

# ECE 210 Introduction to Electric Circuits

## Spring 2018

**Instructor:** Dr. Hani Mehrpouyan  
MEC 202M  
[www.mehrpouyan.info](http://www.mehrpouyan.info)  
[hani.mehr@ieee.org](mailto: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 9:00-11:00 AM and Fridays 12:00 to 2:00 PM

**Teach Assistants:** Marcus Pearlman  
*Office Hours:* TBA  
*Office:* TBA  
Email: [marcuspearlman@boisestate.edu](mailto:marcuspearlman@boisestate.edu)

Sara Sedighi  
*Office Hours:* TBA  
*Office:* TBA  
Email: [sarasedighi@u.boisestate.edu](mailto:sarasedighi@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 with connect, 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](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 30	Sections 3.1-3.3	Nodal Analysis;
4	Feb 6	Sections 3.4-3.5	Mesh Analysis
5	Feb 13	Sections 3.6-3.8	Mesh and Nodal Analysis
6	Feb 20	Sections 4.1-4.4	Circuit Theorems, linear properties and superposition <b>EXAM1: Chapters 1-3, Wednesday</b>
7	Feb 27	Sections 4.5-4.6, & 4.9	Thevenin’s Theorem and Norton’s Theorem
8	Mar 6	Sections 5.1-5.4	Amplifiers, ideal, inverting, non inverting, summing, and difference amplifiers
9	Mar 13	Sections 5.1-8.9	Amplifiers, ideal, inverting, non inverting, summing, and difference amplifiers
10	Mar 20	Sections 6.1-6.5	Capacitors and Inductors
	Mar 27	Spring Break	No classes
11	Apr 3	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 10	Sections 7.2, 7.3, 7.5, and 7.6	First Order circuits <b>Exam2: Chapters 4-7, Wednesday</b>
13	Apr 17	Sections 8.2-8.4	Second Order Circuits, Source free series and parallel RLC
14	Apr 24	Sections 8.5-8.6	More RLC circuits, Final Exam review
15	April 30		<b>Comprehensive Final Exam; Monday May 1st, 3:00-5:00 PM</b>

**Grading:**

Exam 1:	15%	Attending Study Sessions:	10%
Exam 2:	15%	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>
3. Notify me in advance when possible if you will miss an exam or homework due date.