

**San Jose State University
School of Engineering
Department of Aviation and Technology
Tech 62: Analog Circuits**

Fall 2012
Lec IS 117 M 12:00 – 1:50PM
Office Hours:
M: 2- 3:00 PM
W: 11- 12:00 noon

Instructor: Tom Brown, Jr.
Office: IS 101
Phone (408) 924-3211

Course Description

Semiconductor theory; p-n junction, bipolar transistors, JFET's and MOSFETs, optoelectronic devices. Operational amplifiers and 555 timers. Device applications: comparators, signal generators, active filters, instrumentation amplifiers, voltage regulators, and power supplies.

Student Learning Objectives

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

- a) Describe the fundamentals of semiconductor diodes, transistors, op-amps, timers, and oscillators.
- b) Build, identify, and analyze diode circuits, transistor circuits, op-amp circuits, active filters, and oscillators.
- c) Design or modify fundamental electronic circuits to meet certain requirements.

Textbook

Floyd, Thomas L. Electronic Devices. 9th Edition. Upper Saddle River, New Jersey: Prentice-Hall, 2012.

Course Evaluation

Examinations

Examination #1 Oct 08	10%	100 pts
Examination #2 Nov 26	10%	100

Quizzes

Quiz #1 Sep 17	5%	50
Quiz #2 Oct 29	5%	50

Homework

10% 100

Lab

35% 350

Final: Dec 18, Tu, Rm IS117

25% Time: 9:45 – 12:00 noon 250

Total 100% 1000 pts

Grading

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 00 - 59%

I. Examinations & Quizzes

There will be two examinations and two quizzes given during the semester, unexcused absences **will lead to a zero grade.**

II. Homework Assignments

Homework is due at the beginning of each Monday class session. Late homework will not be accepted.

Academic Integrity Policy:

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.

Americans with Disabilities Act Policies:

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.

Tentative Course Schedule (For Reference Only)

Week Of	Lecture Topics	Problems
8/27	Ch2:Diodes And Applications 2-1: Diode Operation 2-2: Voltage-Current Characteristic(Diode) 2-3: Diode Models	2-3: 7,8
9/10	2-4: Half-Wave Rectifiers 2-5: Full-Wave Rectifiers 2-6: Power Supply Filters and Regulators	2-4: 9,11,13 2-5: 15,16,17,19 2-6: 23,25,27,29
9/17	Ch3: Special-Purpose Diodes 3-1: The Zener Diode 3-2: Zener Diode Applications	3-1: 1,2,3,5 3-2:6,7,8,9,10,11,12,13,14,15 3-6: 30
9/24	Ch4:Bipolar Junction Transistors 4-1 : BJT Structure 4-2: Basic BJT Operations 4-3: BJT Characteristics And Parameters 4-4: The BJT As An Amplifier	4-3: 7,9,11,14,15,16,17,19,21 4-4: 25,27
10/01	4-5: The BJT As A Switch 5-1: The DC Operating Point 5-2: Voltage Divider Bias 5-3: Emitter, Base, Emitter-Feedback And Collector-Feedback Biasing	4-5: 29,30 5-1: 1,2,3,4,5,7,8,9 5-2: 11,12,14,15,17 5-3: 19,21,23,27 5-4: 35
10/08	Examination #1	
10/15	6-1: Amplifier Operations 6-2: Transistor AC Models 6-3: The Common-Emitter Amplifier 6-4: The Common-Collector Amplifier	6-3: 7,8,9,10,11,12,13,14,19 6-4: 20,21,22,23,25
10/22	6-5: The Common-Base Amplifier 6-6: Multistage Amplifiers	6-5: 26,27,28 6-6: 29,31,33,35
10/29	8-1: The JFET 8-2: JFET Characteristics and Parameters 8-3: JFET Biasing 8-4: The Ohmic Region	8-2: 5,8,7,9,10,11,13 8-3: 16,17,18,19,21,23,24 8-4: 28,29,30,31
11/05	9-1: The Common-Source Amplifier 9-2: The Common-Drain Amplifier 9-3: The Common-Gate Amplifier	9-1: 1,3,8,9,11,13,14,15,16,17,18 9-2: 24,25,26,27 9-3: 28,29,30,31
11/19	10-3: Low-Frequency Amplifier Response 10-4: High-Frequency Amplifier Response 10-5: Total Amplifier Frequency Response	10-3: 13,14,15 10-4: 19 10-5: 23,25
11/26	Examination #2	
12/03	12-4: Op-Amps with Negative Feedback 12-5: Effects of Negative Feedback on Op-Amp Impedances 12-7: Open-Loop Response 12-8: Closed-Loop Response	12-4: 11,13,15,16,17 12-5: 19
12/10	13-1: Comparators 13-2: Summing Amplifiers 13-3: Integrators and Differentiators Ch16: Oscillators	13-1: 1,2,5 13-2: 9,11,13
12/18	Final, Rm. IS117,Time: 9:45-12:00 noon	