

De Anza College  
Department of Engineering  
Engr 37-Introduction to Circuit Analysis

Spring 2017

Lec: Mon to Thurs 8:15 am 9:20 am S48

Office Hours: 7:15 am to 8:15 am S48

Manizheh Zand

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### Course Description

Emphasizes practical electronics applications and products. DC and AC theory; Ohm's Law, Kerchoff's Laws, Power Laws network theorems, schematic diagrams, instrumentation and measurement, and functions of discrete components.

### Course Objectives

Upon successful completion of this course, students will be able to:

- Develop an understanding and working knowledge of the fundamentals of DC and AC theory and theorems.
- Define current, voltage, and Kirchhoff's current and voltage laws.
- Use voltage and current to calculate power dissipated by devices in a circuit.
- Use Ohm's law to determine voltage and current relationship in linear devices.
- Analyze series, parallel, series-parallel, and network circuits
- Apply the principle of superposition, Thevenin's equivalent circuits, and Norton's equivalent circuits.
- Analyze circuits containing independent current and voltage sources.
- Describe the properties of inductors, capacitors and obtain transient responses of circuits containing these elements.
- Identify the amplitude, frequency, and phase of a sinusoidal function.
- Transform sinusoidal current and voltage signals from time domain to frequency domain.
- Use the phasor concept to obtain solution of first and second order transient and steady state circuits.
- Use laboratory tools such as oscilloscopes, multimeters, function generators, and power supplies.
- Assemble a circuit and perform voltage and current measurements.
- Perform a critical evaluation of the differences between analytical solutions and the experimental measurements.

### Textbooks

Floyd, Thomas L. (2013). Principles of Electric Circuits. (9th Edition). Upper Saddle River, New Jersey: Prentice-Hall.

### Course Evaluation

The total points earned on all the midterms, quizzes, assignments, lab project, research paper, and final exam will be divided by the total possible points and the resulting percentage will determine the course grade.

Midterms/Quizzes 50%; Quizzes are unannounced  
Homework Assignments 10%  
Lab Experiments 10%  
Final exam 30%

The final grade will be determined according to the following scale:

A+ 97 -100%	B+ 87 - 89%	C+ 77 - 79%	D+ 66 - 69%
A 93 - 96%	B 83 - 86%	C 73 - 76%	D 60 - 65%
A- 90 - 92%	B- 80 - 82%	C- 70 - 72%	F 0 - 59%

### **I. Midterms & Quizzes**

There will be two (2) midterms given. Final Comprehensive Exam will be given during final exam period. No makeup will be allowed.

There may be several unannounced quizzes given during the semester as deem necessary. No makeup will be allowed.

### **II. Homework Assignments**

Homework will be assigned during class hours and can be given from textbooks or from class discussions.

### **III. Lab Experiments**

TBA

### **IV. Final Exam**

Wed June 28<sup>th</sup> 7am to 9 am

### **Americans with Disabilities Act:**

If you need course adaptations or accommodations because of a disability, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities requesting accommodations must register with DRC to establish a record of their disability.

### **Course Outline**

<b><u>Week</u></b>	<b><u>Date</u></b>	<b><u>Lecture</u></b>	<b><u>Topics</u></b>
<b>1</b>	<b>April 10<sup>th</sup></b>	<b>Chapter 1 Chapter 2</b>	<b>Quantities and Units Voltage, Current, and Resistance</b>
<b>2</b>	<b>April 17<sup>th</sup></b>	<b>Chapter 3 Chapter 4</b>	<b>Ohm's law Energy and Power</b>

<b>3</b>	<b>April 24<sup>th</sup></b>	<b>Chapter 5</b>	<b>Series Circuits Midterm #1- Chapters 1,2,3,4,5</b>
<b>4</b>	<b>May 1<sup>st</sup></b>	<b>Chapter 6 Chapter 7</b>	<b>Parallel Circuits Series-Parallel Circuits</b>
<b>5</b>	<b>May 8<sup>th</sup></b>	<b>Chapter 8</b>	<b>Capacitors</b>
<b>6</b>	<b>May 15<sup>th</sup></b>	<b>Chapter 9</b>	<b>Branch, Loop, Node Analysis</b>
<b>7</b>	<b>May 22<sup>nd</sup></b>	<b>Midterm #2</b>	<b>Midterm #2</b>
<b>8</b>	<b>May 29<sup>th</sup></b>	<b>Chapter 10</b>	<b>Magnetisim and Electromagnetisim</b>
<b>9</b>	<b>June 5<sup>th</sup></b>	<b>Chapter 11</b>	<b>Intorduction to Alternating Current and Voltage</b>
<b>10</b>	<b>June 12<sup>th</sup></b>	<b>Chapter 12</b>	<b>Capacitors</b>
<b>11</b>	<b>June 19<sup>th</sup></b>	<b>Chapter 13</b>	<b>Inductors</b>
<b>Final</b>	<b>June 28<sup>th</sup></b>	<b>Wed Final</b>	<b>7:00 am 9:00 am Comprehensive</b>