Department:

Electrical Technology

Course Description:

The focus of this course is to give the student a ground level understanding of direct current (DC) and alternating current (AC) theory. The student will be introduced to electron theory and Ohms' law and see how these apply to direct current circuits. As the students progress, they will be introduced to series circuits and their equations, parallel circuits and their equations, and combination circuits and their equations.

KBOR Core Competencies:

1. Describe and apply Ohms, Watts, and Kirchhoff laws
2. Define, demonstrate and apply the characteristics of series, parallel, and combination circuits
3. Explain DC theory concepts
4. Explain AC theory concepts
5. Perform and interpret electrical measurements using industry standard equipment

Course Competencies:

6. Calculate and solve DC. and AC circuit problems.
7. Calculate and solve DC parallels circuit problems.
8. Calculate and solve DC series-parallels circuit problems.
9. Interpret and show knowledge of formulas relating to AC circuit problems
10. Calculate and solve AC problems that contain capacitance
11. Calculate and solve AC circuit problems that contain impedance
12. Show knowledge of power factor correction
13. Apply formulas for voltage drop in AC circuits and calculate proper size conductors

Course Content:

A. Matter
    a. Atomic theory
B. Electron theory
C. Magnetism
D. Electricity
    a. Electric current flow
E. Uses of electromagnetism

Syllabus

F. Electrical circuits
G. Math
H. Electrical formulas
I. Series circuits
J. Parallel circuits
K. Series parallel
L. Multi-wire circuits

Learning Assessments:

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

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 you 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:

Holt. Basic Electrical Theory. Mike Holt Enterprises I. Edition: 3 ISBN: 9781932685398

NEC. NEC Plus National Electrical Code. Code Electrical Classes. Edition: 2014 ISBN: 9781455906710

Tom Henry. Tom Henry's 2014 Key Word Index. Tom Henry ISBN: 9780945495888

Hart. Ugly's Electrical Reference. Code Electrical Classes Inc. Edition: 2014. ISBN: 9781449690779

Syllabus

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.