes, and the various types of wiring methods and materials.

By course completion, you should be able to pass a residential electrician licensing exam and start an entry level career as a residential electrician or electrician apprentice. Check with your state, county, or city for residential electrician licensing rules and whether this course's hours will be accepted towards licensing.

## GREEN ENERGY

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### Leadership in Energy and Environmental Design (LEED) (Self-Paced) | Course TI08080

The Leadership in Energy and Environmental Design (LEED) Green Associate course is designed to educate candidates on cutting-edge green building and sustainable design practices, and enables participants to designate that expertise with an internationally recognized professional credential.

Developed and backed by the U.S. Green Building Council, the LEED Green Associate course and its credential have gained national and global notoriety. The Leadership in Energy and Environmental Design (LEED) rating system is one of the most widely used standards for green building and design. The Tier 1: LEED Green Associate training course and exam covers general information on green building practices for residential and commercial projects and prepares individuals to support other professionals working on projects seeking LEED certification.

This course will also prepare you for the LEED Green Associate Credential from USGBC (US Green Building Council). This is an internationally recognized certification that designates expertise in green building and design principles. The exam fee is included with the course.



### Home Inspection Certificate | TI05370

The Home Inspection Certificate Course covers the principal components, procedures, and processes of home inspection. This course has also been approved by the American Society of Home Inspectors (ASHI) and various home inspector organizations and regulatory boards for membership renewal credits or continuing education credits. It is also one component of the steps required to obtain a NIBI Certified Inspector credential.

Through 11 in-depth modules, you will gain insight on the methodologies required to perform a home inspection. You will learn how to inspect and report on heating and cooling systems, plumbing and electrical systems, roof and siding, the foundation, and other major components of a home.



## HVAC/R

### HVAC/R Certified Technician (Voucher Included) (Self-Paced) | Course TI08011

If you have more than a year of HVAC/R experience, this course will prepare you for the next step—certification. HVAC/R technicians are in demand, but certified technicians can earn more and have better career opportunities.

This course uses hands-on service call simulations to prepare for the HVAC Excellence or NATE certification exams. By course completion, you will be ready to pass the HVAC Excellence Core and Professional Technician exams, the NATE Core and Specialty Test exams, and the EPA 608 certification exam. You will also receive a voucher package to take the HVAC Excellence exams. However, please research your state's requirements prior to enrollment to ensure this course is the right fit for you.



### HVAC/R Simulations for Field Technicians | TI08003

As HVAC/R systems become increasingly complex, learning and mastering the latest technology is critical. HVAC/R Simulations for Field Technicians offers a rich, hands-on learning experience that mimics field performance in a completely online environment. You will practice servicing, maintaining, and troubleshooting common HVAC/R scenarios in true-to-life service call simulations. You will work through approximately 200 scenarios to master seven pieces of HVAC/R equipment—gas furnace, oil furnace, gas boiler, split residential A/C, commercial A/C, heat pumps, and commercial walk-in freezers. Your skills and knowledge are then put to the test in 12 ungraded assessment simulations. If you need to sharpen your diagnostic and troubleshooting skills, this online course is ideal.

### HVAC/R Technician (Voucher Included) | TI08001

This course will prepare you for an entry-level career in the HVAC/R industry by providing hands-on guidance for service, repair, and solutions. You will learn from in-depth materials, including service call simulations that bring concepts to life. By course completion, you will be ready to pass all 17 HVAC Excellence Employment Ready Certificates, the EPA 608, and the NATE Ready to Work Certificate. You will also receive a voucher package for the HVAC Excellence Employment Ready Certificate exam and EPA 608 Certification exam. However, please research your state's requirements prior to enrollment to ensure this course is a right fit for you.

#### HVAC/R Certification Exams

By course completion, you will be fully prepared to sit for the HVAC Excellence Core and Professional Technician exams, the NATE Core and Specialty Test exams, and the EPA 608 certification exam.

Upon completion of this course, you will receive an HVAC Excellence ESCO Group Voucher Package that includes:

- One Principals of Electrical and Refrigeration (Core)\* exam voucher.
- One Professional Technician exam voucher (Residential Air Conditioning recommended).
- One EPA 608 exam voucher.

*\*To sit for the HVAC Excellence Core exam, you must provide two years of documented work experience. Exam proctor fees may apply.*

Additionally, this course aligns with the following Professional Technician specialty areas (vouchers are not included for the below exams):

- Principals of Electrical and Refrigeration Theory.
- Residential Air Conditioning.
- Gas Heat.
- Electric Heat.
- Heat Pump Installer.
- Heat Pump Service.
- Light Commercial Air Conditioning.
- Light Commercial Refrigeration.





## MACHINING AND TOOLMAKING

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### **Manual Machinist (Self-Paced) | Course TI08231**

This Manual Machinist course provides an intensive overview of the skills necessary to perform manual machining. The course will cover workholding, math, inspection, safety, machining, materials, quality, grinding, assembly, and more.

### **Toolmaker (Self-Paced) | Course TI05858**

Manufacturers are looking for highly skilled workers to create increasingly complex and important products. If you want a stable career in an industry that needs you, consider becoming a toolmaker. This online Toolmaker course will provide you with the knowledge and skills you need to prove competency and begin your new career quickly.

The Toolmaker course provides an intensive overview of the skills necessary for toolmaking, including workholding, math, inspection, safety, machining, materials, quality, grinding, and stamping.

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## OPERATIONS

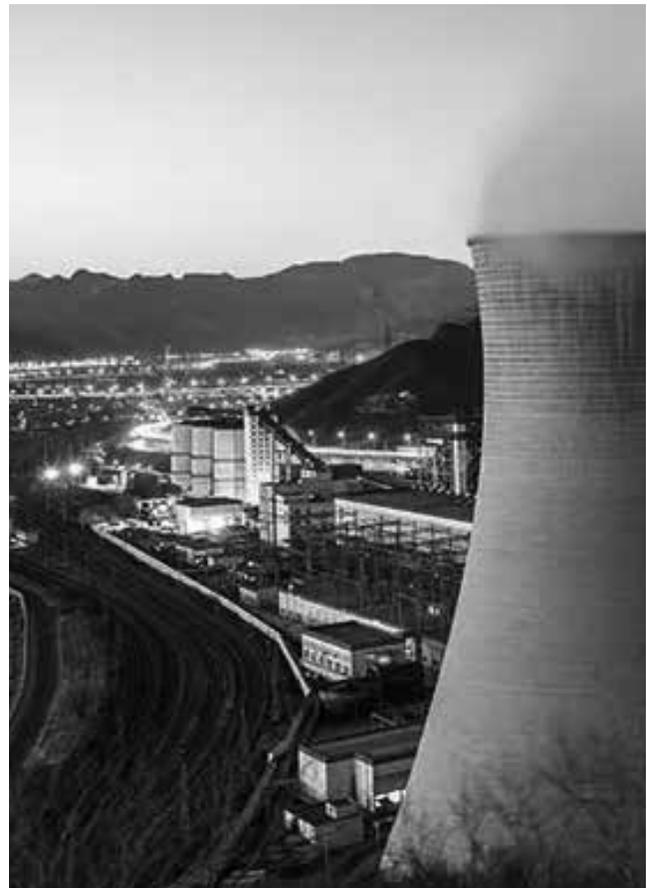
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### **Power Plant Operations | TI09005**

If you want a career with high pay and a stable work environment, this online Power Plant Operations course will get you on the right track. Now is an excellent time to start an exciting career as a power plant operator—there are thousands of power plants in the United States alone, and a large portion of the workforce is retiring, creating open power plant operator jobs for many years to come. Power plant operator training will prepare you to fill the ongoing need for entry-level positions in this industry.

This unique, user-friendly course is designed for people who have minimal knowledge of the industry, math, physics, or chemistry. The necessary science concepts are built into the course modules. Very few institutions provide power plant operator training and certification opportunities for entry-level operators, so your certificate from this course will give you an edge over others in the field.

After you complete this course, you will be fluent in how to operate a power plant with safety as the prime consideration. You'll be able to make adjustments to keep system process variables, such as flows, temperatures, and pressures within acceptable ranges; detect both potential and actual problems and analyze operational trends as well as take corrective actions.



## OPTICIANRY

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### Optician Certification Training | TI08091

After successfully completing this course, you will possess the knowledge required to pass the American Board of Opticianry (ABO), National Opticianry Certification Exam (NOCE), or Contact Lens Registry Exam (CLRE). However, we do recommend researching your state's requirements prior to pursuing a career as an optician. While some states only require a high school diploma or GED and passing score on the ABO exam to fulfill licensing requirements, others have their own optician licensing exams. Additionally, some states may require that opticians complete an apprenticeship program or degree program in order to become licensed.

Coursework is 50 hours, completed at your own pace over six months. There are no prerequisites to take this course. However, a high school diploma or GED is required to take the ABO exam.

## PLUMBING

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### Foundations of Plumbing (Self-Paced) | Course TI08100

There is a shortage of skilled plumbers. With an aging infrastructure and dwindling trade workforce, the demand for plumbers has never been greater. In fact, the Bureau of Labor Statistics predicts that plumbing jobs will increase at a faster than normal rate over the next 10 years. With the right training, you could enter and build a scalable career in this high-demand field.

If you want to work as a plumber, the Foundations of Plumbing course will teach you the fundamental, job-ready skills relevant to the plumbing and piping industry. In this self-paced course, you'll learn how to work on modern plumbing systems from in-depth course material developed by industry experts and employers. By course completion, you will possess the specialized skills and technical knowledge needed to start a career in plumbing.



## WELDING

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### Welder Technician | TI05221

Do you like to work with your hands? Are you looking for a career where you can do what you love and make good money? This online Welder Technician course is an accelerated training package that will provide you the required knowledge and skills you need for success as a welder.

The course provides an intensive overview of the skills necessary for a welder technician to perform the job, including lessons in math, inspection, safety, materials, quality, metal cutting, grinding, forming, robotics, rigging, and welding.

# LAUNCH YOUR CAREER WITH A YOUTH REGISTERED APPRENTICESHIP



## AT A GLANCE

### Opportunities

- Earn while you learn
- Master cutting-edge and in-demand skills employers want and need
- Build relevant on-the-job experience

### Benefits

- Gain real world skills while still in High School
- Earn credit toward graduation
- Make money
- Start your career early

## WHAT IS A YOUTH REGISTERED APPRENTICESHIP?

Youth registered apprenticeships (YRA) provide 16-21-year-olds in high school with a targeted education and stable career pathway. YRAs combine your academic instruction with technical hands-on experience that students are paid for. That's right, students earn credits toward graduation and get paid. YRA is run in partnership with the Department of Labor and Industry.

## BENEFITS

Joining a YRA program has many benefits, such as:

- Low or no college debt
- Start your career pathway with a mentor
- Learn and earn!
- Gain real-life work experience to start building your resume
- Get industry experience and start building your network of contacts in your chosen trade
- Trades careers are in VERY high-demand, and employers are actively seeking to hire apprentices

## HOW TO GET STARTED

### Determine your Trade

There are several contacts within each high school to help students get enrolled in a YRA program

### Contact a Counselor or CTE Teacher

There are several contacts within each high school to help students get enrolled in a YRA program

### Seek Employment

Start classes and seek employment with an approved YRA employer. You do not need to be employed before starting classes.

### Learn and Earn

Attend your YRA classes to earn credit toward graduation, work your assigned hours with your employer, and you are on a great career pathway!



*"Adult and Community Education works closely with all FCPS high schools and CTE programs to ensure a seamless transition for students from high school and YRA to continue their apprenticeship training."*

*YRA gives students two extra years of experience before transitioning to ACE."*

**Paul D. Steiner**  
ACE Administrator

# RESOURCES AND POLICIES

## APPRENTICESHIP CONSULTANT

### Virginia Department of Labor and Industry

- Registration of apprentices.
- Starting an apprenticeship program.
- Changing employers and job problems.
- Completion requirements.
- Record logbooks and recordkeeping.
- Licensing certification requirements.
- On-the-job training.

Apprenticeship action forms are needed by DPOR to show completion as a registered apprentice. Only registered apprentices will receive an action form. To learn more about registered apprenticeship, please go to [www.doli.virginia.gov/apprenticeship](http://www.doli.virginia.gov/apprenticeship), or call 703-392-0900 x 102 for English, x 108 for Spanish.



**ACE IS HIRING**  
**APPRENTICESHIP & TRADES INSTRUCTORS**

**BENEFITS:**

- \$32/hour+
- Part-time hours; can work between 3-20 hours a week
- Bring your skills & knowledge to life for others
- Training provided

**SEND YOUR RESUME TO**  
[ace\\_jobs@fcps.edu](mailto:ace_jobs@fcps.edu)

## EMPLOYMENT CENTERS

For assistance with employment counseling, referrals and placement assistance, vocational assessment, resumé and interview techniques, and/or personalized counseling, please call:

Alexandria: 703-704-6286

Alexandria/Fairfax: 571-327-2206

Annandale: 703-533-5400

Leesburg: 703-777-0150

Manassas: 703-530-3073

Reston: 703-787-4974

Woodbridge: 703-586-6800

[www.vcnorthern.com](http://www.vcnorthern.com)

## INCLEMENT WEATHER POLICY

All classes missed due to inclement weather will be made up by extending class end date. Rescheduled classes may meet on different days at the instructor's discretion. For weather updates, visit [www.fcps.edu](http://www.fcps.edu) for emergency announcements.

FCPS uses *News You Choose*, which includes electronic notification options, to communicate school closing information. Sign-up at <https://public.govdelivery.com/accounts/VAEDUFCPS/subscriber/new>.

## REGISTRATION

Please be sure to use the full legal name of each apprentice, as well as their personal email address. Failure to do so will result in lost records and communication issues with the student.

Online: <https://aceclasses.fcps.edu>

Phone: 703-658-1201 (Visa or Mastercard payments only)

### Late Registration Fee

A late registration fee will be assessed to any student who enrolls on or after the class start date. No enrollments are permitted after class has been in session for two weeks.

### Grade Reports

Quarterly grade reports and classroom hours attended will be mailed to the address on file. If you change employers, employees, addresses, and/or phone numbers, notify the ACE registration at 703-658-1201 and ask to update your record.

### Course Changes and Updates

ACE reserves the right to switch/update classes listed herein for a comparable class that will serve the same purpose. Further, additional courses may be added to this listing at any time, and courses may be cancelled or postponed due to low enrollment. For the most up-to-date course listings, tuition, and start dates, please go to our website at [www.fcps.edu/registration/adult-and-community-education-registration](http://www.fcps.edu/registration/adult-and-community-education-registration).



FCPS Tax ID# 54-0805373

# ACE | Classes FOR Everyone



Business Classes  
Certificate Programs  
Culinary  
Customized Workplace Training  
Driver Education  
ESOL  
Health and Medical  
Information Technology  
Pharmacy Technician  
Trade and Industry Classes  
Veterinary  
Web Design and Development  
World Languages  
...and many more!

The ACE Classes Catalog lists over 2,500 class choices each season. The classes are open to everyone regardless of where you live.

For class availability on the topics that interest you, call 703-658-1201 or visit [www.fcps.edu](http://www.fcps.edu) and search "adult education."



Adult and Community Education  
703-658-1201 | [www.fcps.edu](http://www.fcps.edu)

# ACE

Fairfax County Public Schools  
Adult and Community Education

**Apprenticeship**

Pimmit Hills Center

7510 Lisle Avenue

Falls Church, VA 22043

Nonprofit Organization

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Check out the ACE Apprenticeship course schedule online and **REGISTER TODAY!**



Fairfax County  
PUBLIC SCHOOLS  
ENGAGE • INSPIRE • THRIVE