

APEL 120A: ORIENTATION TO THE ELECTRICAL TRADE, CPR & FIRST AID

Foothill College Course Outline of Record

Heading	Value
Units:	5
Hours:	36 lecture, 84 laboratory per quarter (120 total per quarter)
Prerequisite:	Per California Code of Regulations, this course is limited to students admitted to the San Francisco Inside Wireman Electrical Program.
Advisory:	Not open to students will credit in APEL 120.
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	None
Grade Type:	Letter Grade (Request for Pass/No Pass)
Repeatability:	Not Repeatable

Student Learning Outcomes

- To become certified in CPR & First Aid
- A student will start to learn the fundamentals of the Electrical Trade

Description

Orientation to the commercial/industrial electrical industry with an introduction to electrical theory, tools, materials, wiring methods, and job skills. Review of mathematics as applied in the electrical construction trades. Industry applications, hands-on labs. CPR, first aid, job orientation topics: sexual harassment and drug abuse.

Course Objectives

The student will be able to:

- Apply an understanding of basic electricity and Ohm's Law through series circuits.
- Demonstrate basic on-the-job skills regarding tools, materials and safety.
- Express a basic understanding of nature of the requirements, duties, and the role of electricians and the organizational structure of and construction trades.
- Apply appropriate mathematical problem solving related to electrical trades.

Course Content

- Basic electricity
 - OHMS Law
 - Kirchoff's Law
 - Combination circuits
- Basic on the job skills
 - Material identification
 - Tool usage
 - On the job safety requirements

- Understanding your role as an apprentice
 - Taking orders from a journeyman
 - Understanding the role of a foreman
 - Understanding the role of a general foreman
- Real world mathematical problem solving
 - Manipulating Ohm's Law algebraically
 - Understanding Kirchoff's Law
 - Proper tool management

Lab Content

Students will work individually and in teams on proper wiring and grounding of electrical systems. Safe working practices for on-the-job training include:

- Equipment safety
- Fire protection
- Electrostatic Discharge (ESD)
- Safe handling practices

Special Facilities and/or Equipment

Lab with electrical tools, to include:

- Audio-visual equipment (slide, video and overhead projectors)
- Hand benders
- Various hand tools
- Various power tools
- Lights, switches, 3 way and 4 way plugs
- Exothermic welding

Method(s) of Evaluation

- Results of quizzes and tests
- Classroom and laboratory participation
- Maintaining a daily student log of work activities
- Results of hands-on laboratory tests

Method(s) of Instruction

- Lecture
- Lab Assignments
- Group Discussion
- Demonstration

Representative Text(s) and Other Materials

[NJATC Orientation Workbook](#). Marlboro, MD, 2009.

[NJATC Job Information-1 Workbook](#). Upper Marlboro, MD: National Joint Apprenticeship Training Committee, 2011.

[DC Theory Textbook](#). Clifton Park, NY: DELMAR: Cengage Learning, 2010.

[NJATC DC Theory Workbook](#). Upper Marlboro, MD: National Joint Apprenticeship Training Committee, 2009.

[Conduit Bending and Fabrication](#). Homewood, IL: American Technical Publishers, in partnership with the NJATC by the National Joint Apprenticeship and Training Committee for the Electrical Industry and American Technical Publishers, Inc., 2009.

Hart, George V. [Ugly's Electrical References](#). 2008 ed. Houston, TX: Burlison Distributing Corp., 2011.

J.J. Keller's Official OSHA Construction Handbook. 5th ed. Neenah, WI:
J.J. Keller and Associates, Inc., 2006.

The textbooks listed are the standard texts used for this course. Although not within 5 years of the required published date, they are the most current books used when teaching this course. We will adopt the next edition of each as it is published.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

A. Reading assignment from the Electrical Systems based on the 2017 NEC.

B. Writing assignment from the Electrical Systems based on the 2017 NEC.

1. Write articles on safety considerations per the National Fire Protection Association, NEC 2005. NFPA 70: National Electrical Code.

Discipline(s)

Electricity