RENRG 102 Course Outline as of Fall 2020

CATALOG INFORMATION

Dept and Nbr: RENRG 102 Title: ELEC TOOLS & PARTS
Full Title: Electrical Trade Tools, Parts, Components & OSHA 10
Last Reviewed: 11/25/2019

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	2.00	Lecture Scheduled	1.00	17.5	Lecture Scheduled	17.50
Minimum	2.00	Lab Scheduled	3.00	6	Lab Scheduled	52.50
		Contact DHR	0		Contact DHR	0
		Contact Total	4.00		Contact Total	70.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 35.00 Total Student Learning Hours: 105.00

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:

Catalog Description:
Information and skills training for basic hand tools, battery tool kits, and common electrical parts and components used in electrical-related trades. Course will include developing quality customer service skills. Students will receive the Occupational, Safety and Health Administration training instruction, OSHA 10. Students who pass the exam at the end of the course are eligible to receive the OSHA 10-Hour Construction Industry Outreach Department of Labor (DOL) course completion card.

Prerequisites/Corequisites:

Recommended Preparation:
Eligibility for ENGL 100 OR ESL 100 or equivalent

Limits on Enrollment:

Schedule of Classes Information:
Description: Information and skills training for basic hand tools, battery tool kits, and common electrical parts and components used in electrical-related trades. Course will include developing quality customer service skills. Students will receive the Occupational, Safety and Health

Administration training instruction, OSHA 10. Students who pass the exam at the end of the course are eligible to receive the OSHA 10-Hour Construction Industry Outreach Department of Labor (DOL) course completion card. (Grade Only)
Prerequisites/Corequisites:
Recommended: Eligibility for ENGL 100 OR ESL 100 or equivalent
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:
Certificate Applicable Course

COURSE CONTENT

Student Learning Outcomes:
At the conclusion of this course, the student should be able to:
1. Identify, maintain, properly store, and safely use basic hand tools and battery operated tools used commonly in the electrical trades.
2. Identify components and parts used in the electrical trades.
3. Describe best practices and industry standards required in the trades when working in customer locations.
4. Identify, minimize, and control workplace hazards by understanding and applying OSHA standards.

Objectives:
At the conclusion of this course, the student should be able to:
1. Gather proper parts and sizes from a parts list.
2. Identify the tools needed for a given project.
3. Identify tools commonly found in a electrician's tool belt and describe their typical use.
4. Demonstrate the safe use of and care for tools in a battery kit.
5. Identify how to protect a customer’s home and property.
6. Investigate, research and understand relevant safety issues to become eligible to obtain an OSHA 10-hour Department of Labor (DOL) completion card.

Topics and Scope:

I. Common Electrical System Materials, Parts, and Components
   A. Wire types and gauges

B. Conduit types, sizes, and connectors
C. Distribution, control, and junction boxes
D. Miscellaneous parts needed to form safe connections
E. Grounding and bonding components

II. Proper Electrical Connections
A. The importance of proper torqueing of parts
B. Proper installation and removal of threaded parts
C. Crimping connections

III. Non-Powered Hand Tools
A. Selection of appropriate tool type for intended use
B. Safe use of hand tools

IV. Battery-Powered Tools
A. Appropriate use of drills, impact drivers, reciprocating saws, and portable lights
B. Safe operations including personal and property protection
C. Proper tool use techniques
D. Proper storage and charging of batteries

V. Customer Property Protection and Service Skills

VI. Workplace Safety
A. Introduction to OSHA
1. Standards
2. Requirements
3. Recordkeeping and reporting
4. Worker's rights and responsibilities
5. Employer's rights and responsibilities
6. Workplace inspections
7. Sources of assistance for information, standards, consultation and emergencies
8. OSHA website information and resources

B. Bloodborne Pathogens
1. Common bloodborne pathogen exposures
2. Workers who are at risk
3. Exposure control plan
4. Universal precautions
5. Engineering and work practice controls
6. Personal protective equipment
7. Housekeeping standards
8. Regulated waste
9. Laundry handling
10. Hepatitis B vaccination requirements
11. What to do if an exposure occurs
12. Biohazard warning labels
13. Medical recordkeeping requirements

C. Electrical
1. Electrical terminology
2. Electrical shock, electrical burns, and falls
3. Hazards
4. Protective measures

D. Safe Means of Escape
1. Exit routes
2. Emergency action plans
3. Fire prevention plan
4. Fire protection

E. Flammable and Combustible Liquids

1. Primary hazards
2. Classes
3. Safe handling and storage

F. Personal Protective Equipment (PPE)
1. Protecting employees from workplace hazards
2. Engineering controls
3. Work practice controls
4. Hazard assessment
5. PPE examples for eye protection, hearing protection, foot and hand protection, face protection, and body protection
6. Establishing a PPE program

G. Hazard Communication (HazCom)
1. Purpose of OSHA's hazard communication standard
2. Employer responsibilities
3. HazCom program requirements
4. Material Safety Data Sheets

H. Safety and Health Programs
1. Benefits
2. Major elements of effective programs
3. Management commitment and employee involvement
4. Policy and goals

I. Machine Guarding
1. Main causes of machine accidents
2. Requirements for safeguards
3. Types of machine guards
4. Situations that warrant machine guarding

J. Walking/Working Surfaces
1. Terminology
2. General requirements for hazard avoidance
3. OSHA standards

The above Topics and Scope apply to both lecture and lab course components in an integrated format.

Assignment:

Lecture-Related Assignments:
1. Assigned readings (10-30 pages per week)
2. Problem sets (6-20)
3. Quizzes (5-10)
4. Midterm exam
5. Final exam

Lab-Related Assignments:
1. Weekly problem tasks
2. Tool use demonstrations (5-10)

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.

Problem sets and tasks	Problem solving 10 - 40%

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

Tool use demonstrations	Skill Demonstrations 20 - 50%

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

Quizzes, midterm and final exam	Exams 30 - 50%

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

Participation	Other Category 0 - 10%

Representative Textbooks and Materials:
OSHA Outreach Student Handout Packet (#OSHA-HDT). 2018
1926-OSHA Construction Industry Regulations. MANCOMM, Inc. 2017
Instructor prepared materials