

COURSE SYLLABUS

LAST REVIEW	Fall 2021
COURSE TITLE	AC Circuits
COURSE NUMBER	ELEC-0210
DIVISION	Math, Science, Business & Technology
DEPARTMENT	Electronics Engineering Technology
CIP CODE	15.0303
CREDIT HOURS	4
CONTACT HOURS/WEEK	Class: 3 Lab: 2
PREREQUISITES	ELEC120 DC Circuits
COREQUISITES	None
COURSE PLACEMENT	Students must meet the correct placement measure for this course. Information may be found at: https://www.kckcc.edu/admissions/information/mandatory-evaluation-placement.html

COURSE DESCRIPTION

This course applies circuit analysis to Alternating Current (AC) circuits. The response of circuits that have resistance, capacitive and inductive reactance, and impedance in series, parallel, and series-parallel circuits will be analyzed. Topics will also include filters, resonance, and transformers.

TEXTBOOKS

<http://kckccbookstore.com/>

METHODS 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. Periodic Waveforms and Pulses
- II. Phasors, Complex Numbers, and Applications
- III. Capacitors, Inductors, Reactance, and Impedance
- IV. Circuit Analysis
- V. Transformers
- VI. Common Circuit Applications
- VII. Pulse Response of Reactive Circuits.

COURSE LEARNING OUTCOMES AND COMPETENCIES

Upon successful completion of this course, the student will:

- A. Describe sine and non-sinusoidal waveforms.
- B. Use phasors and complex numbers in analyzing sinusoidal waveforms.
- C. Describe the capacitor and define its properties in an electrical circuit using sine waveform sources (AC).
- D. Describe the inductor and define its properties in an electrical circuit using sine waveform sources (AC).
- E. Describe the transformer and describe its properties in an electrical circuit using sine waveform sources (AC).
- F. Explain the operation of resistor-capacitor (RC) circuits having AC sources applied.
- G. Explain the operation of resistor-inductor (RL) circuits having AC sources applied.
- H. Explain the operation of resistor-inductor-capacitor (RLC) circuits having AC sources applied.
- I. Describe the operation of filters made from RLC component combinations with AC sources applied.
- J. Describe the operation of RLC component combinations with pulsed sources applied.

ASSESSMENT OF COURSE LEARNING OUTCOMES AND COMPETENCIES

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.

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>.