

ABET COURSE SYLLABUS

UTEP - Department of Industrial, Manufacturing & Systems Engineering

1. **Course number and name:** IE 2377 Electro-Mechanical Systems
2. **Credits and contact hours:** 3 SCH – 3 hours of lecture
3. **Instructor's or course coordinator's name:** Dr. Ivan Arturo Renteria Marquez
4. **Text book, title, author, and year:** Grob's basic electronics, Mitchel E. Schultz, 12th edition, Mc Graw Hill, 2016.
 - a. **other supplemental materials:**
reference books:
Electrical machines, drivers and power systems, Theodore Wild, 6th edition.

5. Specific course information

- a. **brief description of the content of the course (catalog description):**
Fall 2018 UTEP catalog description:
Principles of electrical circuits, generators, and motors. Introduction to electronics and micro-processors for data acquisition.
- b. **prerequisites or co-requisites:** MATH 1312 with a grade of "C" or better.
- c. **indicate whether a required, elective, or selected elective (as per Table 5-1) course in the program:** Required course.

6. Specific goals for the course

- a. **specific outcomes of instruction:**
The student should:
 - Students will understand the basic electrical engineering principles and abstraction on which the design of electromechanical systems is based.
 - Students will understand the basic electrical circuits laws and theorems such as Ohm's law, series and parallel circuits, voltage dividers, Kirchhoff's laws and network theorems.
 - Students will understand the principle of operation of generators and motors. These include DC and AC motors.
- b. **explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course:**
 1. ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
 2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
 4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.

6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

7. Brief list of topics to be covered

Electricity, Ohm's Law, Series circuits, Parallel circuits, Series-parallel circuits, Voltage dividers and current dividers, Kirchhoff's Laws, Network theorems, Alternating voltage and current, Capacitive reactance, Capacitive circuits.