

APRT 149A: ELECTRICAL SYSTEMS OPERATION, CONTROLS & DEVICES (TAB-2)

Foothill College Course Outline of Record

Heading	Value
Units:	4.5
Hours:	30 lecture, 78 laboratory per quarter (108 total per quarter)
Prerequisite:	Per California Code of Regulations, this course is limited to students admitted to the Sheet Metal Testing & Air Balance Apprenticeship Program.
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

- A successful student will be able to read and interpret plans and specifications.
- A successful student will be able to describe lockout-tagout procedure for electrical equipment and controls.

Description

Study of individual electrical components and devices of control systems, and understanding their operation and relationship to each other. Identify and use instruments in measuring air movement. Learn how to interpret, use and understand drawings relating to the construction of a building.

Course Objectives

The student will be able to:

- Identify electrical equipment and controls.
- Measure air movement in HVAC systems.
- Read and interpret plans and specifications.

Course Content

- Identify electrical equipment and controls
 - Fundamentals of Electrical Theory
 - Electrical Safety
 - Electrical components of an HVAC system, including motors, transformers, sensors and controls
 - Electrical system operation
- Measure air movement in HVAC systems
- Read and interpret plans and specifications
 - Parts of a set of plans
 - Job specifications and submittals

Lab Content

- Practice safety techniques in the application of electrical theory
- Practice realistic electrical circuit calculations
- Verify by the use of electrical measuring devices
- Read symbols as used on plans and for equipment nameplate and schematic diagrams

Special Facilities and/or Equipment

Laboratory equipped with air conditioning duct and hydronic system.

Method(s) of Evaluation

- Results of written quizzes and tests
- Quality of drawings
- Comprehensive written final examination
- Maintenance of a workbook of student's daily work activities

Method(s) of Instruction

- Lecture
- Discussion
- Cooperative learning exercises
- Oral presentations
- Laboratory
- Demonstration

Representative Text(s) and Other Materials

International Training Institute for the Sheet Metal and Air Conditioning Industry. Testing, Adjusting & Balancing of Environment Systems. Alexandria, VA: International Training Institute, 2003.

NOTE: This is the standard Sheet Metal textbook/workbook used for this course. Although it may not be within 5 years of the required published date, it is the most current book used when teaching this course.

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

- An example of a reading assignment is to read about the fundamentals of electricity in the text.
- An example of a written assignment is to answer questions in the Electrical Theory module regarding transformers, including practice calculations for power produced.

Discipline(s)

Air Conditioning, Refrigeration, Heating