

## **COURSE SYLLABUS**

**Course Number:** ECGR 2161  
**Course Name:** Basic Electrical Engineering I

**Credits and Contact Hours:** 3

**Instructor:** Staff

**Textbook:** Fawwaz T. Ulaby and Michael M. Maharbiz, Circuits, 2nd Edition, NTS Press, 2013, ISBN 978-1-934891-19-3.

**Catalog Description:** Fundamental concepts and methods of analysis of D.C. and A.C. circuits, elementary operation of electronic devices. Not open to Electrical and Computer Engineering majors.

**Pre-Requisites/Co-Requisites:** PHYS 2102 with grade of C or above.

**Course is: Required (R)**

**Goals:** Students will have a basic understanding of electrical and electronic component properties and functions, ac and dc network analysis, electrical power generation and distribution, fundamental electronics, frequency response characteristics, and electrical safety considerations. The objective of this course is to introduce electrical engineering principles to engineering students not majoring in electrical engineering. A related goal is to prepare these students for the electrical section of the Fundamentals of Engineering examination, which can lead to professional registration.

**Student Outcomes Addressed:**

- A. an ability to apply knowledge of mathematics, science, and engineering

**Course Topics:**

Circuit Terminology, Resistive Circuits, Analysis techniques, Operational Amplifiers, RC and RL First Order Circuits, ac Analysis, ac Power, Motors and Power Sources.

Seven hands-on laboratory experiments cover: 1) Instruments & Basic Circuit Elements, 2) Circuit Characteristics, 3) Network Analysis, 4) Time constant of and RC network, 5) Active Components, 6) Motors, 7) Power Sources. Students are required to use and maintain laboratory notebooks.