COMMERCIAL WIRING METHODS II
Course Syllabus

Course Number: CNST-0775B  
OHLAP Credit: No  
OCAS Code: None  
Course Length: 60 Hours  
Career Cluster: Architecture and Construction  
Career Pathway: Construction  
Career Major(s): Commercial Electrician’s Assistant

Pre-requisite(s):

Course Description: This course covers the circuits used in wiring commercial premises including service entry and branch circuit installation, load distribution, device installation, grounding, over-current devices, conduit bending and installation, panels and switchboards, and hazardous locations.

Instructor-created materials

Course Objectives:

A. Demonstrate Knowledge of Cable Tray.
   1. Describe the components that make up a cable tray assembly.¹
   2. Explain the methods used to hang and secure cable tray.¹
   3. Describe how cable enters and exits cable tray.¹
   4. Select the proper cable tray fitting for the situation.¹
   5. Explain the NEMA standards for cable tray installations.¹
   6. Explain the NEC® requirements for cable tray installations.¹
   7. Select the required fittings to ensure equipment grounding continuity in cable tray systems.¹
   8. Interpret electrical working drawings showing cable tray fittings.¹
   9. Size cable tray for the number and type of conductors contained in the system.¹
   10. Select rollers and sheaves for pulling cable in specific cable tray situations.¹
   11. Designate the required locations of rollers and sheaves for a specific cable pull.¹

B. Explain Conductor Installations.
   1. Describe the various methods of installing conductors in conduit.¹
   2. Plan and set up for a cable pull.¹
   3. Understand the importance of selecting the proper location for cable pulls.¹
   4. Describe how cable reels are transported to the pulling site.¹
   5. Set up reel stands and spindles for a wire-pulling installation.¹
   6. Explain how mandrels, swabs, and brushes are used to prepare conduit for conductors.¹
   7. Properly install a pull line for a cable-pulling operation.¹
   8. Explain the operation of power fish tape systems.¹
   9. Prepare the ends of conductors for pulling.¹
   10. Describe the types of cable pullers.¹
   11. Describe the process of high-force cable pulling.¹
12. Explain how to support conductors in vertical conduit runs.¹
13. Describe the installation of cables in cable trays.¹
14. Explain the importance of communication during a cable-pulling operation.¹
15. Calculate the probable stress or tension in cable pulls.¹

C. Install a Complex Commercial Project.
1. Draw a ladder diagram and blueprint of a determined commercial construction project including various motor controls and switching circuits.
2. Layout and install electrical boxes and panels used in commercial construction.
3. Install conduits for wire installations.
4. Install wires to connect and create electrical circuits according to National Electric Code.
5. Design and connect a motor control circuit.
6. Connect and terminate wiring for safe and correct operations of project.

¹ NCCER objective
All unmarked objectives are TTC instructor developed.

Teaching Methods: The class will primarily be taught by the lecture and demonstration method and supported by various media materials to address various learning styles. There will be question and answer sessions over material covered in lecture and media presentations. Supervised lab time is provided for students to complete required projects.

Grading Procedures: 1. Students are graded on theory and shop practice and performance.
2. Each course must be passed with seventy (70%) percent or better.
3. Grading scale: A=90-100%, B=80-89%, C=70-79%, D=60-69%, F=50-59%.

Description of Classroom, Laboratories, and Equipment: Tulsa Technology Center campuses are owned and operated by Tulsa Technology Center School District No. 18. All programs provide students the opportunity to work with professionally certified instructors in modern, well-equipped facilities.

Available Certifications/College Credit: The student may be eligible to take state, national or industry exam after completion of the program. College credit may be issued from Oklahoma State University-Okmulgee or Tulsa Community College. See program counselor for additional information.

College Credit Eligibility: The student must maintain a grade point average of 2.0 or better.