COCONINO COMMUNITY COLLEGE
COURSE OUTLINE

Revised by: Ken Myers December 5, 2017
Status: Permanent
Effective Term: Fall 2018

A. Identification:
   1. Subject Area: Construction Technology Management (CTM)
   2. Course Number: 151
   3. Course Title: House Wiring I
   4. Credit Hours: 3
   5. Course Description: Basic electrical theory and safety presented. Survey of electrical construction processes for single and multi-family dwellings that require voltages less than 480 volts, with single phase power. The most typical alternating current (A.C.) circuits are discussed, illustrated, and wired for these applications. Determining materials, installation processes, safety, and the National Electrical Code requirements of electrical construction will be emphasized and applied. Students will wire a variety of circuits for single and multi-family dwellings using devices such as receptacles, switches, and lighting fixtures in a training module application. Two lecture. Two lab. May be taken for S/U credit.

B. Course Goals: Students will utilize knowledge gained to install, operate, and maintain electrical circuits for a single and multi-family dwelling unit/environment.

C. Course Outcomes:
   Upon successful completion of this course, students will be able to:
   1. understand the basic principles and units of measure for electrical construction;
   2. understand and apply Ohm's Law (voltage, ampere, resistance, and wattage) for electrical circuit sizing and wiring purposes in single and multi-family dwellings;
   3. identify common electrical safety hazards and shock issues in the workplace;
   4. identify common electrical practices and techniques that apply to the electrical construction field;
   5. identify proper conductor (American wiring gauge) sizing, insulation types, wiring methods, connections, and voltage drops;
   6. interpret electrical drawings and blueprints for electrical construction;
   7. identify types of wiring devices and components used in electrical construction field and National Electrical Manufactures Association (NEMA) classifications;
   8. determine different application methods and procedures used for various wiring electrical installations;
   9. determine wiring capacities (ampacities) for electrical junction boxes, enclosures, raceways, and load centers, etc.;
   10. calculate circuit power loads, for maximum and minimum electrical requirements;
   11. interpret the National Electric Code (NEC) code for electrical installation of devices;
   12. determine grounding and bonding requirements necessary for single and multi-family dwellings;
   13. determine individual requirements for calculation and installation of special purpose devices;
   14. identify various service entrances, size, and installation requirements for codes and utilities.

D. Course Outcomes Assessment will include a variety of quizzes, tests, and hands-on demonstrations.

E. Course Content will include:
   1. Ohm's Law;
   2. general information for electrical construction;

3. electrical symbol blueprint reading;
4. determining circuit loading, type, size, and quantity;
5. NEC bonding requirements;
6. lighting and switching circuits;
7. grounding equipment and requirements;
8. special purpose circuits;
9. service-entrance equipment;
10. circuit and device installations;
11. general cost estimating procedures;
12. National Electric Code.