DATE OF LAST REVIEW: 02/2013
CIP CODE: 47.0106
SEMESTER: Departmental Syllabus
COURSE TITLE: Basic Electricity
COURSE NUMBER: MAPR0108
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.
PREREQUISITES: None

REQUIRED TEXT AND MATERIALS:
Please see bookstore for current textbook(s) and other required material.

COURSE DESCRIPTION:
Students will study Ohm’s Law, series circuits, parallel circuits, series-parallel circuits, alternating current, inductance, capacitance, transformers, switching devices, and control circuit boards. The course teaches schematic and wiring diagram interpretation. The student will learn basic electrical theory and troubleshooting complex electrical circuits. This course will provide practice in application of electrical theory and diagnostic procedures, as well as the interconnection of components.

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, and panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.
COURSE OUTLINE:

I. Electrical Theory
   A. Atomic structure
   B. Electron flow
   C. Voltage
   D. Amperage
   E. Ohms
   F. Ohms law

II. Electromagnetism

III. Inductance

IV. Capacitance

V. Light Board Usage/Care

VI. Series circuit

VII. Hands-on wiring

VIII. Parallel Circuits

IX. Control Devices
   A. Switches
   B. Relays
   C. Bi-metals
   D. Control Boards
   E. Timers
   F. Thermostats
   G. Thermistors

X. Load Devices
   A. Solenoids
   B. Relay Coils
   C. Transformers
   D. Motors
   E. Lights
   F. Resistors
   G. Heat Elements

EXPECTED LEARNER OUTCOMES:

A. The student should be able to operate primary pieces of electronics test equipment.
B. The student should be able to demonstrate fundamental circuit board soldering techniques.
C. The student should be able to perform basic circuit parameter measurements.
D. The student should be able to identify basic electronic components.
E. The student should be able to define essential electronic terms.
F. The student should be able to describe basic electronic theories and principles.
G. The student should be able to identify and construct electrical circuit types.
H. The student should be able to calculate Ohm’s law

COURSE COMPETENCIES:

The student should be able to operate primary pieces of electronics test equipment.
1. The student should be able to demonstrate proper use of a Multi-meter.
2. The student should be able to demonstrate proper use of an Amp-meter.
3. The student should be able to demonstrate proper use of a jumper wire.

   *The student should be able to demonstrate fundamental circuit board soldering techniques.*
4. The student should be able to use a soldering iron correctly and safely.
5. The student should be able to use solder wick correctly.

   *The student should be able to perform basic circuit parameter measurements.*
6. The student should be able to accurately measure voltage, amperage, and ohms.

   *The student should be able to identify basic electronic components.*
7. The student should be able to correctly identify components as power passing or load devices.

   *The student should be able to define essential electronic terms.*
8. The student should be able to define Voltage.
9. The student should be able to define Amperage.
10. The student should be able to define Ohms.
11. The student should be able to define Induction.
12. The student should be able to define Capacitance.

   *The student should be able to describe basic electronic theories and principles*
13. The student should be able to demonstrate a comprehensive understanding of electrical processes.

   *The student should be able to identify and construct electrical circuit types.*
14. The student should be able to identify and construct a series circuit.
15. The student should be able to identify and construct a parallel circuit.

   *The student should be able to calculate Ohm’s law.*
16. The student should be able to calculate Ohm’s law and measures variables accurately.

**ASSESSMENT OF LEARNER OUTCOMES:**
Assessment methods may include, but are not limited to, the following: Homework, Assignments, Quizzes, Class Participation, Chapter Tests, and Final Exam. The grading scale and the process for calculating the course grades are to be determined by the individual instructors. This information will be included in each instructor’s syllabus.

**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 any time.

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