

NEWARK COLLEGE OF ENGINEERING

SYLLABUS AND COURSE INFORMATION

Course Name: Circuit Measurements

Course Number: ECET 303

Course Structure: 1-3-2 (lecture hr/wk – lab hr/wk – course credits)

Course Description: Lecture and laboratory sessions are designed to develop techniques for the measurement of various circuit parameters as well as the theoretical prediction of these parameters. Extensive use of computer simulation software.

Prerequisites: (ECET 205 or ECE 271) and (Math 138 or Math 111)

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. Identify the best circuit theory to apply to various resistive circuits to solve for voltage and current measurements, and utilize these theories to solve these circuit problems.
2. Simulate a circuit with the use of Multisim to obtain a prior understanding of a circuit's behavior, and incorporate these results in a laboratory report.
3. Demonstrate the use of Excel to perform data analysis and graphing on laboratory results.
4. List the differences between time and frequency analysis of a circuit. Theoretically and experimentally generate a Bode plot, as well as simulate these results with Multisim.
5. Write an effective laboratory report, including a detailed Results and Conclusion section.
6. Present orally technical information in a professional and concise manner.
7. Effectively interact with other team members to analyze circuits, complete assignments, and produce lab reports.

Class Topics:	Kirchhoff's Laws	Voltage and Current Division
	Mesh and Nodal Analysis	Thevenin and Norton Equivalent Circuits
	Maximum Power Transfer	Superposition
	Source Transforms	First Order Response
	AC Steady State Analysis	Frequency Analysis
	Bode Plots	Average and RMS Calculations

NEWARK COLLEGE OF ENGINEERING

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 Outcome: 1 & 2

Student Outcome 4: An ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes.

Related Course Learning Outcomes: 3 and 5

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

Related Course Learning Outcomes: 7

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.

Prepared By: Daniel Brateris
Course Coordinator: Daniel Brateris
Updated: 11 March 2023