

Course Syllabus: Physics 475, UH Fall Semester 2021

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	24-Aug	Overview of electronics	Intro, Chap 1 - 12
	26-Aug	V,I,R, signals	LAB1: Intro/DC circuits
2	31-Aug	AC circuits	Chap 13 - 26
	2-Sep	Time/frequency domains	LAB2: Capacitors
3	7-Sep	Diodes	Chap 27
	9-Sep		LAB3: Diode circuits
4	14-Sep	Transistors	Chap 28 - 29
	16-Sep		LAB4: Transistors
5	21-Sep	Field Effect Transistors	Chap 30 - 31
	23-Sep		LAB5: FETs
6	28-Sep	Operational Amplifiers (I)	Chap 33
	30-Sep		LAB6: Op Amps I
7	5-Oct	Op Amps (II)	Chap 33
	7-Oct		LAB7: Op Amps II
8	12-Oct	Comparators & Vreg	Review
	14-Oct	555 timer, AMUX, review	LAB8: Comparators
9	19-Oct	Midterm #1	Class Notes
	21-Oct	Digital Logic I	LAB9: Logical Gates
10	26-Oct	Digital Logic II	Class Notes
	28-Oct		LAB10: Flip-flops
11	2-Nov	Flip Flops	Counters / Comp intro
	4-Nov	Digital building blocks	LAB11: Counters and Timers
12	9-Nov	Computers	Class Notes
	11-Nov	Intro to Prog. Logic	LAB12: PYNQ Z2 counters/timers
13	16-Nov	FW2 & Digital -> Analog	Class Notes
	18-Nov	FW3 & Analog -> Digital	LAB13: PYNQ Z2 exercises
14	23-Nov	Midterm #2	
	25-Nov	Holiday: Thanksgiving	
15	30-Nov	Student Project work	
	2-Dec	Design Review	Student project work
16	7-Dec	Student Project work	
	9-Dec	Student Project work	Student project work
17	10-Dec	Final Presentations (TBC) -- Project Write-ups due by 5pm (12/14)	

Online: 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