

# Industrial Electricity



The mission of the Industrial Electricity program is to provide students with the comprehensive technical training necessary both for early success in entry level positions, and for steady advancement toward senior level positions in electrical careers.

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**Length of Course:** 1,414 clock hours, 202 training days

**Enrollment:** Late August

**Training Hours:** 8:30 a.m. to 4:30 p.m., Monday through Friday

**Certificate Level:** Industrial Electricity

### **Occupational Levels:**

Industrial Controls Technician  
Industrial Electrical Technician  
Electrical Apprentice  
Electrical Helper

### **Licensing:**

Up to 1,000 course hours may apply toward State of Alaska experience requirements for the Journeyman Electricians License.

### **Prerequisites:**

Algebra 1 with a passing grade of C or better, or provide a certificate from NJATC online tech math course, good mechanical aptitude, high motivation, and solid responsible character.

### **TABE tests scores for this program must be:**

Reading – 609  
Combined Math – 609

Contact the Admissions Office at (800) 478-5389 for testing requirements and entry guidelines in reading and mathematics. All applicants are required to take a mathematics pre-test to assess their skills prior to enrollment.

Physical requirements of the occupation are the ability to lift and carry 50 pounds, and climb, stoop, kneel, crawl, walk, and stand continuously. The work also requires good mental and manual dexterity, the ability to read very fine print, and distinguish colors accurately.

# Industrial Electricity

If you like working with your hands and your head, and can pay attention to detail while completing complex projects, then electrical careers training may be a good match for you. Electricians and electrical technicians are problem-solving professionals who are always in demand.

AVTEC's Industrial Electricity program creates a dynamic integrated learning experience with a sequence of intensive electrical training courses.

Full-term graduates will be prepared to successfully complete a four year electrical apprenticeship, pass the Alaska Journeyman Electricians' Licensing Exam, and demonstrate the comprehensive knowledge and skills necessary to succeed in the many electrical careers available in Alaska.



Up to 1,000 course hours may apply toward State of Alaska experience requirements for the Journeyman Electricians License.

Industrial Electricity graduates are successfully employed in all electrical occupations including residential, commercial, and industrial electrical construction journeymen, electrical maintenance technicians, facility maintenance technicians, power generation technicians, Instrument and electrical technicians, and electrical sales and service. They work in every major industry in Alaska including electrical construction, electrical utilities, mining, manufacturing, petroleum refineries, systems integrators, process engineering, seafood processing plants, water treatment plants, school districts, power plants, oil and gas fields, and pipelines.

## **Earn University of Alaska Credit While Attending AVTEC**

Industrial Electricity graduates may earn up to 26 University of Alaska/Kenai Peninsula College credits (depending on coursework completed) while attending AVTEC.

# Program Requirements

Occupational levels of Industrial Controls Technician, Industrial Electrical Technician, Electrical Apprentice, and Electrical Helper will be assigned upon successful completion of the training program and based on the student's demonstrated proficiency in the program's competencies.

To achieve an Industrial Electricity certificate, students must complete the following requirements: Electrical Safety Practices, Related Studies, Structured Problem Solving, Working to Standards for Safety and Quality, Practical Electricity, Residential, Commercial, and Industrial Construction, Computer and Network Applications for Electrical Careers, Electrical Circuits I, Logic I and II, Electrical Circuits II, Electrical Machines, Power Distribution Circuits and Equipment, National Electrical Codes & Electrical Project Planning, Electrical Projects, Basic Instrumentation, Industrial Automation I, Industrial Automation II, and Electrical Power Plant. This is a total of 1,414 contact hours.

### **Electrical Safety Practices**

Contact Hours: 75

Demonstrate awareness of, and consistent compliance with safe work regulations and practices.

### **Related Studies**

Contact Hours: 24

Participate in school safety orientation, complete achievement tests, obtain First Aid & CPR card, complete applied math class and computer skills practice, participate in resume writing and job search training, participate in interview and communications training.

### **Structured Problem Solving**

Contact Hours: 40

Apply structured problem solving methods.

### **Working to Standards for Safety and Quality**

Contact Hours: 30

Utilize work standards, codes, and quality control methods.

### **Practical Electricity**

Contact Hours: 80

Demonstrate the foundation knowledge and skills required for all electrical careers.

**Residential, Commercial, and Industrial Construction**

Contact Hours: 120

Demonstrate competency with the tools, materials, and practices of the trade.

**Computer and Network Applications for Electrical Careers**

Contact Hours: 80

Apply personal computers and networks to the simple and complex tasks common in electrical careers.

**Electrical Circuits I**

Contact Hours: 100

Demonstrate mastery of basic to complex DC circuit analysis, design, construction, and troubleshooting while complying with precision work standards.

**Logic I & II**

Contact Hours: 80

Design, build, test and troubleshoot basic electrical logic circuits.

**Electrical Circuits II**

Contact Hours: 120

Perform basic to complex AC circuit analysis, design, construction, and troubleshooting while complying with precision work standards.

**Electrical Machines**

Contact Hours: 80

Demonstrate practical knowledge and skills in the operation, application, and testing of electrical motors and transformers.

**Power Distribution Circuits and Equipment**

Contact Hours: 50

Identify, build, and test the standard In-Plant power distribution circuits.

**National Electrical Codes & Electrical Project Planning**

Contact Hours: 120

Demonstrate proficiency in the use of electrical codes, specifications, and construction drawings for electrical project design and planning.

**Electrical Projects**

Contact Hours: 80

Practice all aspects of the electrical industry.

**Basic Instrumentation**

Contact Hours: 80

Identify, install, and maintain basic electrical instrumentation circuits.

**Industrial Automation I**

Contact Hours: 100

Design, build, test and troubleshoot basic wired logic and programmable logic industrial automation systems.

**Industrial Automation II**

Contact Hours: 120

Design, program, calibrate, test, and troubleshoot common advanced System Control and Data Acquisition systems.

**Electrical Power Plant**

Contact Hours: 35

Demonstrate proficiency in the operation, maintenance, testing, and troubleshooting of industrial electrical power generation systems.