COURSE SYLLABUS (ABET Format)

Department, Number and Title of course
    Department: Electrical Engineering
    Course Number: EE 204
    Course Title: Fundamentals of Electric Circuits
    Required Course

Course Description
    The course is a fundamental course in electric circuits for all non EE Students. Topics include the basic concept of voltage and current as well as the fundamental of laws (KVL and KCL) governing those quantities, fundamental circuit elements such as the independent sources and the resistors, circuit analysis in the time and frequency domain and introduction to three-phase circuits.

Prerequisite(s)

    PHYS 102

Textbook

    FUNDAMENTALS OF ELECTRIC CIRCUIT ANALYSIS, Clayton Paul, Wiley & Sons. Inc., 2001, ISBN: 0471371955

Other useful references and material
1. Electric Circuit Fundamentals by Thomas L. Floyd, Prentice Hall 2006
2. Fundamentals of Electric Circuits by Charles Alexander, and Matthew Sadiku, McGraw-Hill Science/Engineering/Math, 2006.

Course objectives:
    After successfully completing the course, the students will be able to
- Understand the fundamental concept of basic circuit theory.
- Get familiar with circuit elements.
- Analysis and design basic circuits.
- Get introduced to basic commercial power distribution (three phase circuits).

Topics Covered
- Basic Definitions and Laws of Electric Circuits
- Circuit Elements and Analysis Techniques.
- Additional Circuit Analysis Techniques.
- Energy Storage Elements.
- Analysis Techniques of Sinusoidal Circuits.
- Introduction to Three-Phase Circuits.

Class Schedule: 2 lectures per week, 50 minutes each.

Contribution of course to meeting the professional component
The students will understand basic concept of voltage and current as well as the fundamental of laws (KVL and KCL) governing those quantities. The course will emphasize the use of circuit theory methods and techniques to analyze different circuits. The students will learn how to design and analyze electric circuits. Several homework problems and design projects (in PSPICE) are used to promote and strengthen the analytical and simulation capabilities of the students, and to help them understand & apply the material for practical circuits.

Relationship of Course to program outcomes
This course supports the following five program outcomes out of eleven outcomes required by ABET Criterion 3 for accrediting engineering programs.

Outcome1: An ability to apply knowledge of mathematics, science, and engineering to the analysis and design of electric circuits

Outcome 2: An ability to identify, formulate, and solve engineering problems in the area of circuits.

Outcome 3: An ability to use the techniques, skills, and modern programming tools such as PSPICE, necessary for engineering practice.

Outcome 4: An ability to function within multi-disciplinary teams

Outcome 5: An ability to design a system, components or process to meet desired needs within realistic constraints