

**SAN JOSE STATE UNIVERSITY**  
**Department of Aviation and Technology**  
**Tech 60 – Basic Electronics**

**Fall 2013**

**Lec: M 1500 – 1645      IS 216**

**Lab(11): W 1300 – 1745      IS 117**

**Lab(12): F 1300 – 1745      IS 117**

**Office Hours: MW 1220 – 1450**

**Professor: Mohan Kim**

**Office: IS102**

**Phone: (408) 924 – 3219**

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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, schemetic diagrams, instrumentation and measurement, and functions of discrete components. Activity 6 hours.

**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. (9<sup>th</sup> Edition). Upper Saddle River, New Jersey: Prentice-Hall.

Buchla, David H. (2010). Experiments in Electric Circuit. (8<sup>th</sup> 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	40%
Homework Assignments	10%
Lab Experiments	25%
Final exam	25%

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 during the semester on the following weeks: Midterm #1 - 4th week (on weeks 1 - 3 materials); Midterm #2 - 9th week (on weeks 4 - 8 materials). Final Comprehensive Exam will be given during final exam period. **No makeup will be allowed.**

There may be several 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

You are expected to conduct a number of lab experiments from lab book and It is your responsibility to do a conscious and thorough work in a professional manner.

### IV. Final Exam

Monday, December 11, 1715 – 1930, Rm 117.

### Academic Integrity:

Your own commitment to learning, as evidenced by your enrollment at San Jose State University, and the university's Academic Integrity Policy requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the Office of Student Conduct and Ethical Development. The policy on academic integrity can be found at [http://sa.sjsu.edu/student\\_conduct](http://sa.sjsu.edu/student_conduct).

### 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

<u>Week</u>	<u>Date</u>	<u>Lecture</u>	<u>Topics</u>
0	8/26	Orientation	Orientation
1	9/9	a) Ch. 1 b) Ch. 2	Quantities and Units Voltage, Current, and Resistance
2	9/16	Ch. 3	Ohm's Law ( <b>Quiz 1</b> )
3	9/23	Ch. 4	Energy and Power
4	<b>9/30</b>	<b>Midterm #1</b>	
5	10/7	Ch. 5	Series Circuits
6	10/14	Ch. 6	Parallel Circuits
7	10/21	Ch. 7	Series-Parallel Circuits

8	10/28	Ch. 8	Circuit Theorems and Conversions
9	<b>11/4</b>	<b>Midterm #2</b>	
10	11/18	Ch. 9	Branch, Loop, and Node Analysis
11	11/25	Ch. 11	Introduction to Alternating Current and Voltage <b>(Quiz # 2)</b>
13	12/2	Ch. 12	Capacitors
14	12/9	Ch. 13	Inductors
14	12/16	Final Exam	