COURSE SYLLABUS

LAST REVIEW   Fall 2022

COURSE TITLE   Analog Circuits

COURSE NUMBER   ELET 0203

DIVISION   Career and Technical Education

DEPARTMENT   ELET

CIP CODE   46.0302

CREDIT HOURS   2

CONTACT HOURS/WEEK   Class: 1   Lab: 2

PREREQUISITES   None

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

PROGRAM ALIGNMENT
This course is part of a program aligned through the Kansas Board of Regents and Technical Education Authority. For more information, please visit:
https://kansasregents.org/workforce_development/program-alignment

PROGRAM LEARNING OUTCOMES

1. The Student will be able to identify workplace safety issues in accordance with OSHA standards.
2. Upon successful completion of this course, the student should be able to identify the job skills necessary to have a successful career in the Electrical Profession.
3. Inspect electrical circuit connections in accordance with the N.E.C. standards of compliance.

TEXTBOOKS
http://kckccbookstore.com/

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.	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

COURSE LEARNING OUTCOMES AND COMPETENCIES
Upon successful completion of this course, the student will:

A. Solve basic electronic problems involving AC/DC current, voltage, resistance, and power.
   1. Measure current with ammeter.
   2. Measure voltage with voltmeter.
   3. Measure resistance with ohmmeter.

B. Operate common types of test equipment in evaluating and troubleshooting circuits.
   4. Use a glow-tector to determine power.
   5. Use a megohmmeter for grounding.
   6. Use a Wiggins for voltage.

C. Explain the reasons why basic electronic safety will protect the operator and the circuit.
   7. Demonstrate safety procedures for protection.
   8. Demonstrate why it is important to protect the circuit.

D. Compare and explain the components that comprise an ac sine   wave and the relationship between frequency and time.
   9. Draw and sine wave with time elements of each cycle.
   10. Distinguish differences between frequency and time.

E. Analyze series and parallel resonate circuits and evaluate the effects of capacitive/inductive reactance and impedance.
   11. Explain resonance.

12. Show a graph of capacitive /inductive reactance.
13. Use a formula to determine impedance.

F. Evaluate current as a carrier of information as applied to telephone applications in use today and in the future.
14. Describe low voltage current for telephone applications.

G. Identify the different types of semiconductor devices and explain their operation and applications.
15. Explain diodes applications.
16. Explain resistors in a circuit.
17. Explain transistors in a circuit.

H. Demonstrate the fundamental use of logic circuits.
18. Explain the binary operation.
19. Count in binary.

I. Demonstrate the knowledge of applied digital mathematics.
20. Calculate programmable sequence.

J. Demonstrate the knowledge to interface analog to digital systems.
21. Explain how analog is converted to digital

K. Define terms associated with microprocessors.
22. Explain AND gates.
23. Explain NOR gates.
24. Explain OR gates.

L. Construct circuits using schematic diagrams as a guide and evaluate the circuit using electronic math formulas and test equipment.
25. Design a circuit to perform a task.
26. Use formulas for maximum efficiency.
27. Use digital multimeter.

ASSESSMENT OF COURSE LEARNING OUTCOMES AND COMPETENCIES
Student progress is evaluated through both formative and summative assessment methods. Specific details may be found in the instructor's course information document.

COLLEGE POLICIES AND PROCEDURES
Student Handbook
https://www.kckcc.edu/files/docs/student-resources/student-handbook-and-code-of-conduct.pdf

College Catalog
https://www.kckcc.edu/academics/catalog/index.html

College Policies and Statements
https://www.kckcc.edu/about/policies-statements/index.html

Accessibility and Accommodations
https://www.kckcc.edu/academics/resources/student-accessibility-support-services/index.html.