

Department:

Electrical Technology

Course Description:

This course will examine the effects an alternating current has on circuits. The course will also cover the functions and properties of capacitors, inductors, resistors, and other circuit components.

Course Competencies:

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

1. Interpret and apply formulas relating to AC circuit problems.
2. Calculate and solve AC circuit problems that contain induction.
3. Calculate and solve AC problems that contain capacitance.
4. Calculate and solve AC circuit problems that contain impedance.
5. Explain power factor correction.
6. Apply formulas for voltage drop in AC circuits and calculate proper size conductors.

Course Content:

- A. Unit 1: The electrical system
- B. Unit 2: Protection devices
- C. Unit 3: Overcurrent devices
 1. Ground fault
 2. Arc fault
- D. Unit 4: Alternating current
- E. Unit 5: Capacitance
- F. Unit 6: Induction
- G. Unit 7: Power factor
- H. Unit 8: Motors
- I. Unit 9: Generators
- J. Unit 10: Transformers

Learning Assessments:

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

Instructional Materials:

Mike Holt's Basic Electrical Theory, 2008. ISBN: 1-932685138

Ugly's Electrical Reference, Hart, Code Electrical Classes Inc., 2008. ISBN: 9780962322983

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.