

## Course Syllabus: Physics 475, UH Fall Semester 2020

Instructor: Prof. Gary Varner

Class Hours: T Th 10:30 - 11:45am, Lab Th 12:30 - 3:20 Watanabe 415A

week	date	Lecture topics	Reading/Laboratory topics
1	25-Aug	Overview of electronics	Intro, Chap 1 - 12
	27-Aug	V,I,R, signals	LAB1: Intro/DC circuits
2	1-Sep	AC circuits	Chap 13 - 26
	3-Sep	Time/frequency domains	LAB2: Capacitors
3	8-Sep	Diodes	Chap 27
	10-Sep		LAB3: Diode circuits
4	15-Sep	Transistors	Chap 28 - 29
	17-Sep		LAB4: Transistors
5	22-Sep	Field Effect Transistors	Chap 30 - 31
	24-Sep		LAB5: FETs
6	29-Sep	Operational Amplifiers (I)	Chap 33
	1-Oct		LAB6: Op Amps I
7	6-Oct	Op Amps (II)	Chap 33
	8-Oct		LAB7: Op Amps II
8	13-Oct	Comparators & Vreg	Review
	15-Oct	555 timer, AMUX, review	LAB8: Comparators
9	20-Oct	<b>Midterm #1</b>	Class Notes
	22-Oct	Digital Logic I	LAB9: Logical Gates
10	27-Oct	Digital Logic II	Class Notes
	29-Oct	Flip Flops	LAB10: Flip-flops
11	3-Nov	Holiday: Election Day (make-up)	Counters / Comp intro
	5-Nov	Intro to Programmable Logic	LAB11: Counters and Timers
12	10-Nov	Programmable Logic II	Class Notes
	12-Nov	FW2 & Digital -> Analog	LAB12: PYNQ Z2 counters/timers
13	17-Nov	FW3 & Analog -> Digital	Class Notes
	19-Nov	Computers	LAB13: PYNQ Z2 exercises
14	24-Nov	<b>Midterm #2</b>	
	26-Nov	Holiday: Thanksgiving	
15	1-Dec	Student Project work	
	3-Dec	<b>Design Review</b>	<b>Student project work</b>
16	8-Dec	Student Project work	
	10-Dec	Student Project work	<b>Student project work</b>
17	11-Dec	<b>Final Presentations (TBC) -- Project Write-ups due by 5pm (12/14)</b>	

Online: [http://www.phys.hawaii.edu/~varner/PHYS475\\_Fall2020/phys475\\_fall20.html](http://www.phys.hawaii.edu/~varner/PHYS475_Fall2020/phys475_fall20.html)

Prerequisite: Physics 272L, and at least junior standing, or permission from instructor

Text: Schultz: *Grob's Basic Electronics, 11th Edition*

Optional/Reference: Horowitz and Hill: *The Art of Electronics*

Office hours: WAT214 M 4-5pm, during lab period, any afternoon in WAT214 by appointment

email: varner@phys.hawaii.edu

Lecture: T Th 10:30 - 11:45am WAT 415A

Lab: Th 12:30 - 3:20 WAT415A, mandatory. **Scientific Calculator & note taking capability mandatory**

**Writing Intensive: Scientific writing and lab reports will be critiqued and graded on both lab and writing techniques by the formula at the bottom:**

**40% of the course grade is determined by satisfactory completion of the writing assignments**

Homework: Assigned Tuesday, due next Tuesday, no late homework.

Grading: Based on curve derived from Total (100) = (MT1(100)+MT2(100)+HW(100)+FINAL(100)+Lab(100))/5