

SOUTHEAST COMMUNITY COLLEGE
CONSTRUCTION MANUFACTURING AND TECHNOLOGY DIVISION
Electrician Construction Program
Revision Date: August 23, 2021
[Syllabus Statements](#)

I. CATALOG DESCRIPTION

Course Number: ELET1713
Course Title: Electrical Wiring Applications II
Prerequisite(s): ELET1710 and ELET1712
Corequisite(s): ELET1711
Catalog Description: On the Job Training (OJT) to apply construction electrician principles covered in ELET1711.
Credit Hours: 1
Class Hours: 0
Lab Hours: 60
Total Contact Hours: 60

II. COURSE OBJECTIVES: *Course will:*

- A.** Demonstrate the 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:
 - 1.** Instructor handouts
 - 2.** National Electric Code
 - 3.** References available at the Lincoln Electrical Joint Apprenticeship and
 - 4.** 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.