

BMEN 3320 Syllabus, Fall 2016

Course Information

Title: BMEN 3320: Electrical and Electronic Circuits in Biomedical Engineering

Section: 002

Day/Time: Tuesday & Thursday: 10:00 am – 11:15 am

Location: ECSN 2.110

Credit: 3.0 Semester Hours

Instructor

Dr. Patrick Winter (Email: Patrick.Winter@utdallas.edu)

Office: BSB 13.629 (Office Hours: TBD)

Teaching Assistant

TA: Badrinath Jagannath, Email: bxj160030@utdallas.edu

TA Office Hours & Location: TBD

Course Pre-requisites, Co-requisites, and/or Other Restrictions

It is recommended that students take BMEN 3120 with this course. Prerequisites: MATH 2420 and (PHYS 2126 and PHYS 2326). Prerequisite or Corequisite: CS 1324.

Course Materials

- Textbook: Electric Circuits, 10th Edition, James W. Nilsson, Susan Riedel
- All other materials will be available in eLearning

Course Description

Introduction to analysis methods and network theorems used to describe operation of electric circuits. Students will learn the basics of electrical quantities, linear circuit elements, circuit principles, signal waveforms, transient and steady state circuit behavior, diode and transistor circuits, operational amplifiers and digital logic devices. Time domain and Laplace transform methods will be taught for the analysis of electric circuits. Basic methods of modeling, analysis and simulation of circuits will also be covered.

Program Educational Objectives

Biomedical Engineering Bachelor's graduates are expected to attain the following Program Educational Objectives within a few years after graduation:

- Careers that lead to leadership roles in biomedical engineering or related fields
- or
- Gain admission to graduate, professional, or health related programs

Course Learning Objectives & Student Outcomes

Student outcomes followed by ABET classification are:

1. Apply Ohm's law, Kirchoff's Laws, node-voltage, mesh-current, and Thevenin transformation techniques to reduce resistive circuits. – (a) An ability to apply knowledge of mathematics, science, and engineering.
2. Apply knowledge of natural, step and steady state responses for RL, RC and RLC circuits. – (a) An ability to apply knowledge of mathematics, science, and engineering.
3. Design and utilize electrical circuits for measuring voltage, current, gain or frequency response, as well as to analyze and interpret measurement results. – (e) An ability to identify, formulate, and solve engineering problems.
4. Use modern tools to identify available solutions to biomedical circuit design problems. – (k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
5. Research and report a modern problem associated with biomedical electronics. – (j) A knowledge of contemporary issues.

Grading Policy

Homeworks & Assignments: 10%

Projects: 10%

Exams (3): 50%

Final Exam (comprehensive): 30%

Letter grades are assigned as:

A+ $\geq$ 97%,	A $\geq$ 93%,	A- $\geq$ 90%,	B+ $\geq$ 87%,	B $\geq$ 83%,	B- $\geq$ 80%,
C+ $\geq$ 77%,	C $\geq$ 73%,	C- $\geq$ 70%,	D+ $\geq$ 67%,	D $\geq$ 63%,	D- $\geq$ 60%,
F < 60%					

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

“As a Comet, I pledge honesty, integrity, and service in all that I do.”

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus: <http://go.utdallas.edu/syllabus-policies>

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.