

Course Syllabus: Physics 475, UH Fall Semester 2022

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	23-Aug	Overview of electronics	Intro, Chap 1 - 12
	25-Aug	V,I,R, signals	LAB1: Intro/DC circuits
2	30-Aug	AC circuits	Chap 13 - 26
	1-Sep	Time/frequency domains	LAB2: Capacitors
3	6-Sep	Diodes	Chap 27
	8-Sep		LAB3: Diode circuits
4	13-Sep	Transistors	Chap 28 - 29
	15-Sep		LAB4: Transistors
5	20-Sep	Field Effect Transistors	Chap 30 - 31
	22-Sep		LAB5: FETs
6	27-Sep	Operational Amplifiers (I)	Chap 33
	29-Sep		LAB6: Op Amps I
7	4-Oct	Op Amps (II)	Chap 33
	6-Oct		LAB7: Op Amps II
8	11-Oct	Comparators & Vreg	Review
	13-Oct	555 timer, AMUX, review	LAB8: Comparators
9	18-Oct	Midterm #1	Class Notes
	20-Oct	Digital Logic I	LAB9: Logical Gates
10	25-Oct	Digital Logic II	Class Notes
	27-Oct		LAB10: Flip-flops
11	1-Nov	Flip Flops	Counters / Comp intro
	3-Nov	Digital building blocks	LAB11: Counters and Timers
12	8-Nov	Computers	Class Notes
	10-Nov	Intro to Prog. Logic	LAB12: PYNQ Z2 counters/timers
13	15-Nov	FW2 & Digital -> Analog	Class Notes
	17-Nov	FW3 & Analog -> Digital	LAB13: PYNQ Z2 exercises
14	22-Nov	Midterm #2	
	24-Nov	Holiday: Thanksgiving	
15	29-Nov	Student Project work	
	1-Dec	Design Review	Student project work
16	6-Dec	Student Project work	
	8-Dec	Student Project work	Student project work
17	9-Dec	Final Presentations (TBC) -- Project Write-ups due by 5pm (12/14)	

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Online: assignments and relevant documents will be uploaded to Lulima

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

Nominal 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