

Department:

Electrical Technology

Course Description:

An introductory course on commercial wiring methods that includes practical applications and hands-on experience in implementing code requirements. This course of instruction will introduce the student to an environment much different than that of residential construction. In commercial applications students have to look at types of structures, location, types of equipment, and requirements of the National Electrical Code (NEC). The course introduces students to the high intensity lighting systems used in commercial and industrial locations. Students learn how to install, maintain, and troubleshoot each system. Students will also receive instruction on application of different lighting systems to suit the application encountered. The course also provides instruction about wiring methods such as conduit, cable trays, surface metal raceways, rigid non-metallic conduits, and a host of other wiring methods used to meet certain locations in commercial applications.

Course Competencies:

The learning outcomes and competencies detailed in this syllabus meet or exceed the learning outcomes and competencies specified by the Kansas Core Outcomes Groups for this course as approved by the Kansas Board of Regents.

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

KBOR Core Competencies

1. Identify various types of feeder/branch circuit wiring methods
2. Perform conduit bending
3. Identify and perform conductor installation
4. Calculate raceway and box fill per NEC
5. Identify components of distribution equipment
6. Identify the NEC requirement for grounding and bonding
7. Perform Service calculations per NEC
8. Apply the requirements for National Fire Protection Association standards for electrical safety in the workplace (NFPA70 E)

Additional Competencies

9. Select the proper type of metal conduit
10. Bend, install, and anchor raceway system
11. Calculate overload protection and short circuit protection for conductors
12. Calculate conductor sizes for proper circuit operation with regard to ampacity
13. Install all types of commercial wiring

Course Content:

- A. Calculating the electrical load
- B. Branch circuits
- C. Switches and receptacles
- D. Wiring methods
- E. Motors and appliances
- F. Feeders
- G. Special Systems
 - 1) Multi outlet assemblies
 - 2) Communication systems
- H. The Electric service
- I. Luminaries and lamps
- J. Emergency and standby systems
- K. Over current Protection
- L. Short circuit calculations and equipment
- M. Low voltage control
- N. The Cooling system

Learning Assessments:

The student will take a test after each chapter and at the end of the course

TESTS: Tests will cover one to two chapters. Test questions may be multiple choice, essay, or fill in the blank. You will be allowed to make up a test that was missed or failed, with the condition that it needs to be done in the week it was missed. Failed tests that are retaken will be averaged with the first test for your final score.

QUIZZES: The instructor may give unannounced and announced quizzes during the semester. These quizzes will be over either subject matter assigned or subject matter previously discussed. Students may not make up quizzes.

Instructional Materials:

Modern Commercial Wiring, Harvey N. Holzman, 9th Ed., Goodheart-Willcox, 2020. ISBN: 978-1-68584-593-3

Modern Commercial, Harvey N. Holzman, 9th Ed., Lab Manual, Goodheart-Willcox, 2020. ISBN: 979-1-88817-006-9

NFPA 70 National Electric Code 2023, Delmar Cengage Learning, ISBN: 978-1-45592-937-5

NEC Code Book Tabs 2023, Mike Holt, ISBN: 978-1-95043-179-3

NEC Keyword Index 2023, Tom & Tim Henry, ISBN: 979-8-98724-312-1

Ugly's Electrical References, Charles R. Miller, Jones & Bartlett LLC., 2023, ISBN: 978-1-28427-591-9

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” on our [Disability Services website](#).

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.

A Note on Harassment, Discrimination and Sexual Misconduct

Highland Community College seeks to assure all community members learn and work in a welcoming and inclusive environment. Title VII, Title IX, and College policy prohibit harassment, discrimination and sexual misconduct. Highland Community College encourages anyone experiencing harassment, discrimination or sexual misconduct to talk to report to the Vice President for Student Services, the Human Resources Director or complete an [online report](#) about what happened so that they can get the support they need and Highland Community College can respond appropriately.

There are both confidential and non-confidential resources and reporting options available to you. Highland Community College is legally obligated to respond to reports of sexual misconduct, and therefore we cannot guarantee the confidentiality of a report, unless made to a confidential resource. Responses may vary from support services to formal investigations. As a faculty member, I am required to report incidents of sexual misconduct and thus cannot guarantee confidentiality. I must provide our Title IX coordinator with relevant details such as the names of those involved in the incident. For more information about policies and resources or reporting options, please review our [Equity Grievance Policy](#).