HIGHLAND COMMUNITY COLLEGE
WWW.HIGHLANDCC.EDU
606 W. MAIN, HIGHLAND, KS 66035

ELE161–Electrical Motor Operation & Control
Prerequisite: None
6 Credit Hours (Lecture)

Department:

Electrical Technology

Course Description:

In this course of instruction the student will begin a study of electric motor operation and systems used to control their operation. Fundamentals of single and three phase motors along with their operational characteristics are covered. Students learn the language of control, ladder diagram, and the logical sequence in which things must happen in order for a machine or process to operate. Students connect-up numerous types of control sequences in the shop, along with diagramming and troubleshooting of this type of equipment. All voltages and systems presented are those found in most industrial locations. The code ruling is used during this course.

Course Competencies:

1. Understand ratings and specifications of controls and devices
2. Read, understand and interpret schematic, ladder, and pictorial diagrams
3. Able to wire start/Stop stations
4. Able to wire forward reversing start with interlocks
5. Identify parts of a motor to its leads
6. Identify types of three-phase motors
7. Identify types of single-phase motors

Course Content:

A. Electrical Quantities
B. Electrical tools
C. Electrical Safety
D. Electrical symbols
E. Control logic
F. Solenoids and motors
G. Generators and transformers
H. Power distribution
I. AC and DC drives
J. Control Devices
K. Reversing Motors
L. Solid state Devices
M. Timing Functions
N. Relays and starters
O. Sensing controls

Syllabus

P. Programmable controllers
Q. Reduced voltage starters
R. Accelerating and decelerating methods
S. Preventive maintenance systems

Learning Assessments:

The student will take a test after each chapter and a final 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 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:

Rockis & Mazur. Electrical Motor Controls. American Technical Publishers. Edition: 5. ISBN: 9780826912268

Rockis & Mazur. Electrical Motor Controls Workbook. American Technical Publishers. Edition: 5. ISBN 9780826912183

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.