ELECTRONICS

Physics 226 – J. Rosner, Instructor

KPTC 105 10:30 – 11:50 a.m. [1]

Tues., Thurs. – Spring Quarter 2009

This is a one-quarter course providing background in practical electronics for all students from the second-year undergraduate to the beginning graduate level. While the course is designed primarily for physics students, others are welcome and may find the material useful in their own specialty as well as of intrinsic interest.

Text: Paul Horowitz and Winfield Hill, *The Art of Electronics*, 2nd edition (Cambridge, 1989).

Laboratory manual: Thomas C. Hayes and Paul Horowitz, *Student Manual for The Art of Electronics* (Cambridge, 1989).

Supplementary reference: Mark J. Wilson, ed., *The ARRL Handbook for Radio Communications 2009* (ARRL [The National Association for Amateur Radio], Newington, CT, 2009). ISBN10: 0-87259-139-5 (paperback) or 0-87259-140-9 (hardback)).

The course consists of two lectures and two laboratories per week. The pace of the laboratories is rather rapid, so students should anticipate spending two full afternoons per week in the lab. Students may choose Monday and Wednesday or Tuesday and Thursday as their laboratory days. The laboratory, KPTC 208, will be open from 1:30 p.m. to 5:20 p.m. Monday through Friday. (Friday afternoons are available for make-up work.)

The first laboratory will be on Monday, April 6. *Please come to laboratories prepared.* Read the pages in the text as shown below to prepare for the next week's laboratories. Then read the laboratory manual, referring to the reading in the text recommended in the manual. It is also helpful to work the exercises suggested in the manual.

The course grade will consist of 60% for the laboratory work, 10% for exercises due on Thursday, April 30 and Tuesday, June 2, 10% for a midquarter exam to be given on Thursday, May 7, and 20% for a final project, due on the last day of class, Thursday, June 4. The project may be undertaken in collaboration with another student if desired. See the project guidelines at:

`http://hep.uchicago.edu/~rosner/p226/projs.pdf`

J. Rosner's office hours: Mondays and Thursdays, 1:30 – 2:30 PM.

[1] First meeting: 10:30 a.m., Tuesday, March 31

Week	Lecture dates	Pages in text	Pages in manual	Lab No.	Subject
1	3/31, 4/2	1-20			
2	4/7	20-40	1-31	1	DC circuits
	4/9	41-60	32-60	2	Capacitors; *RC* circuits
3	4/14	61-79	61-81	3	Diode circuits
	4/16	79-91	82-99	4	Transistors I
4	4/21	91-111	100-123	5	Transistors II
	4/23	113-141	124-141	6	Transistors III
5	4/28	175-187	142-162	7	FETs I
	4/30	187-229	166-183	8	Op Amps I
6	5/5	229-261, 284-300	184-206	9	Op Amps II
	5/7				Midquarter exam
7	5/12	141-171	207-243	10	Oscillators
	5/14	307-368	244-266	11	FET Switches
8	5/19	471-492, 565-575	281-319	13	Gates
	5/21	491-517, 575-577	320-341	14	Flip-flops
9	5/26	507-527, 541-546	342-374	15	Counters
	5/26	512-515, 527-564	375-405	16	Memory
10	6/2, 6/4	571-671	406-430	17	Phase locked loop[a]

[a] No laboratory on Monday, May 25 or Thursday, June 4.