

COURSE GOALS:

This course is the beginning of a long journey that leads to Electronics Engineering. An engineering that enables you to move into variety of different fields such as Electronics Design, Optics & Photonics, Microwaves, Quantum Electronics, Robotics, Biomedical Engineering, Signal Processing, Computer Design both Hardware and Software plus more. Even you can go to a grad school to work on Particle Physics if you like...I don't know any other engineering field that provides such a broad path after the bachelor's degree...

It is the aim of this class to teach you the basics of electronic circuit design. We start from component level, introduce differential equations, mostly first order, then we will continue with transient analysis, steady-state analysis, power relations, resonance circuits, amplifier basics, operational amplifiers and finally some lectures on diodes and bipolar junction transistors.

Labs are involved, at the end you are going to build a simple working radio!

Nobody claims this is trivial. However, if you study properly it is not rocket science either. If you study properly as I tell you, if you do not miss any class, if you solve homework problems, if you ask questions whenever you don't understand something, if you work hard in the lab, I claim, you will pass the course one way or another.

If you are planning to attend the class as a tourist however, I can recommend better places to visit.

Finally, with this course you will just see the tip of the iceberg. Hopefully you will get the bug and continue with Circuits II...

LECTURES: Group A: **Mon 11:40-12:30 Wed 15:40-17:30 MDBF L045**
 Group B: **Mon 12:40-13:30 Thu 12:40-14:30 MDBF L045**

OFFICE HRS: TBD

ASSISTANTS: TBD

TEXT BOOK: Electrical Engineering Principles & Applications, Allan R. Hambley, 3rd Ed.

LAB HANDBOOK: Will be available at Canon printing office later.

GRADING POLICY: HWs are assigned after every Monday lectures on WebCT and due next Monday before the recitations.
 LABs are very important. Missing two labs is an automatic F, missing one will result one full letter grade down.

Midterm : 30 %

Lab : 25 %

Quizzes : 5 %

Final : 40%

HW : 0 to -10%

No makeup for the midterm and the final. If you miss the midterm and if I find your excuse valid, you will get an extra question in the final and your final exam will carry a weight of 70 %.

Check the schedule in the next three pages, take some time to absorb the information there...You are expected to read the appropriate sections from the textbook before the lectures.

Cheating is not tolerated, do not expect any sympathy for the laziness. Seriousness and hard work is appreciated.

ENS203 September-October 2006 Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
W1	CHAPTER 1 1.1, 1.2 Intro., current, voltage, power, energy definitions September 25	26	CHAPTER 1 1.2—1.7 Kirchhoff's Voltage and Current Law, Circuit elements... 27	28	29	30	October 1
W2	CHAPTER 2 2.1—2.3 Resistive circuits, parallel and series networks... R 2	3	CHAPTER 2 2.4—2.5 Node Voltage Analysis, Mesh Current Analysis R 4	5	6	PREPARE FOR THE LAB INTRO NEXT WEEK 7	8
W3	CHAPTER 2 2.5—2.6 Mesh Current Analysis continued.. R 9	LAB introduction L 10	CHAPTER 2 2.6—2.8 Thevenin & Norton Circuits, Superposition... R L 11	12	L 13	PREPARE FOR THE LAB 1: OPERATING THE INSTRUMENTS... 14	15
W4	CHAPTER 3 3.1—3.4 Capacitance and Inductance R 16	LAB 1 Instruments L 17	CHAPTER 4 3.5 — 4.1 Introduction to first order RC circuits R L 18	19	L 20	21	22
W5	REVIEW TRIGONOMETRY & COMPLEX NUMBERS & LOGARITHMS... HOLIDAY 23					PREPARE FOR THE LAB 2: THEVENIN'S CIRCUIT... 26	28




ENS203

November 2006 Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
W6	CHAPTER 4 4.1—4.2 Transient Circuits First order RC, RL circuits... October 30 R	LAB 2 Thevenin L 31	CHAPTER 4 4.3—4.5 RC, RL circuits with sources, 2 nd order circuits R L Nov 1	2	L 3	4	5
W7	CHAPTER 5 5.1—5.2 Steady State Sinusoidal Analysis, Phasors R 6	7	CHAPTER 5 5.3—5.5 Complex Impedances, Circuit analysis, power in AC circuits R 8	9	10	REVIEW LOGARITHMS ! PREPARE FOR THE LAB 3: SERIES RC & RL CIRCUITS	11 12
W8	CHAPTER 5 5.6 Thevenin and Norton Equivalent Circuits... R 13	LAB 3 RC and RL L 14	CHAPTER 6 6.1 — 6.4 Frequency Response, First order filters, Bode Plots R L 15	16	L 17	18	19
W9	CHAPTER 6 6.4 — 6.5 Bode Plots, High Pass Filters R 20	21	CHAPTER 6 6.6 — 6.7 Series Resonance Parallel Resonance R 22	23	24	MIDTERM IS NEXT SATURDAY	25 26
W10	Review 27	28	Review 29	30	December 1	PREPARE FOR THE LAB 4: RC FILTERS, RESONANCE: MIDTERM	2 3

ENS203

December 2006 Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
W10	CHAPTER 11 11.1 — 11.3 Basic Amplifier Concepts, Cascaded Amplifiers 4	LAB 4 Resonance L 5	CHAPTER 11 11.4 — 11.6 Additional Amplifier models, ideal amplifiers L 6	7	L 8	9	10
W11	CHAPTER 11 11.11 Differential Amplifiers R 11	12	CHAPTER 14 14.11—14.4 Introduction to Operational Amplifiers R 13	14	15	PREPARE FOR THE LAB 5: OP-AMP CIRCUITS 16	17 
W12	CHAPTER 14 14.5—14.6 Op-Amp imperfections R 18	LAB 5 Opamps L 19	CHAPTER 10 10.1—10.3 Basic Diode, Load Line Analysis, Zener Diode R L 20	21	L 22	PREPARE FOR THE LAB 6: BUILDING A RADIO 23	24 
W13	CHAPTER 10 10.4—10.5 Diode Models R 25	LAB 6 Radio L 26	CHAPTER 10 10.6—10.8 Rectifiers, Wave Shaping, Small Signal Circuits R L 27	28	L 29	30	31
W14	JANUARY 1	HOLIDAY 2	3	4	5	LAB FINAL No partners 6	7 

ENS203

January 2007 Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
W15	CHAPTER 13 13.1—13.2 Bipolar Junction Transistors, Common Emitter Characteristics R 8	LAB FINAL L 9	CHAPTER 13 13.4—13.6 NPN transistor, large signal models, DC analysis R L 10	11	THE END :) L 12	13	14
W16	15	16	17	18	19	20	21
W17	22	23	24	25	26	27	28
W18	29	30	31				