

EL 3302 – Engineering Measurements

1. 3 Student Credit Hours, 3 Contact Hours

2. Instructor: Scott Starks, Ph.D., P.E.

3. Required Text:

Northouse, “Leadership: Theory and Practice,” Sage Publishing, 2016.

Supplemental Resources are provided via the course’s Blackboard website. Several texts are made available as resources for the class. These include:

Hambley, “Electrical Engineering: Principles and Practice,” 6th Edition, Pearson, 2014.

Nilsson and Reidel, “Electric Circuits,” 10th Edition, Pearson, 2015.

Ulaby, Maharbiz, and Furse, “Circuits,” 3rd Edition, NTS Press, 2016.

4. Specific Course Information:

- a) **CATALOG DESCRIPTION** – In this course, students learn some of the basic tools for making physical measurements and conducting experiments with electric circuits. Topics include the fundamental laws that govern the operation of electric circuits along with formal techniques associated with the analysis and design of electric circuits. Professional communication skills are developed via formal laboratory reporting. Readings on leadership character and integrity are included.
- b) **PREREQUISITES** – (MATH 1312 with a minimum grade of C) AND (EL 2301 with a minimum grade of C)
- c) **REQUIRED** course in the BSEL Program.

5. Specific Goals of the Course

- a. At the end of the semester the student will be able to:
 - identify, formulate, and solve electric circuits problems by applying principles of engineering, science, and mathematics.
 - apply laboratory skills necessary to design and build electric circuits that enable the collection of measurement data to support analysis and interpretation.
 - recognize leadership issues and apply leadership principles.
- b. The goals of the course specifically relate to the following Student Outcomes stated in ABET Criteria 3.
 - (1) An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science and mathematics
 - (3) An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
 - (8) An ability to recognize leadership issues and apply leadership principles

7. List of Topics

- Fundamental Laws Governing Electric Circuits
- DC Circuit Analysis
- Capacitors
- Transient Response of RC Circuits
- Passive Filters
- Operational Amplifiers
- Readings on (1) Path-Goal Theory and (2) Gender and Leadership