

ECE 210 Introduction to Electric Circuits

Spring 2017

Instructor: Dr. Hani Mehrpouyan
MEC 202M
www.mehrpouyan.info
hani.mehr@ieee.org

Room: ENGR 103
Classes: Mon, Wed 1:30 to 2:45 PM

Credit and Contact Hours: (3-0-3)

Office Hours: Tuesday 1:30 to 2:30 PM

Mandatory Study Sessions: Mondays 7:50-8:50 AM and Fridays 6:00 to 7:00 PM

Teach Assistants: Danyal Mohammadi
Office Hours: Wednesdays 12:00-1:00
Office: MEC207, Power Lab
Email: danyalmohammadi@u.boisestate.edu

Mahfuza Khatun
Office Hours: 11:00-12:00 Mondays
Office: Cubical 19 in Room MEC 202
Email: mahfuzakhatun@u.boisestate.edu

Course Information:

a. *Course Description*

Fundamental laws, basic network analysis, and circuit theorems. Capacitors, inductors, and operational-amplifier circuits. First- and second-order circuits. Sinusoidal steady-state analysis of AC circuits. Introduction to computer-aided circuit simulation

b. *Prerequisites and/or corequisites*

COREQ: ENGR 120 or ENGR 130. PREREQ: PHYS 212. PRE/COREQ: MATH 333.

c. *Required, Elective, or Selected Elective (per table 5-1)*

Required Course

Course Goals:

a. *Learning Outcomes:*

Understand that a variety of strategies for solving a problem may exist
Analyze qualitative (symbolic) data to understand a problem or its solution
Analyze quantitative information to understand a problem or its solution
Apply and evaluate a variety of strategies for solving a problem
Develop the ability to intuitively view a problem and determine how to break it into pieces and approach it in a manageable way.

b. *Student Outcomes (per Criterion 3)*

- (1) An ability to apply knowledge of mathematics, science, and engineering.
- (3) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Textbook required: “*Fundamentals of Electric Circuits*”, 6th or lower editions, by Charles Alexander and Matthew Sadiku, McGraw-Hill Education.

Recommended Books: “*Schaum's Outline of Electric Circuits, 6th edition (Schaum's Outlines)*” 6th Edition, Mahmood Nahvi and Joseph Edminister, McGraw-Hill Education, ISBN-10: 0071830456, ISBN-13: 978-0071830454.

Software: LTSpice: free at <http://www.linear.com/designtools/software/ltspice.jsp> or on COEN computers in labs

MATLAB: \$99 at http://www.mathworks.com/academia/student_version or on COEN computers in labs

Optional book for MATLAB: “Mastering MATLAB 7,” Duane Hanselman and Bruce Littlefield; \$35 as BSU Student

Semester Week	Calendar Week of	Reading Assignments from Textbook	Material Covered in Class
1	Jan 9	Chapters 1.1-1.6	Electric Circuit Variables and Concepts, Circuit Elements, Ohms law
2	Jan 16	Chapter 2.1-2.6	Kirchoff’s laws, nodes, series/parallel
3	Jan 23	Sections 3.1-3.3	Nodal Analysis;
4	Jan 30	Sections 3.4-3.5	Mesh Analysis
5	Feb 6	Sections 3.6-3.8	Mesh and Nodal Analysis
6	Feb 13	Sections 4.1-4.4	Circuit Theorems, linear properties and superposition EXAM1: Chapters 1-3, Wednesday
7	Feb 20	Sections 4.5-4.6, & 4.9	Thevenin’s Theorem and Norton’s Theorem
8	Feb 27	Sections 5.1-5.4	Amplifiers, ideal, inverting, non inverting, summing, and difference amplifiers
9	Mar 6	Sections 5.1-8.9	Amplifiers, ideal, inverting, non inverting, summing, and difference amplifiers
10	Mar 13	Sections 6.1-6.5	Capacitors and Inductors
	Mar 20	Spring Break	No classes
11	Mar 27	Sections 7.2, 7.3, 7.5, and 7.6	First Order circuits, source free RC, RL, and Step response of RC and RL circuits
12	Apr 3	Sections 7.2, 7.3, 7.5, and 7.6	First Order circuits Exam2: Chapters 4-7, Wednesday
13	Apr 10	Sections 8.2-8.4	Second Order Circuits, Source free series and parallel RLC
14	Apr 17	Sections 8.5-8.6	Step Response of Series RLC and parallel RLC circuits
15	Apr 24	Section 8.7	General second order circuits; Final Exam review
16	May 1		Comprehensive Final Exam; Monday May 1st, 3:00-5:00 PM

Grading:

Exam 1:	15%	Attending Study Sessions:	10%
Exam 2:	15%	Written HW and Projects:	20%
Final:	40%		

Course Rules:

1. Please read the Student Code of Conduct on the BSU website: <http://www2.boisestate.edu/studentconduct/Student%20Code%20of%20Conduct.htm#Article%202--Definitions>
2. Written Homework Assignments and Projects are to be turned in at the beginning of the class or uploaded to BlackBoard before the beginning of class on the due date. Any late homework will get no credit will be given.
3. Notify me in advance when possible if you will miss an exam or homework due date.