

NEWARK COLLEGE OF ENGINEERING

SYLLABUS AND COURSE INFORMATION

Course Name: Circuits I

Course Number: ECET 201

Course Structure: 2-2-3 (lecture hr/wk – lab hr/wk – course credits)

Course Description: This first course in Electrical Circuits introduces the student to both DC and AC Circuit Theory. It includes Ohm's and Kirchoff's Laws for analysis of series and parallel circuits. Series-parallel, ladder and bridge networks are analyzed. Resonance and frequency response are included along with an introduction to AC circuits. Circuit simulations and laboratory experiments are designed to support the theory and obtain measurement skills.

Prerequisites: None

Corequisites: None

**Required, Elective,
or Selected Elective:** Required

Required Materials: **Text:** Name: Principles of Electric Circuits, Conventional Current
Author: Floyd
Year: 2020, 10th Edition
ISBN: 978-0-13-487948-2

Course Outcomes: By the end of the course students are able to:

1. Apply various laws of electricity to solve for voltages and currents in series, parallel, and series-parallel resistive circuits.
2. Analyze inductive and capacitive circuits to determine the effective/total inductance and capacitance of these circuits.
3. Convert complex circuits to their simplified equivalents to solve for the parameters of changing load resistances.
4. Work with circuits containing multiple voltages and currents sources.
5. Demonstrate the use of laboratory equipment to measure voltage, current and resistance.
6. Perform laboratory exercises and present conclusive results in the form of lab reports.
7. Simulate a circuit to enhance understanding of a circuit's behavior.
8. Effectively interact with other team members to analyze circuits and complete assignments and lab reports.
9. Demonstrate ability to read-ahead course materials prior to lecture.

Class Topics:	Basic Electric Concepts	Mesh and Nodal Analysis
	Units of Measure	Thevenin and Norton Circuits
	Energy and Power	Maximum Power Transfer
	Kirchhoff's Laws	Superposition and Source Transforms

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Student Outcomes: The Course Learning Outcomes support achievement of the following Student Outcomes from the ETAC of ABET Criterion 3 requirements.

Student Outcome 1: An ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly defined engineering problems appropriate to the discipline.

Related Course Learning Outcomes: 1 & 2

Student Outcome 3: An ability to apply written, oral, and graphical communication in broadly defined technical and non-technical environments; and an ability to identify and use appropriate technical literature.

Related Course Learning Outcomes: 6

Student Outcome 5: An ability to function effectively as a member as well as a leader on technical teams.

Related Course Learning Outcomes: 8

Academic Integrity: Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at:

<http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf>

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu

Modification to Course: The Course Outline may be modified at the discretion of the instructor or in the event of extenuating circumstances. Students will be notified in class of any changes to the Course Outline.

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Updated: 11 March 2023