DATE OF LAST REVIEW: 02/2013

CIP CODE: 46.0302

SEMESTER: Departmental Syllabus

COURSE TITLE: Motor Controls

COURSE NUMBER: ELET0253

CREDIT HOURS: 3

INSTRUCTOR: Departmental Syllabus

OFFICE LOCATION: Departmental Syllabus

OFFICE HOURS: Departmental Syllabus

TELEPHONE: Departmental Syllabus

EMAIL: KCKCC issued email accounts are the official means for electronically communicating with our students.

PREREQUISITE (S): None

REQUIRED TEXT AND MATERIALS: Please check with the KCKCC TEC bookstore, http://www.kckccbookstore.com, for the required texts for your particular class.

COURSE DESCRIPTION:

Students will have the opportunity to install manual and magnetic starters and contactors. The photoelectric and proximity controls and controls for agricultural and commercial equipment will be studied.

METHOD OF INSTRUCTION:

A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations,
projects and presentations, speeches, debates, panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE:

I. Follow manufactures instructions and diagrams and install manual and magnetic starters and contactors.
II. Follow Manufactures instructions and diagrams and install photoelectric controls.
III. Follow Manufactures instructions and diagrams and install proximity controls.
IV. Install controls for commercial equipment.
V. Control Circuit Schematic Components
VI. Magnetic Control
VII. Overloads, Magnetic Starters - Two Wire Circuits
VIII. Pilot Lights
IX. Multiple Pushbuttons
X. Selector Switches
XI. Reversing Controls - Three Phases
XII. Reversing Controls - Garage Door - Single Phase
XIII. Three Phase Motors-Wye and Delta Configurations
XIV. Dual Voltage - Three Phase Motors

EXPECTED LEARNER OUTCOMES:

1. The student will be able to follow manufacturer's instructions and diagrams and install manual and magnetic starters and contactors.
2. The student will be able to follow manufacturer's instructions and diagrams and install photoelectric controls.
3. The student will be able to follow manufacturer's instructions and diagrams and install proximity controls.
4. The student will be able to install controls for commercial equipment.
5. The student will be able to define common abbreviations.
6. The student will be able to explain devices and symbols.
7. The student will be able to use control circuit schematic components.
8. The student will be able to explain magnetic control.
9. The student will be able to use lighting contractors.
10. The student will be able to overloads, magnetic starters - two wire circuits.
11. The student will be able to light-up pilot lights.
12. The student will be able to use multiple pushbuttons.
13. The student will be able to explain selector switches.
14. The student will be able to use reversing controls - three phases.
15. The student will be able to explain reversing controls - garage door - single phase.
16. The student will be able to use three phase motors-wye and delta configurations.
17. The student will be able to use dual voltage - three phase motors.
CORE COMPETENCIES:
Upon successful completion of this course:

The student will be able to follow manufacturer's instructions and diagrams and install manual and magnetic starters and contactors.
1. The student will be able to explain wiring configurations.
2. The student will be able to wire control coil
3. The student will be able to determine open and closed contacts.
4. The student will be able to explain reverse and forward.

The student will be able to follow manufacturer's instructions and diagrams and install photoelectric controls.
5. The student will be able to explain control voltage.
6. The student will be able to test circuit with meter.

The student will be able to follow manufacturer's instructions and diagrams and install proximity controls.
7. The student will be able to explain control voltage.
8. The student will be able to check voltage.
9. The student will be able to check closed contacts.

The student will be able to install controls for commercial equipment.
10. The student will be able to explain control voltage.
11. The student will be able to check with multi-meter.

The student will be able to define common abbreviations.
12. The student will be able to explain N.O.
13. The student will be able to explain N.C.
14. The student will be able to explain D.P.D.T.
15. The student will be able to explain S.P.D.T.
16. The student will be able to explain T.D.C.
17. The student will be able to explain T.D.O.

The student will be able to explain devices and symbols.
18. The student will be able to define "N.O. Limit Switch".
19. The student will be able to define "N.C. Limit Switch".
20. The student will be able to define "N.C. Stop Switch".
21. The student will be able to define "N.O. Start Switch".
22. The student will be able to define "Disconnet Switch".
23. The student will be able to define "Thermal Overload".
24. The student will be able to define "Magnetic Overload".

The student will be able to use control circuit schematic components
25. The student will be able to install a time delay relay.
26. The student will be able to install a start push button
27. The student will be able to install a stop push button.

*The student will be able to explain magnetic controls.*
28. The student will be able to demonstrate wiring on controls.
29. The student will be able to point out the power circuit.
30. The student will be able to point out the control circuit.

*The student will be able to use lighting contactors.*
31. The student will be able to explain purpose.
32. The student will be able to check control voltage.
33. The student will be able to check power circuit.

*The student will be able to use overloads, magnetic starters - two wire circuits.*
34. The student will be able to draw the circuit.
35. The student will be able to determine size of overload.
36. The student will be able to check control voltage.

*The student will be able to light-up pilot lights.*
37. The student will be able to connect green lamp contact.
38. The student will be able to connect red lamp contact.

*The student will be able to use multiple pushbuttons.*
39. The student will be able to draw circuit.
40. The student will be able to control multiple stations.
41. The student will be able to wire multiple stations.

*The student will be able to explain selector switches.*
42. The student will be able to define 3-position.
43. The student will be able to define 4-position.
44. The student will be able to define 2-position.

*The student will be able to use reversing controls-three phases.*
45. The student will be able to explain magnetic lock-out.
46. The student will be able to explain motor reverse operation.

*The student will be able to explain reversing controls on garage door.*
47. The student will be able to define limit switch control.
48. The student will be able to define single-phase motor.

*The student will be able to use three phase motors-wye and delta configurations.*
49. The student will be able to explain advantages of wye connection.
50. The student will be able to explain advantages of delta connection.

*The student will be able to use dual voltage - three phase motors.*
51. The student will be able to explain 480 volt connection.
52. The student will be able to explain 240 volt connection.

ASSESSMENT OF LEARNER OUTCOMES:
Student progress is evaluated by means that include, but limited to exams, written assignments, and class participation.

SPECIAL NOTES:
This syllabus is subject to change at the discretion of the instructor. Material included is intended to provide an outline of the course and rules that the instructor will adhere to in evaluating the student's progress. However, this syllabus is not intended to be a legal contract. Questions regarding the syllabus are welcome anytime.

Kansas City Kansas Community College is committed to an appreciation of diversity with respect for the differences among the diverse groups comprising our students, faculty, and staff that is free of bigotry and discrimination. Kansas City Kansas Community College is committed to providing a multicultural education and environment that reflects and respects diversity and that seeks to increase understanding.

Kansas City Kansas Community College offers equal educational opportunity to all students as well as serving as an equal opportunity employer for all personnel. Various laws, including Title IX of the Educational Amendments of 1972, require the college’s policy on non-discrimination be administered without regard to race, color, age, sex, religion, national origin, physical handicap, or veteran status and that such policy be made known.

Kansas City Kansas Community College complies with the Americans with Disabilities Act. If you need accommodations due to a documented disability, please contact the Director of the Academic Resource Center at (913) 288-7670 V/TDD.