

APED 261 Course Outline as of Fall 2019**CATALOG INFORMATION**

Dept and Nbr: APED 261 Title: APP ELECTRICIANS 2ND SEM

Full Title: Apprentice Electricians, Second 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 220.2

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 this course, the students will be able to

1. Demonstrate knowledge of direct current theory.
2. Demonstrate knowledge of electrical conductor and insulation as outlined in the National Electrical Code.
3. Accurately draw and explain basic circuits.
4. Identify symbols and abbreviations used on blueprints.
5. Demonstrate various sketching techniques.
6. Relate the theory of various electrical components to work in the trade.
7. Explain the factors involved for electrical contractors to be competitive in the market place.
8. Demonstrate basic skills used in the electrical industry.
9. Complete Standard First Aid/CPR Training.

Topics and Scope:

I. Parallel Circuits - Voltage and Resistance

II. Combination Circuits

A. Current and basic DC

B. Voltage and power

C. Voltage and polarity

III. Conductors

A. Aluminum and basic circuits

B. Voltage drop

IV. Working Drawings

A. Layout and circuits

B. Symbols and abbreviations

C. Floor plans

D. Elevation views

- E. Sectional views and plot plans
- V. Overcurrent Protection - Fuses
- VI. Trade information
 - A. Residential plans and wiring
 - B. Marketing
 - C. Job costs review
- VII. Safety-Electrical Shock
 - A. Electromagnetism
 - B. Principles of generation
 - C. Three-wire system
 - D. Transformer ratios
 - E. Superposition

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; quizzes; 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)