

CATALOG INFORMATION

Dept and Nbr: APED 262      Title: APP ELECTRICIANS 3RD SEM  
Full Title: Apprentice Electricians, Third 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 220.3

Catalog Description:  
Related supplemental instruction for apprentice electrician workers; third semester.

Prerequisites/Corequisites:

Recommended Preparation:

Limits on Enrollment:  
Indentured apprentice

Schedule of Classes Information:  
Description: Related supplemental instruction for apprentice electrician workers; third semester.  
(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:**

<b>AS Degree:</b>	<b>Area</b>	<b>Effective:</b>	<b>Inactive:</b>
<b>CSU GE:</b>	<b>Transfer Area</b>	<b>Effective:</b>	<b>Inactive:</b>
<b>IGETC:</b>	<b>Transfer Area</b>	<b>Effective:</b>	<b>Inactive:</b>
<b>CSU Transfer:</b>		<b>Effective:</b>	<b>Inactive:</b>
<b>UC Transfer:</b>		<b>Effective:</b>	<b>Inactive:</b>

**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 this course, the students will be able to:

1. Relate the job opportunities in the electrical industry to career goals.
2. Identify drug abuse problems as they relate to the construction industry.
3. Explain marketing as it relates to electrical contractors being competitive in the market place.
4. Understand the International Brotherhood of Electrical Workers (IBEW) constitution, by-laws and parliamentary procedures.
5. Apply factors of the National Electrical Code to work in the trade.
6. Solve mathematical problems related to the industry.
7. Demonstrate basic manipulative skills used in the electrical industry.
8. Relate the theory of various electrical components and connections to work in the trade.
9. Recognize the components of transformers.
10. Describe the refrigeration cycle.

### **Topics and Scope:**

- I. Professional Aspects of Electricians' Trade
  - A. Career planning
  - B. Drug use and employment
  - C. Leadership
  - D. Contractor marketing
- II. International Brotherhood of Electrical Workers

- A. Constitution
- B. By-laws
- C. Parliamentary procedures
- III. Electrical Codes
  - A. Codes and building plans
  - B. Numbering and outline
- IV. Mathematics
  - A. Mathematics of Alternating Current (AC) circuits
  - B. Vectors
- V. Conduit
  - A. Ratchet benders
  - B. Segment bending and concentric bends
  - C. Wire connectors
- VI. AC Generators
  - A. Circuit calculators
  - B. Marketing
  - C. Job costs review
  - D. Wire connectors
  - E. Electrical test instruments
  - F. Three-phase AC circuits
  - G. AC inductive reactance
- VII. Direct Current (DC) Generators and Meters
- VIII. Heat, Temperature, Pressure
  - A. Transformer introduction
  - B. Application and installation

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:**

AC Theory. 3rd ed. NJATC and Keljik, Jeff. Cengage Learning. 2009 (classic)

Code Calculations. National Joint Apprenticeship and Training Committee. 2008 (classic)

Applied Codeology. 2nd ed. NJATC. Cengage Learning. 2008 (classic)

Transformer Principals and Applications. taylor, Otto and Overnyer, Jim and Michaelis, Ron. American Technical Publishers. 2006 (classic)