

**APED 260 Course Outline as of Fall 2019****CATALOG INFORMATION**

Dept and Nbr: APED 260 Title: APP ELECTRICIANS 1ST SEM

Full Title: Apprentice Electricians, First Semester

Last Reviewed: 3/28/2022

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	4.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	4.00	Lab Scheduled	3.00	8	Lab Scheduled	52.50
		Contact DHR	0		Contact DHR	0
		Contact Total	6.00		Contact Total	105.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00

Total Student Learning Hours: 210.00

Title 5 Category: AA Degree Applicable

Grading: Grade Only

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly: APED 220.1

**Catalog Description:**

Related supplemental instruction for apprentice electricians.

**Prerequisites/Corequisites:****Recommended Preparation:****Limits on Enrollment:**

Indentured apprentice

**Schedule of Classes Information:**

Description: Related supplemental instruction for apprentice electricians. (Grade Only)

Prerequisites/Corequisites:

Recommended:

Limits on Enrollment: Indentured apprentice

Transfer Credit:

Repeatability: Two Repeats if Grade was D, F, NC, or NP

**ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

**AS Degree: Area**  
**CSU GE: Transfer Area**

Effective: Inactive:  
Effective: Inactive:

**IGETC: Transfer Area**

Effective: Inactive:

**CSU Transfer:** Effective:

Inactive:

**UC Transfer:** Effective:

Inactive:

**CID:**

**Certificate/Major Applicable:**  
Not Certificate/Major Applicable

## **COURSE CONTENT**

### **Student Learning Outcomes:**

At the conclusion of this course, the student should be able to:

1. Describe and demonstrate electrical principles and regulations related to electricians' trade.
2. Apply best practices in practical environment related to electricians' trade.

### **Objectives:**

Upon completion of the course, students will be able to:

1. Summarize the history of the electrical industry and the apprenticeship program for inside wiremen.
2. Define the purpose and uses of the National Electrical Code.
3. Apply the principals of electricity to the electrical trade.
4. Demonstrate basic skills and problem solving of the electoral trade.

### **Topics and Scope:**

#### **I. Introduction**

A. Overview of the International Brotherhood of Electrical Workers (IBEW) and apprenticeship

B. History of the IBEW

#### **II. Tools**

A. Basic electricians' tools

B. Use of tools

#### **III. Working techniques**

A. Proper lifting

B. Safe use of ladders

C. Safe practices with electricity

D. The workplace

E. Conduit

#### **IV. Math Review**

A. Metric measurement

B. Metric conversion

C. Square root

D. Solving simple equations

E. Ratios and proportions

#### **V. National Electrical Code (NEC)**

- A. Introduction
- B. Definitions
- C. General use
- VI. Basics
  - A. Power units
  - B. Fastening devices
  - C. Wire sizes
  - D. Wire and insulation
- VII. Direct Current Theory
  - A. Resistance in series circuits
  - B. Current series circuits
  - C. Voltage in series circuits
  - D. Series DC circuits

All Topics are covered in the lecture and lab portions of the course.

### Assignment:

#### Lecture-Related Assignments:

1. Homework assignments (1 to 2 sets per week)
2. Quizzes and examinations (4 to 6 per semester)

#### Lab-Related Assignments:

1. Class performances and field work (on-the-job demonstrations) of skill development, safety practices, equipment, and material handling

### Methods of Evaluation/Basis of Grade:

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments and skill demonstrations are more appropriate for this course.

Writing  
0 - 0%

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework assignments; field work

Problem solving  
10 - 25%

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Class performances; field work

Skill Demonstrations  
50 - 65%

**Exams:** All forms of formal testing, other than skill performance exams.

Quizzes and examinations to include multiple choice, true/false, matching items, and completion

Exams  
10 - 20%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

Attendance and participation

Other Category  
5 - 10%

**Representative Textbooks and Materials:**

National Electrical Code. NFPA. National Fire Protection Agency. 2017

Electrical Systems Based on the 2017 NEC. Callanan, Michael and Wusinich, Bill. American Technical Publishers. 2017

Building a Foundation in Mathematics. 2nd ed. NJATC. Cengage Learning. 2011 (classic)

Blueprint Reading for Electricians. 3rd ed. Zachariason. Cengage Learning. 2010 (classic)

DC Theory. 2nd ed. NJATC. Cengage Learning. 2008 (classic)

Conduit Bending and Fabrication. ATP Staff. American Technical Publishers. 2007 (classic)

Test Instruments. Mazur, Glen. American Technical Publishers. 2005 (classic)