

**NEWARK COLLEGE OF ENGINEERING**

**SYLLABUS AND COURSE INFORMATION**

- Course Name:** Fundamentals of Analog Electronics
- Course Number:** ECET 205
- Course Structure:** 2-2-3 (lecture hr/wk – lab hr/wk – course credits)
- Course Description:** This course introduces students to the active components used in electronics circuits. It covers the physics, the characteristics, and some applications of semiconductor diodes and transistors. The applications will include amplifiers, rectifiers, op amps, oscillators, and timers. Circuit simulation and laboratory experiments are designed to support the theory and provide measurement skills.
- Prerequisites:** ECET 202 or ECE 232
- Corequisites:** None
- Required, Elective, or Selected Elective:** Required
- Required Materials:** **Text:** Name: Electronic Principles with Experiments Manual  
Author: Malvino and Bates  
Year: 2015  
ISBN: 978-0-07-337388-1
- Course Outcomes:** By the end of the course students are able to:
1. Identify and describe the operation of common semiconductor devices such as diodes, bipolar junction transistors, field effect transistors, and operational amplifiers.
  2. Perform DC and AC analysis of circuits containing analog components.
  3. Design common circuits using analog devices such as power supplies and amplifiers.
  4. Locate and select analog devices using component specifications based on circuit requirements.
  5. Select and demonstrate the use of appropriate test equipment and procedures to analyze circuit operation and troubleshoot faulty circuits.
  6. Demonstrate and use knowledge of electrical safety in laboratory setups and the workplace.
- Class Topics:**
- |                          |                              |
|--------------------------|------------------------------|
| Diodes                   | Bipolar Junction Transistors |
| Field Effect Transistors | Operational Amplifiers       |
| Biasing                  | Power Supplies               |
| AC Analysis              | Amplifiers                   |

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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 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 Learning Outcomes:** 1 & 2

**Student Outcome b:** An ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies.

**Related Course Learning Outcomes:** 3

**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:** 5

**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

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