

## Department:

Electrical Technology

## Course Description:

This course provides an introduction to the high intensity lighting systems used in commercial and industrial locations. The course will examine types of structures, location, types of equipment, and requirements of the National Electrical Code. Emphasis will be on how to install, maintain, and troubleshoot each system. The course will cover the application of lighting systems appropriate to the construction site, as well as wiring methods such as conduit, cable trays, surface metal raceways, rigid non-metallic conduits, and others, depending on the commercial application.

## Course Competencies:

Upon completion of the course, the student should be able to:

1. Apply NEC to all calculations.
2. Select the proper type of metal conduit.
3. Calculate the conduit fill.
4. Bend, install, and anchor a raceway system.
5. Calculate overload protection and short circuit protection for conductors.
6. Calculate conductor sizes for proper circuit operation with regard to ampacity.
7. Install all types of commercial wiring.

## Course Content:

- A. Chapter 1: Commercial plans and specifications
- B. Chapters 2, 10: Reading working drawing
- C. Chapter 3: Calculating the electrical load
- D. Chapter 4: Branch circuits
- E. Chapter 5: Switches and receptacles
- F. Chapter 6: Wiring methods
- G. Chapter 7: Motors and appliances
- H. Chapter 8: Feeders
- I. Chapters 9, 11: Special systems
  1. Multi-outlet assemblies
  2. Communication systems
- J. Chapters 12, 13: The electric service
- K. Chapters 14, 15: Luminaries and lamps
- L. Chapter 16: Emergency and standby systems
- M. Chapter 17: Over current protection

- N. Chapters 18, 19: Short circuit calculations and equipment
- O. Chapter 20: Low voltage control
- P. Chapter 21: The cooling system

### Learning Assessments:

Course competencies will be assessed by use of chapter tests, evaluation of lab work and work skills, quizzes, and a final exam.

### Instructional Materials:

Electrical Wiring Commercial 2008, Mullin, Smith, 13th Ed., Thomson Delmar.  
ISBN: 9781435439122

#### **Guidelines for Requesting Accommodations Based on Documented Disability or Medical Condition**

It is the intention of Highland Community College to work toward full compliance with the Americans with Disabilities Act, to make instructional programs accessible to all people, and to provide reasonable accommodations according to the law.

Students should understand that it is their responsibility to self-identify their need(s) for accommodation and that they must provide current, comprehensive diagnosis of a specific disability or medical condition from a qualified professional in order to receive services. Documentation must include specific recommendations for accommodation(s). Documentation should be provided in a timely manner prior to or early in the semester so that the requested accommodation can be considered and, if warranted, arranged.

In order to begin the process all students **must** complete the "Disabilities Self-Identification Form" at this link:  
<https://highlandcc.edu/pages/disability-services>.

This form can also be accessed at the Highland Community College homepage under Students Services/Student Resources/Disability Service or by contacting the Disabilities Coordinator.