

**SOUTHEAST COMMUNITY COLLEGE**  
**CONSTRUCTION MANUFACTURING AND TECHNOLOGY DIVISION**  
**Electrician Construction Program**  
**Revision Date: August 23, 2021**

**I. CATALOG DESCRIPTION**

Course Number: ELET1733  
Course Title: Electrical Wiring Applications VIII  
Prerequisite(s): ELET1728 and ELET1732  
Corequisite(s): ELET1731  
Catalog Description: On the Job Training (OJT) to apply construction electrician principles covered in ELET1731.  
Credit Hours: 1  
Class Hours: 0  
Lab Hours: 60  
Total Contact Hours: 60

**II. COURSE OBJECTIVES:** *Course will:*

- A. Demonstrate proper electrical material use.
- B. Demonstrate identification and proficient handling of tools.
- C. Examine how to use Ohm's Law, DC Theory, and Mathematics relevant to the work conducted.
- D. Illustrate industry work process applications, and safety standards needed for success in the electrical industry.
- E. Identify proper use of the appropriate articles of the 2020 National Electrical Code.
- F. Provide a foundation in the applications of conduit bending.

**III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:**

- A. Student Learning Outcomes: *Student will be able to:*
  - 1. Install and maintain electrical wiring and devices with accuracy.
  - 2. Demonstrate an understanding of electronic component recognition, schematic drawing and reading.
  - 3. Identify electrical tools and equipment by name and proper use.
  - 4. Demonstrate safe use of electrical tools and equipment.
  - 5. Explain the meaning and relationship of electrical quantities such as voltage, current, resistance, conductance, and power using Ohm's Law.
  - 6. Develop the ability to measure electrical quantities with analog and digital multimeters.
  - 7. Develop critical thinking skills related to DC circuits.
  - 8. Construct, test, and troubleshoot DC circuits with learned problem-solving techniques.
  - 9. Relate operations of the basic DC circuit components to application in electronic circuits.
  - 10. Utilize applicable portions of the 2020 National Electrical Code when installing and maintaining electrical wiring and devices.
  - 11. Demonstrate level commensurate skill in bending conduit.
  - 12. Apply necessary conduit use; choose conduit size, measure, cut, bend and install appropriately.
- B. General Education Learning Outcomes (GELOs)
  - 1. GELO #5: Analytical, Quantitative, and Scientific Reasoning

Outcome 3: Effectively develop strategies, algorithms, or experiments (or performing experiments) to better describe the systems or to solve the problems.

#### **IV. COURSE CONTENT/ OJT HOURS BY WORK PROCESS**

- A. Project layout and planning.
- B. Underground installations.
- C. Raceway system installation.
- D. Install services.
- E. Floor duct installation.
- F. Motor control center installation.
- G. Installing, splicing and terminating wires and cables.
- H. Cable tray installation.
- I. Lighting system installation.
- J. Testing and troubleshooting feeders, motors and branch circuits.
- K. Fire alarm installation.
- L. Motor installation.
- M. Control system installation
- N. Installing & programming PLCs
- O. Installing instrumentation & process control systems.
- P. Security system installation.
- Q. Installing sound & communication systems.
- R. Installing & terminating transformers.
- S. Installing fiber-optic cable.
- T. Welding & brazing.
- U. Troubleshooting electrical systems.
- V. Material handling & prefabrication.

#### **V. INSTRUCTIONAL MATERIALS**

- A. **Required Text(s):** *IBEW Apprentice Guide*
- B. **Other Resources:** Instructor handouts, National Electric Code and References available at the Lincoln Electrical Joint Apprenticeship and Training Committee Training Center.

#### **VI. METHODS OF PRESENTATION/INSTRUCTION**

- A. Methods of presentation typically include a combination of the following:
  - 1. Cooperative/apprenticeship work experience.

#### **VII. METHODS OF EVALUATION**

- A. Methods of evaluation typically include a combination of the following:
  - 1. Demonstrated competencies are evaluated by a licensed electrician.

#### **VIII. SPECIFIC COURSE REQUIREMENTS**

- A. A grade of "C" or better is required for this course in order to progress into the next.