New Jersey Institute of Technology
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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 238 or Math 112)

Corequisites: None

Required, Elective, or Selected Elective: Required

Required Materials: **Text:** Name: Fundamentals of Electric Circuits (ECET 303)
Author: Various (Custom Book) (McGraw-Hill Create)
Year: 2015
ISBN: 978-1-308-53459-9

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 and complete assignments.
8. Download and upload files with Moodle, as well as utilize other aspects of this learning management application

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

New Jersey's Science & Technology University

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AC Steady State Analysis	Frequency Analysis
Bode Plots	Average and RMS Calculations
Power Factor	

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

Student Outcome a: An ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly defined engineering technology activities.
Related Course Outcome: 1 & 2

Student Outcome c: An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes.
Related Course Learning Outcomes: 3

Student Outcome e: An ability to function effectively as a member or leader on a technical team.
Related Course Learning Outcomes: 8

Student Outcome g: An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.
Related Course Learning Outcomes: 6 & 7

Academic Integrity: NJIT has a zero-tolerance policy regarding cheating of any kind and student behavior that is disruptive to a learning environment. Any incidents will be immediately reported to the Dean of Students. Please visit the Dean of Students website at http://www.njit.edu/doss for a list of student policies relating to academic integrity and student conduct.

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