

APED 221.1 Course Outline as of Fall 2019**CATALOG INFORMATION**

Dept and Nbr: APED 221.1 Title: RESIDENTIAL WIRING 1

Full Title: Electrician Apprentice Residential Wiring, 1st Semester

Last Reviewed: 2/25/2019

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.50	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	3.50	Lab Scheduled	1.50	6	Lab Scheduled	26.25
		Contact DHR	0		Contact DHR	0
		Contact Total	4.50		Contact Total	78.75
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00

Total Student Learning Hours: 183.75

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 270

Catalog Description:

Introductory course for training related to residential wiring for electrician indentured apprentices. This is the first semester of a six semester program.

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

Admission into the indentured electrician apprentice program.

Schedule of Classes Information:

Description: Introductory course for training related to residential wiring for electrician indentured apprentices. This is the first semester of a six semester program. (Grade Only)

Prerequisites/Corequisites:

Recommended:

Limits on Enrollment: Admission into the indentured electrician apprentice program.

Transfer Credit:

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

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	Area	Effective:	Inactive:
CSU GE:	Transfer Area	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. Explain the relationship of the apprenticeship program to the electrical industry.
2. Identify and explain the use of basic tools and materials used by electricians.

Objectives:

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

1. Describe and demonstrate the history and present organization of the residential electrical industry and its relation to the apprenticeship program.
2. Interpret and solve mathematical problems related to residential electrical wiring.
3. Identify, differentiate, demonstrate, and use basic tools and materials of the electrical trade.
4. Summarize and utilize the National Electrical Code (NEC).
5. Define and apply principles of electron theory.
6. Choose and demonstrate applications for use of conduit piping.

Topics and Scope:

- I. History and Organization of the Residential Electrical Industry
 - A. International Brotherhood of Electrical Workers
 - B. American labor history
 - C. Apprentices' duties and rights
 - D. Dangers of drug and alcohol abuse
- II. Mathematical Problems
 - A. Using the metric system
 - B. Working with fractions
 - C. Square roots
 - D. Solve basic algebraic equations
 - E. Using basic trigonometric functions
- III. Basic Tools and Materials of the Electrical Trade
 - A. Basic safety approaches and techniques
 - B. Guarding against electrical shock
 - C. Learning to tie basic knots

- D. Care and safe use of ladders
- E. Material identification
- IV. The National Electrical Code
 - A. Language and symbols
 - B. National electrical code process
 - C. Importance of a national electrical code and its local applications
- V. Electron Theory
 - A. Sources and effects of electron theory
 - B. Explaining and using Ohm's law
 - C. Defining electrical units
 - D. Properties of power in an electrical circuit, electronic, and electrical devices
 - E. Circuit diagrams
 - F. Single pole switches
 - G. Electrical receptacles
 - H. Installation and use of fastening devices
- VI. Conduit Piping
 - A. Applications of conduit piping
 - B. Bending and forming conduit piping
 - C. Installation of conduit piping

All topics covered in both the lecture and lab portions of the course

Assignment:

Field assignments include:

1. Field work

Classroom and homework assignments include:

1. Student-led demonstrations
2. Quizzes and examinations (2 - 20)
3. Reading assignments to be completed between class meetings
4. Homework problems

Laboratory assignments include:

1. Practice to develop skills in basic electricity
2. Implement safety procedures
3. Practice use of proper equipment and material handling
4. Employ proper techniques in wiring of circuits and control devices utilizing testing and measuring equipment

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 problems, Field work, Quizzes

Problem solving
25 - 40%

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

Class performances, Performance exams

Skill Demonstrations
30 - 45%

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

Quizzes and examinations

Exams
15 - 30%

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

None

Other Category
0 - 0%

Representative Textbooks and Materials:

1st Year Syllabus. NJATC. NJAT. current edition
Blueprint, Level I. NJATC. NJAT. current edition
Code, Standards, and Practices, Level I. NJATC. NJAT. current edition
DC Theory, Level I. 2nd ed. NJATC. NJAT. current edition
DC Theory, Level II. 2nd ed. NJATC. NJAT. current edition
DC Theory, Level III. 2nd ed. NJATC. NJAT. current edition
DC Theory, Level IV. 2nd ed. NJATC. NJAT. current edition
Job Information 1, Level I. NJATC. NJAT. 2017 or most current
Job Information 2, Level I. NJATC. NJAT. 2017 or most current
Orientation, Level I. NJATC. NJAT. current edition

Blueprint Reading for Electricians. NJATC. NJAT. Item number S648 or most current
Building a Foundation in Mathematics. NJATC. NJAT. Item number S665 or most current
DC Theory. NJATC. NJAT. Item number S640 or most current
Electrical Systems NJATC. NJAT. 2017 NEC. Item number S970 or most current
Residential Blueprint Set. NJATC. NJAT. Item number S135 or most current
TI-30X IIS Solar Calculator. Item number S159
1st Year Textbook Suite. NJATC. NJAT. Item number BL-R1-SUITE17 or most current