

SOUTHEAST COMMUNITY COLLEGE
CONSTRUCTION MANUFACTURING AND TECHNOLOGY DIVISION
Electrical/Electromechanical Technology Program
Revision Date: August 26, 2019

I. CATALOG DESCRIPTION

Course Number: ELEC1496
Course Title: Industrial Wiring I
Prerequisite(s): ELEC1367
Catalog Description: Study of the construction of electrical systems used in industrial and commercial areas. Circuitry required in lighting, controller systems, power distribution, and service entrance for electrical systems of public and commercial buildings. Study of the National Electrical Code for Industrial wiring.
Credit Hours: 4
Class Hours: 30
Lab Hours: 90
Total Contact Hours: 120

II. COURSE OBJECTIVES: *Course will:*

- A. Identify the proper use of tools.
- B. Explain advanced knowledge of the NEC.
- C. Apply advanced wiring methods.
- D. Make use of advanced wiring materials.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

- A. Student Learning Outcomes: *Student will be able to:*
 - 1. Work in three common situations.
 - a. Where the work is planned in advance
 - b. Where there is no advance planning
 - c. Where repairs are needed
 - 2. Operate all equipment included in the installation in order to solve the problem.
 - 3. Find the NEC article that applies to typical wiring applications.
 - 4. Use the NEC as a reference to solve a problem with an installation.
 - 5. Properly use conduit attachment methods.
 - 6. Properly apply advanced conduit bending techniques.
 - 7. Properly install correct conductors in conduit.
 - 8. Navigate electrical blueprints successfully.
- B. General Education Learning Outcomes (GELOs)
 - 1. GELO #1: Oral Communication
 - Outcome 5: Utilize active and critical listening behaviors.

IV. CONTENT/TOPICAL OUTLINE

- A. MOTOR CIRCUITS & CONTROLLERS (code)
 - 1. Theory
 - a. Feeders and branch circuit
 - b. Overcurrent protection
 - c. Motor controllers
 - d. Running overcurrent protection
 - e. Motor hook-up 3-phase & controllers

- B. CONDUIT BENDING AND CUTTING (Rigid) and BLUEPRINT READING
 - 1. Lab
 - a. Type of bender
 - b. Correct procedures for using equipment
 - 1. REMARKS: To familiarize students with threading and bending of conduit and uses of equipment. This is studied in 3rd semester as well as in 4th semester.
 - c. Reading blueprint commercial
- C. WIRING HOUSE
 - 1. Lab
 - a. Rough-in
 - b. Telephone
 - c. Television
 - 1. REMARKS: This is studied in 3rd and 4th semester. Conduit bending equipment

V. INSTRUCTIONAL MATERIALS

- A. Required Text(s): NFPA, *National Electrical Code*, Latest Edition and Miller, *Illustrated Guide to the National Electrical Code*
- B. Other Resources: None

VI. METHODS OF PRESENTATION/INSTRUCTION

- A. Methods of presentation typically include a combination of the following:
 - 1. Lecture
 - 2. Lab

VII. METHODS OF EVALUATION

- A. Methods of evaluation, although determined by the individual instructor, traditionally includes a combination of the following:
 - 1. Overall course grade shall consist of Theory – tests, quizzes, and homework and Lab. Conduit bending challenge, motor repair, college electrical repairs and tech house wiring.

VIII. SPECIFIC COURSE REQUIREMENTS

- A. A minimum grade of D is required.
- B. **Cheating within the Manufacturing Division:** Any violation of academic integrity on assignments, quizzes, or tests will result in a grade of 0 on that assignment, quiz, or test. A second violation in any course after the initial infraction will result in a grade of F for that course. Any additional violations while in the program will result in a suspension from the program.
- C. **Credit by Examination:** Credit for the course CANNOT be earned through Credit by Examination.