EASTERN ARIZONA COLLEGE
Electricity and Electronics
Course Design
2015-2016

Course Information
Division: Industrial Technology Education
Course Number: ELT 110
Title: Electricity and Electronics
Credits: 3
Developed by: Charles A. Smith
Lecture/Lab Ratio: 1 Lecture/4 Lab
Transfer Status: ASU NAU UA
Non Transferable
CTE Departmental Elective
Non Transferable

Activity Course: No
CIP Code: 47.0105
Assessment Mode: Pre/Post Test (53 Question/100 Points)
Semester Taught: Fall
GE Category: None
Separate Lab: No
Awareness Course: No
Intensive Writing Course: No

Prerequisites
None

Educational Value
A. To General Education: Elective Credit
B. To other courses or curricula: This course is a curriculum requirement for the Electrical and Instrumentation Technician certificate or Associate of Applied Science degree; a curriculum requirement for the Manufacturing Engineering Technician certificate; and an elective for the Advanced Manufacturing Technician certificate.

Description
This course is an introductory course into the basic principles of electricity and electronics theory with a heavy emphasis on industrial applications. Students will be introduced to the study of various blueprints, schematics, wiring diagrams, and symbols as they are used in practical industrial applications. The student will learn the electrical concepts and terminology of voltage, amperage, and resistance. The student will learn to solve electrical problems by use of Ohm’s Law formulas.
Supplies
Scientific Calculator

Competencies and Performance Standards

1. Understand Basic Electrical Theory
   Learning objectives
   What you will learn as you master the competency:
   a. Analysis of principles of Conductors, Semiconductors and Insulators.
   b. Define principles of Voltage, Current, Resistance, Conductivity and Power.
   c. Solve circuit problems using Ohm’s Law.
   d. Comprehension of series, parallel, and series-parallel circuits.
   e. Evaluation of Resistance Color Code.
   f. Demonstrate Electrical Safety practices.
   Performance Standards
   Competence will be demonstrated:
   o in class discussion
   o in group practice
   o in use of model electrical circuits
   Criteria - Performance will be satisfactory when:
   o learner completes written test to 70% correct
   o learner manipulates model circuit to accomplish assigned task

2. Read Blueprints, Electrical Schematics, and Symbols
   Learning objectives
   What you will learn as you master the competency:
   a. Comprehend and interpret basic Electrical Blueprints and Schematics.
   b. Analyze and interpret basic symbols.
   c. Evaluate and interpret One Line and Three Line Electrical Diagrams.
   d. Analyzing and interpreting basic Ladder Logic Diagrams.
   Performance Standards
   Competence will be demonstrated:
   o in class discussion
   o in group practice
   o in using sample blueprints and schematics
   o in written test
   Criteria - Performance will be satisfactory when:
   o learner correctly identifies electrical symbols in a schematic drawing
   o learner correctly identifies different types of electrical drawings
Types of Instruction
Lecture/modeling
Electrical lab assignments
Group practice
Individual projects/presentations

Grading Information
Grading Rationale
Post/Final Exam(s)  35%
Chapter Exams  35%
Lab Assignments  20%
Attendance  10%

Grading Scale
A  90-100%
B  80-89%
C  70-79%
D  60-69%
F  Below 60%