

ECE 2200

Electrical Engineering for Civil Engineers Fall 2021 Class Syllabus

Instructor: Arn Stolp

Office: MEB 2262

Phone: U of U: 581-4205

Only if it's important: Cell: (801) 657-7766 text 1st, start text with "ECE 2200"

E-mail: arnstolp@ece.utah.edu (I don't check my e-mail everyday, so let me know by some other method if you send me email that I need to read.) Subject should start with "ECE 2200"

Office hours: My "office hours" are the problem sessions. Otherwise it's catch me when you can. If I'm not in my office, check the lab. To increase your chances, talk to me in class to say when you'd like to see me. I teach another class at 2:00 p.m. T & Th. If I'm not in my office, check the labs.

Web Site: <http://www.ece.utah.edu/~ece2210/index2200.html>

Required books and lab supplies:

Practical Electronics for Inventors, 3rd or 4th Ed, by Paul Scherz & Simon Monk

Ring binder & weekly class material packs downloaded from canvas or website

Lab notebook (bound or spiral)

Breadboard & Lab parts available for purchase at lab (~\$16 on your U-card)

Prerequisites: MATH 2250 and PHYCS 2210, PHYCS 2220 is strongly recommended

Introduction:

In case you haven't noticed, you're surrounded by electrical and electronic devices. Electrical motion, measurement and control are powerful and cheap, so they're used everywhere and are part of every technical career, including yours. Maybe you can find a job where other people make all the decisions concerning wiring, power distribution, electric motors, communications systems, instrumentation, and control; but do you *really want* that? Do you really *want* to be the clueless one?

ECE 2210 will introduce you to some of the basics of electrical engineering. This may not seem important now, but I think you will find these concepts very useful in your future classes and jobs. Besides, they'll help you pass the FE exam, and that should be of immediate concern.

I teach concepts and the use of those concepts to solve problems, not formulas and memorization. The hands-down easiest way get a good grade in this class is to learn those concepts.

This class consists of:

Lectures: T & H 9:10 -10:10 am in WEB L103

Lectures set the direction and tone of the class and cover more than the written material. You will be held accountable for everything discussed in the lectures, so your attendance is important.

Problem Sessions: T & H 10:10 -10:30 am in WEB L103 (directly after class)

We cover a lot of material in this class and there is rarely enough lecture time to work examples or to answer your questions in detail. I will not cover new material in the problem session, so you can get by without staying, but I think you'll find it worth your while.

Textbook:

The text contains a great deal of practical, useful information beyond the theoretical material we cover in this class. It should prove to be a good reference.

Weekly Download Packets (in place of class handouts):

I've supplemented the textbook with weekly packs of class material which you will download from the class web site (<http://www.ece.utah.edu/~ece2210/>), also linked in canvas. You should have received a class email with links. The packets are separated into class notes and homework assignments. Most of this material is also available individually on the web site. You will probably want to print much of this material. You can sign on to computers in the lab with the same user name and password you use (or can get) in the Engman computer lab (the one in WEB, floor L2). Then you can use the printers in the lab. The packets are designed to be printed on both sides of the pages. Please conserve paper and weight in your backpack.

Homework, homework, and more homework:

50 pts.

I will assign many problems for you to turn in, most of which will come from hand-outs, expect homework at every lecture. Homework will be your main study tool. As such, I'll give you all the answers so that you can check your work immediately. In fact, you'll have to self-correct your homework. If you can't get the answer, check the web site for corrections, study some more, come to the problem session, ask for help, or see the posted solutions in my office window. Sometimes I even post solutions *before* the homework is due. So, you might ask, "Why is it handed in and 'graded'?" Well, to answer a question with a question, "Would you even do it otherwise?"

Your homework should be neat and clear and show all your work. For most problems the grader will simply check to see that you've done it and that your paper shows the enough work to get the answer. Only a few problems will be checked in greater detail. You may collaborate with others to learn how to do the homework, but will need to hand in your own work. Copying or allowing another student to copy your work is considered cheating.

You will probably learn more from doing the homework than any other part of this class. If you thoroughly understand the homework, you will know what the class is about, and the exams should give you no trouble.

You will need to scan your homework, create a .pdf file and hand that in on canvas by 11:59 pm of the due date. (A paper option may also be made available, but that would be due by 5:00 pm of the due date.)

Midterm:

100 pts.

One 50-minute midterm will cover material up to the time of the test. My exams are designed to see if you learned concepts and problem solving strategies and whether you can work with them, sometimes in new and different ways. Don't try to memorize formulas or specific problems. Exams also cover what you learn in the labs. All exams are closed book, closed notes, no phones, tablets or computers allowed..

Final: By special arraignment, or Thursday, 9:10am 10/21/22 (Recommended) 100 pts.

The 50 minute final will be comprehensive with greater emphasis on the most recent material. I highly recommend that you take the exam at the later date so that you will have enough time to study. If you want to take the your final in your last lab, you will need to tell me at the first class so that you can start labs the first week. If you say nothing the first day then you will have to take the later exam (which is the best choice by far).

Labs: MEB 2267

60 pts.

Lab will be held every week, including the last week of class. Lab may start the first week of class-- listen in class the first day for details. Many of the subjects covered in lab aren't covered anywhere else in class, so make sure you pay attention and read the lab instructions. You will have to keep a laboratory notebook as a requirement of the lab. Your lab TA will either collect and grade these notebooks or scans submitted on canvas, Your TA will let you know which.

Labs are **not optional**. For each lab that you miss or fail (< 60% score), your final grade will suffer a **half letter drop** (5% of possible points). Be sure to make-up any labs you miss or fail.

Grades:

	<u>Pts</u>	<u>% of total</u>	<u>Grade</u>
Homework:	50	> 93	A
Labs:	60	90-93	A-
Midterm:	100	87-90	B+
Final:	<u>100</u>	83-87	B
Total:	310	80-83	B-
		77-80	C+
Failed lab:	-15	73-77	C
		70-73	C-
Cheating:	-310	67-70	D+
		63-67	D
		60-63	D-
		< 60	E

If you want any deviations from the normal requirements (say credit for labs, you've done before) you will need to see me before the work would normally be due and get an agreement *in writing*. You'll need to turn in your copy of the agreement with your final, so I'll remember to grade you properly.

Disclaimer:

All information provided here is subject to change due to external factors or unintended typos or errors.

ECE 2200

A. Stolp

Tentative

08/08/20

COURSE SCHEDULE

Week	Date	lect	Topics	Textbook
1	T 08/24	1	Introduction, Basic electrical units & symbols, Kirchhoff's laws	Ch1, 2.1-3, 2.17
	Th 08/26	2	Resistance, Ohm's law, Power, Resistors in parallel & series	2.5-7, 2.11-12, 3.5
2	T 08/31	3	Voltage and current dividers, Sources, Nodes, Grounds, Branches, Meters	2.10, 2.12-16
	Th 09/02	4	Superposition, Practical voltage and current sources	2.18, 3.2
3	M 09/06	Labor Day		
	T 09/07	5	Thevenin & Norton Equivalent Circuits, Max power transfer	2.19
	Th 09/09	6	Thevenin & Norton Equivalent Circuits	notes
4	T 09/14	7	Networks, Nodal analysis	2.17, notes
	Th 09/16	8	Introduction to AC & Signals, Capacitors	2.29, 2.23
5	T 09/21	Exam 1		
	Th 09/23	9	Capacitors, RC first order transients	2.23, 3.6, 2.24
6	T 09/28	10	Inductors, Resonance, RL first order transients	2.24, 3.7, 2.30
	Th 09/30	11	First order transients, Complex numbers	2.34
7	T 10/05	12	Steady-state Sinusoids, Phasors, & Impedance	2.25-26
	Th 10/07	13	Phasors, Impedance, & AC circuits	2.27
	S 10/09	Fall Break		
	Su 10/17			
ECE 2210 Continues on as shown below				
8	Th 10/21	14	AC circuit examples	2.29-30
	lab lect	15	Filters & Bode plots	2.31-33, notes
	Th 10/21	Exam 2		
9	T 10/26	16	Second order transients, Laplace Impedance, Transfer functions	2.34, notes
	Th 10/28	17	Second order transients, Time-domain solutions	notes
10	T 11/02	18	Second order transients, Initial and final conditons	notes
	Th 11/04	19	Second order transient examples, Systems	notes
11	T 11/09	20	Diodes basics, Diodes in DC circuits	4.2
	Th 11/11	21	Diodes in AC circuits, Rectification	4.2, notes
12	T 11/16	22	Diodes, Transistors	4.3, notes
	lab lect	23	Transistors & Switching circuits	4.3
	Th 11/18	Exam 3		
13	T 11/23	24	Operational Amplifiers	Ch 8
	Th 11/25	Thanksgiving		
14	T 11/30	25	Operational Amplifiers	Ch 8
	Th 12/02	26	RMS and AC Power	2.21-22
15	T 12/07	27	AC Power, RMS, examples	2.28, 3.8
	Th 12/09	28	AC Power, Transformers, 3 phase, Y, Delta	Appendix A
16	T 12/14	Review, 1:00 pm		
	W 12/15	Final Exam, 8:00 - 10:00 am		

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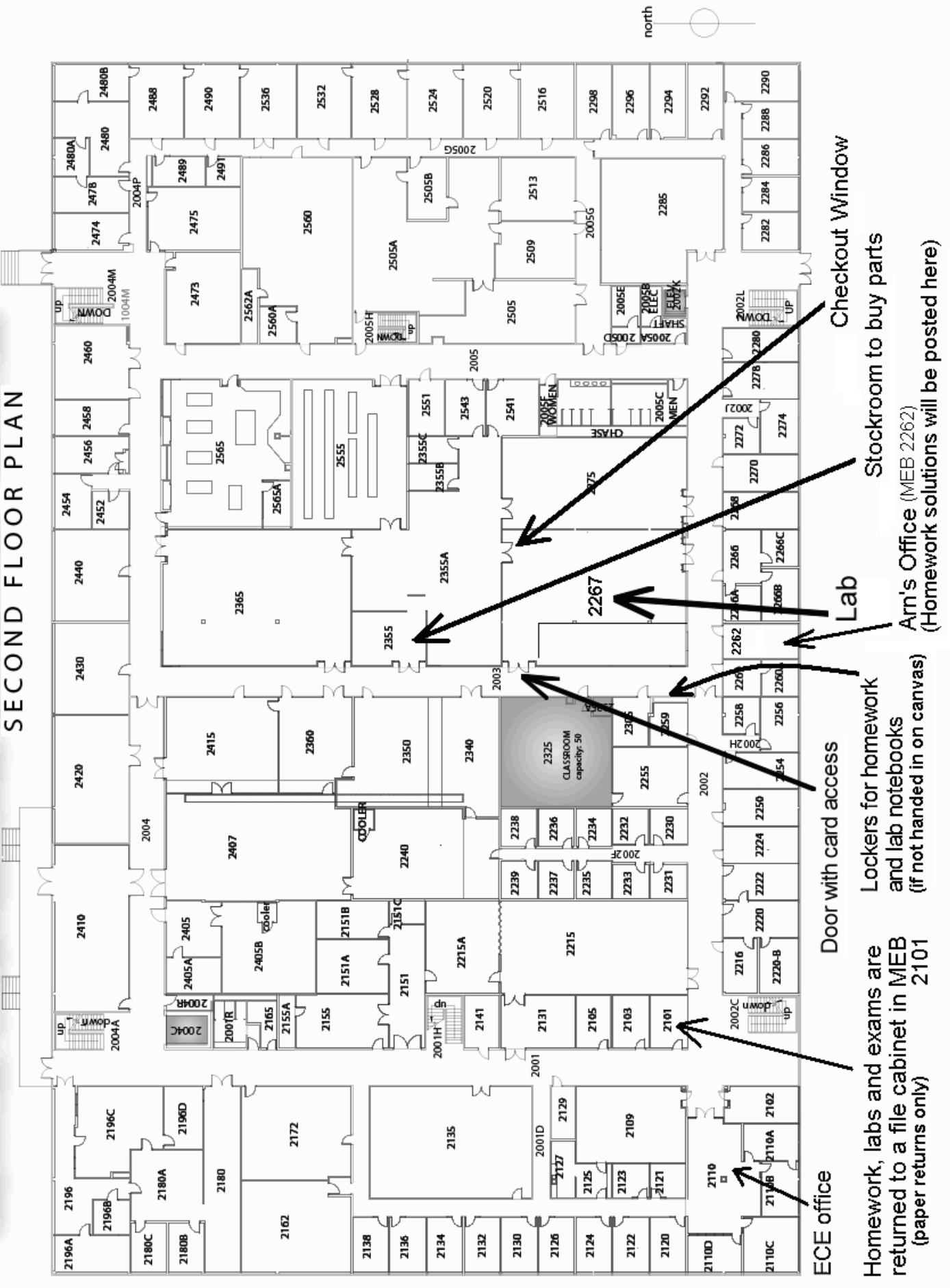
A. Stolp 8/18/20

Month	Week	Mon	Tue	Wed	Thur	Fri
Aug	1	23	24 First Class	25	26	27 Last day to add or drop 2200
Sept (wed)	2	30	31	1	2	3
	3	6 Labor Day	7	8	9	10
	4	13	14	15	16	17 Last day to withdraw
	5	20	21 Exam 1	22	23	24
	6	27	28	29	30	1
Oct	7	4	5	6	7 Last Lecture of 2200	8
	0	11 Fall break	12	13	14	15
	8	18	19	20	21 Exam 2 (Final)	22
	9	25	26	27	28	29
Nov	10	1	2	3	4	5
	11	8	9	10	11	12
	12	15	18	17	18	19
	13	22	23	24	25 Thanksgiving	26
Dec (wed)	14	29	30	1	2	3
	15	6	7 ME Design Day in Union bldg (maybe)	8	9 Last Day of Classes	10 Reading Day
	16	13 Finals	14	15	16	17

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MERRILL ENGINEERING BUILDING (BLDG. 064)

SECOND FLOOR PLAN



ECE office

Homework, labs and exams are returned to a file cabinet in MEB (paper returns only) 2101

Door with card access

Lockers for homework and lab notebooks (if not handed in on canvas)

Lab

Stockroom to buy parts
 Arn's Office (MEB 2262)
 (Homework solutions will be posted here)

Checkout Window

