



## General Electrician 2013-2014

The General Electrician program consists of a comprehensive course of study necessary for career success as a General Electrician. This program is designed to meet the "whole program status" as designed by the Department of Apprenticeship Standards. Upon completion of the program, students will have acquired the knowledge and skills needed to function as general electricians including foundation sciences, mathematics, safety, plan and code reading, as well as necessary job based skills. Upon completion of required work experience and hours, program graduates will be qualified to take the State certification examination and work as electricians. Career opportunities for qualified general electricians in the construction trades are very diverse. Depending on the student's career interest and courses taken, graduates find employment as General Electricians in commercial, industrial, and residential areas, Voice Data Video Technicians, Fire/Life Safety Technicians, or Nonresidential Lighting Technicians.

### Program Learning Outcomes:

Students gain hands-on experience as they work on electrical systems and component wiring to include: power distribution systems, electrical panels, wiring, conduit, piping, test equipment, transformers, motors, grounding, over-current protection, security, solar, and home automation systems. These specialized skills are acquired through on-the-job training and classroom instruction, and lead to employment in the construction and service industry. After 5 years of classroom and work experience, students who pass the state license exam are recognized as journeypersons within the electrical trades industry.

### Career Opportunities:

Upon completion of all course requirements and 8,000 hours of related work experience for a Commercial Electrician, 4000 hours for a Residential Electrician, graduates will be eligible for the State certified Electrician Examination. Depending on the student's career interest and courses taken, graduates find employment as General Electricians in commercial, industrial, and residential areas, Voice Data Video Technicians, Fire/Life Safety Technicians, Solar and Photovoltaic Installers, and Nonresidential Lighting Technicians.

### Units required for Major: 40

### Units required for Certificate: 18-40

### Associate Degree Requirements:

- English proficiency: ENGL 1A, 1AH, 1S & 1T, ESLL 26 or equivalent.
- Mathematics proficiency: MATH 57, 105, 108 or equivalent.

A minimum of 90 units is required\* to include:

- All Foothill General Education requirements (30 Units)
- Core courses (40-44 Units)

\*Additional elective course work may be necessary to meet the 90-unit minimum requirement for the associate degree.

### Program Types:

**AS = Associate in Science Degree.**

**CA = Certificate of Achievement.**

**CCC = Career Certificate [Non-Transcriptable].**

### Additional Information:

Prerequisites: Admission to the Electrical Apprenticeship Program; current employment in the electrical trades industry.

### Core Courses: 40-44 Unit(s)

- APEL 120 Orientation to the Electrical Trade (4 units) or APEL 120A Orientation to the Electrical Trade, CPR & First Aid (5 units)
- APEL 121 Electron Theory; Basic Blueprint Reading; DC Theory; National Electrical Code Introduction (4 units) or APEL 121A Electron Theory; Ac & Dc Electrical Theory; National Electrical Code Introduction; Parallel & Combination Circuits (5 units)
- APEL 122 Codeology; Test Equipment; Pipe Bending; Blueprints (4 units) or APEL 122A Codeology; NEC Code; Test Equipment; Pipe Bending; Blueprints (5 units)
- APEL 123 AC Theory; Transformers; Intermediate National Electrical Code (4 units)
- APEL 124 DC/AC Theory Review; Electronics; Industrial Blueprints (4 units) or APEL 124A DC/AC Theory Review; Electronics; Industrial Blueprints; Transformers, Grounding; Electrical Systems (5 units)
- APEL 125 NEC Grounding; Overcurrent Protection; Transformer Connections (4 units)
- APEL 126 Motors; Motor Control; Lighting Protection (4 units)
- APEL 127 Digital Electronics; Motor Speed Control; Advanced National Electrical Code (4 units) or APEL 127A Digital Electronics; Motor Speed Control (2 units)
- APEL 128 Programmable Logic Controllers; Low-Voltage Systems & High-Voltage Systems (4 units)
- APEL 129 National Electrical Code Review (4 units)

### Support Courses: 2 (optional) Unit(s)

APEL 130 OSHA Safety & Health (2 units)

### Certificates:

### Certificate of Achievement in Inside Wireman 40 Unit(s)

The Certificate of Achievement is awarded upon completion of the core courses. General education courses are not required.



## **Residential Electrician Career Certificate**

### **18 Unit(s) [Non-Transcriptable]**

APEL 112 Residential Electrical Air Conditioning & Refrigeration; Telephone Systems (3 units)

APEL 113 Residential Electrical Systems: Basic Security, Solar Power, Home Automation & Life Safety (3 units)

APEL 135 Residential Electrical Orientation; Safety & Code Introduction (3 units)

APEL 136 Residential Electrical D/C Theory; Blueprint Reading (3 units)

APEL 137 Residential Electrical A/C Theory & Circuitry (3 units)

APEL 138 Residential Wiring Layout & Installation (3 units)