PHYS3320 Introduction to Electronics
Spring 2019
Instructor: Qun Zhao
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Time & Place: MW (6), Physics 327

Textbook: Electrical Engineering: Principles and Applications, 6th edition by A.R. Hambley, Pearson-Prentice-Hall

Chap. 1,2: DC circuits, Thevenin's and Norton's theorems
Chap. 3,4: Transient analysis
Chap. 5: AC circuits, complex variables
Chap. 6: Frequency response of circuits
Chap. 7: Logic circuits and gates: Boolean algebra and K-maps
Chap. 9: Computer based instrumentation: Analog to digital conversion
Chap. 10: Semiconductor physics: p-n junction and diodes in circuits
Chap. 11: Basic amplifiers
Chap. 12: Field-effect-transistors
Chap. 13: Bipolar-junction-transistors
Chap. 14: Operational amplifiers

Course Grading: Hourly Exams (3)-20%, Laboratory-25%, Final Exam-25%, Homework-30%
Letter grades:
A, if **AS >= 90;**
A-, if 90>AS>=87;
B+, if **87 > AS >= 85;**
B, if **85 > AS >= 80;**
B-, if **80 > AS >= 77;**
C+, if **77 > AS >=75;**
C, if **75 > AS >=70;**
C-, if **70 > AS >= 67;**
D, if **67 > AS >= 60;**
F, if **60 > AS**

The purpose of the course is to study the basic fundamentals of circuit analysis. You should have an understanding of how logic circuits and amplifiers work. The course material falls into two categories: electrical circuits and electronics. One must understand the behavior of electrical circuits in order to understand electronics. The first five weeks (Chap. 1-6) cover electrical circuits. These are circuits that contain only passive elements, namely resistors, capacitors, and inductors. The remaining ten weeks deal with circuits containing active elements, such as diodes, transistors, op-amps, and logic gates.

Homework is due the class period after the chapter has been covered in lecture. Homework solutions (and lab notes) will be posted on the following web after your homework has been turned in.
https://www.physast.uga.edu/classes/phys3320/qzhao

Examinations (3) are 50-mins in-class exams, except for the final, and are open-book. To save your time for the problems, treat each exam as closed-book and use the open-book option sparingly.
Final: No makeup for the final exam will be scheduled.

Laboratory is a very important part of understanding electronics. It meets in room 324A of the Physics Building on Friday 1:25-4:25pm. As you will discover, it is one thing to see a schematic of a circuit and analyze it, but it is another to build the circuit and make it work. Experience counts. Laboratory reports will have a different theme each week.
Lab policy

1. One absence (due to illness or other legitimate reasons) and one make-up are allowed for each student during semester. In either case, the student has to provide a legitimate excuse backed up by documentation (e.g., conference invitation letter, doctor's notes, coach's letter, etc).
2. If a student misses three or more labs, he/she will receive a zero credit for the lab course.

Office hour: Mon/Wed 2:30-3:30, or feel free to email or call me to schedule a time when you want to discuss with me.

Lecture	Date	Chapter	Note
1	Wed 1/9	1	
2	Fri 1/11	2	Omit sec 2.7, 2.8
3	Mon 1/14	2	
4	Wed 1/16	3	Omit sec 3.6-3.8
5	Mon 1/21		Holiday
6	Wed 1/23	4	
7	Mon 1/28	4	
8	Wed 1/30	5	Omit sec 5.7-8
9	Mon 2/4	5	
10	Wed 2/6	6	Omit sec 6.8-10
11	Mon 2/11	6	
12	Wed 2/13	10	Omit sec 10.3
13	Mon 2/18		Exam 1, Chap1-6
14	Wed 2/20	10,11	
15	Mon 2/25	11	
16	Wed 2/27	11	
17	Mon 3/4	12	
18	Wed 3/6	12	
19	Mon 3/18	12/13	
20	Wed 3/20	13	
21	Mon 3/25		Exam 2, Chap 10-12
22	Wed 3/27	13	
23	Mon 4/1	13/14	
24	Wed 4/3	14	
25	Mon 4/8	14	
26	Wed 4/10	7	
27	Mon 4/15	7	
28	Wed 4/17	7	
29	Mon 4/22		Exam 3 Chap. 7, 13, 14
30	Wed 4/24	9	
31	Mon 4/29	TBD	
32			** Final Exam **