

APED 221.2 Course Outline as of Fall 2019**CATALOG INFORMATION**

Dept and Nbr: APED 221.2 Title: RESIDENTIAL WIRING 2
 Full Title: Electrician Apprentice Residential Wiring, 2nd 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 271

Catalog Description:

This course continues the training for residential wiring for electrician indentured apprentices. This is the second semester of a six semester program.

Prerequisites/Corequisites:

Course Completion of APED 221.1 (or APED 270)

Recommended Preparation:**Limits on Enrollment:****Schedule of Classes Information:**

Description: This course continues the training for residential wiring for electrician indentured apprentices. This is the second semester of a six semester program. (Grade Only)

Prerequisites/Corequisites: Course Completion of APED 221.1 (or APED 270)

Recommended:

Limits on Enrollment:

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 how resistance and current flow occurs in DC circuits.
2. Describe the meaning of electrical symbols found on blueprints and drawings.

Objectives:

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

1. Describe and demonstrate resistance and current flows in DC series circuits, parallel, and combination circuits.
2. Utilize DC theory to evaluate and solve demonstration electrical problems.
3. Differentiate and use various types of building wiring.
4. Explain and utilize National Electrical Code requirements and regulations.
5. Identify and employ three-wire, single phase systems.
6. Differentiate and demonstrate three-way, four-way, and related electrical switches.
7. Recognize and interpret blueprint symbols and drawings.

Topics and Scope:

- I. DC Series Circuits
 - A. Properties of resistance
 - B. Calculating current flow
 - C. Explaining voltage functions
 - D. Estimating voltage for power outputs
- II. DC Parallel Circuits
 - A. Properties of resistance
 - B. Calculating current flow
 - C. Explaining voltage functions
 - D. Estimating voltage for power outputs
- III. DC Combination Circuits
 - A. Properties of resistance
 - B. Calculating current flow
 - C. Explaining voltage functions

- D. Estimating voltage for power outputs
- IV. DC Theory to Solve Problems
 - A. Series circuits
 - B. Parallel circuits
 - C. Combination circuits
- V. Building Wiring
 - A. Evaluate wire construction and insulation
 - B. Working with sizing for wire
 - C. Handling and utilizing aluminum conductors and wire connectors
- VI. National Electrical Code
 - A. Language and symbols
 - B. Conductor insulation and code requirements
 - C. Connector installation
- VII. Three-Wire, Single Phase
 - A. Properties of three-way systems
 - B. Safety issues related to a three-way system
- VIII. Switches
 - A. Three-way, four-way and other switches
 - B. Over-current protection
- IX. Blueprints
 - A. Fundamentals of blueprint drawings and architectural views
 - B. Drawing architectural views
 - C. Interpreting symbols, elevations, schedules
 - D. Drawing electrical symbols and mechanical symbols

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. Homework assignments
2. Analysis of instructor-led demonstrations
3. Student demonstrations/performances
4. Quizzes and examinations (2 - 20)

Laboratory performance activities 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
5. Reading and homework assignments to be completed at home between classes

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.

Student demonstrations/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