

COCONINO COMMUNITY COLLEGE

COURSE OUTLINE

Prepared by: Joseph Costion
Status: Permanent

Date: Spring 2005

A. Identification:

1. Subject Area: Construction Technology Management
2. Course Number: CTM 155
3. Course Title: Commercial Wiring I
4. Credit Hrs: 4
5. Catalog Description: This class will emphasize Light Commercial Wiring Applications to determine sizes of service entrance conductors and feeders, conduit sizes and boxes, Transformer types, theory & sizing, and protection of transformers: referencing to the National Electric Code. Prerequisite: CTM 151 or consent of instructor. Three lecture. One lab. May be taken for S/U credit. Fall.

B. Course Goals:

Intended to introduce students to the following aspects of commercial wiring for Light Commercial Electrical Applications:

1. Determination and selection of conduit, box/fitting, and conductor sizes
2. Selection of wiring methods as required by the NEC.
3. Methods and techniques of various service systems and their individual components
4. Illumination principles and requirement for grounding,
5. Principles and requirements for bonding
6. Principles and requirement for over current protective.
7. Identification of various types of Motors and Motor control Circuit requirements
8. Identification of various methods of installation and preparation of motor control circuits
9. Basic Transformer Theory and Types of Transformers
10. Proper sizing, connection and operation of transformers.
11. Proper protection of Land Transformers

C. Course Outcomes:

Students will:

1. Determine wire size, conduit and box size.
2. Interpret specific articles of the National Electrical Code. (NEC)
3. Interpret National Electrical Code Requirements for circuits for outlets, appliances, lighting and heating.
4. Determine sizing requirements for service entrances, feeder conductors, conduit, fittings & overcurrent protection devices as per the National Electrical Code.
5. Determine sizing requirements for Sub Feed panels and Branch Circuits.
6. Interpret National Electrical Code requirement for grounding, bonding and over current protective.
7. Interpret National Electrical Code requirements for motors ratings; apply specific components to a motor control circuit.
8. Interpret Commercial Electrical blueprints for quantity take offs, Circuit & Conduit layouts, and labor estimates.

D. Course Content:

Will include:

1. Wiring of boxes and Service Entrances, Overhead & Lateral
2. Conduit sizing & Bending.
3. National Electrical Code (NEC): interpret specific articles.
4. Interpret specific code articles for Outlets, appliances, lighting & heating
5. Interpret specific code articles for Service Entrances and feeders.
6. Interpret specific code articles for Grounding, bonding, and overcurrent protection.
7. Interpret specific code articles for Motor control circuit and connection.
8. Interpret specific code articles for Motor starting components: Magnetic starter, two-wire control circuit, start-stop station, other.