SYLLABUS

DATE OF LAST REVIEW: 02/2013

CIP CODE: 46.0302

SEMESTER: Departmental Syllabus

COURSE TITLE: Analog Circuits

COURSE NUMBER: ELET0203

CREDIT HOURS: 2

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.kckccboostore.com, for the required texts for your particular class.

COURSE DESCRIPTION

This course presents the basic concepts of electrical, electronic and digital circuits, components and theory of operation.

METHOD OF INSTRUCTION:

A variety of instructional methods may be used depending on content area. These may 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. Ohm’s Law solving for AC/DC voltage, current and resistance.
II. Resistor color codes.
III. Multi-meter measurement of AC/DC voltage, current, ohms and frequency.
IV. Grounding, interlocks, fuses, circuit breakers and tag out procedures.
V. AC vs. DC voltage and current.
VI. Induction and RL Circuits.
VII. Basic semiconductor theory.
VIII. Semiconductor Testing.
IX. Concept of various number systems.
X. Registers, Buses: Control, Data, Address.

EXPECTED LEARNER OUTCOMES:

A. The student will be able to solve basic electronic problems involving AC/DC current, voltage, resistance and power.

B. The student will be able to operate common types of test equipment in evaluating and troubleshooting circuits.

C. The student will be able to explain the reasons why basic electronic safety will protect the operator and the circuit.

D. The student will be able to compare and explain the components that comprise an AC sine wave and the relationship between frequency and time.

E. The student will be able to analyze series and parallel resonate circuits and evaluate the effects of capacitive/inductive reactance and impedance.

F. The student will be able to evaluate current as a carrier of information as applied to telephone applications in use today and in the future.

G. The student will be able to identify the different types of semiconductor devices and explain their operation and applications.

H. The student will be able to demonstrate the fundamental use of Logic circuits.

I. The student will be able to demonstrate the knowledge of applied digital mathematics.
J. The student will be able to demonstrate the knowledge to interface analog to digital systems.

K. The student will be able to define terms associated with microprocessors.

L. The student will be able to construct circuits using schematic diagrams as a guide and evaluate the circuit using electronic math formulas and test equipment.

**CORE COMPETENCIES:**
Upon successful completion of this course the:

*The student will be able to solve basic electronic problems involving AC/DC current, voltage, resistance and power.*
1. The student will be able to measure current with ammeter.
2. The student will be able to measure voltage with voltmeter.
3. The student will be able to measure resistance with ohmmeter.

*The student will be able to operate common types of test equipment in evaluating and troubleshooting circuits.*
4. The student will be able to use a glow-tector to determine power.
5. The student will be able to use a megohmometer for grounding.
6. The student will be able to use a wiggins for voltage.

*The student will be able to explain the reasons why basic electronic safety will protect the operator and the circuit.*
7. The student will demonstrate safety procedures for protection.
8. The student will demonstrate why it is important to protect the circuit.

*The student will be able to compare and explain the components that comprise an AC sine wave and the relationship between frequency and time.*
9. The student will be able to draw and sine wave with time elements of each cycle.
10. The student will be able to distinguish differences between frequency and time.

*The student will be able to analyze series and parallel resonate circuits and evaluate the effects of capacitive/inductive reactance and impedance.*
11. The student will be able to explain resonance.
12. The student will be able to show a graph of capacitive/inductive reactance.
13. The student will be able to use a formula to determine impedance.

*The student will be able to evaluate current as a carrier of information as applied to telephone applications in use today and in the future.*
14. The student will be able to describe low voltage current for telephone applications.

*The student will be able to identify the different types of semiconductor devices and explain their operation and applications.*
15. The student will be able to explain diodes applications.
16. The student will be able to explain resistors in a circuit.
17. The student will be able to explain transistors in a circuit.

_The student will be able to demonstrate the fundamental use of Logic circuits._

18. The student will be able to explain the binary operation.
19. The student will be able to count in binary.

_The student will be able to demonstrate the knowledge of applied digital mathematics._

20. The student will be able to calculate programmable sequence.

_The student will be able to demonstrate the knowledge to interface analog to digital systems._

21. The student will be able to explain how analog is converted to digital.

_The student will be able to define terms associated with microprocessors._

22. The student will be able to explain AND gates.
23. The student will be able to explain NOR gates.
24. The student will be able to explain OR gates.

_The student will be able to construct circuits using schematic diagrams as a guide and evaluate the circuit using electronic math formulas and test equipment._

25. The student will be able to design a circuit to perform a task.
26. The student will be able to use formulas for maximum efficiency.
27. The student will be able to use digital multimeter.

**ASSESSMENT OF LEARNER OUTCOMES:**

Student progress is evaluated by means that include, but are not 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.