ECE 2200

Electrical Engineering for Civil Engineers
Fall 2020 Class Syllabus

Instructor: Arn Stolp
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Phone: U of U: 581-4205
Only if it's important: Cell: (801) 657-7766 text 1st, start text with "ECE 2200"
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Office hours: My "office hours" are the Zoom sessions at class time. Otherwise, text me. Start text with "ECE 2200"

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
Ring binder & class material packs downloaded from website or Canvas
Lab notebook (bound or spiral) (Might not be required this semester)
Breadboard & Lab parts available for purchase at lab (~$20 on your U-card) (Might not be required this semester)

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.

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.

The Class:

I plan to tech most, if not all, of the class this semester as a "flipped" class.

Lectures: Watch video lectures before the Zoom session on the same subject
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 watching on schedule is important. At this time lectures are at: ece.utah.edu/~ece2210/ECE2210lect_F20.htm , they also linked in Canvas.

Zoom Sessions: T & H 9:10 -10:30 am

Attendance is a required part of this class. I may cover new material and examples not in the regular video lectures or even give pop quizzes. These are also problem and review sessions and your primary chance to ask questions and get help. It's highly likely that you will never see me in person this semester. Together, the video lectures and the Zoom sessions make a "flipped" class.

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. The reading page numbers are for the 3rd edition (4th edition page may be a little different).

Supplementary Packets (in place of class handouts):

I've supplemented the textbook with lots of notes and examples which you will download from Canvas or the class web site (http://www.ece.utah.edu/~ece2210/). You will probably want to print much of this material. The handouts 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 available on Canvas, 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, or ask for help.

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.

Please scan your homework to a pdf file and turn it in to Canvas by the due date.

Midterm: 100 pts.

One 50-minute midterm will cover material up to the time of the test. I plan to use ProctorU, so make sure you are set up to use that. 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 are normally closed book, closed notes, no phones, tablets or computers allowed, but will have to be a little different this semester.

Final: Tuesday, 9:10am 10/13/20 100 pts.

The 50 minute final will be comprehensive with greater emphasis on the most recent material.

Labs: MEB 2275? No in-person labs at this time ?? pts.

Due to the severity of the coronavirus issues, there will be no in-person labs at this time. We may start some video labs, simulations or even in-person labs at any time, pay attention to your class emails.

Grades:

	Pts
Homework:	50
Labs:	??
Quizzes:	??
Midterm:	100
Final:	100
Total:	???
Cheating:	-all

% of total	Grade
> 93	A
90-93	A-
87-90	B+
83-87	B
80-83	B-
77-80	C+
73-77	C
70-73	C-
67-70	D+
63-67	D
60-63	D-
< 60	E

If you want any deviations from the normal requirements (say credit for work 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.

COLLEGE OF ENGINEERING GUIDELINES

Fall Semester 2020

Americans with Disabilities Act (ADA)

The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you need accommodations in a class, reasonable prior notice needs to be given to the instructor and to the Center for Disability Services, 162 Olpin Union, 581-5020 (V/TDD) to make arrangements for accommodations. All written information in a course can be made available in alternative format with prior notification to the Center for Disability Services.

Adding Classes

Please read carefully: All classes must be added within two weeks of the beginning of the semester (deadline: Friday, September 4, August 28 for 2200). Late adds will be allowed Sept 5 - Sept 14, requiring only the instructor's signature. Any request to add a class after September 14, will require signatures from the instructor, department, and Dean, and need to be accompanied by a petition letter to the Dean's office.

A $50 FEE WILL BE ASSESSED BY THE REGISTRAR'S OFFICE FOR ADDING CLASSES AFTER September 14.

Withdrawal Procedures

See the web page for details: http://registrar.utah.edu/academic-calendars/

See the Class Schedule or web for more details. Please note the difference between the terms "drop" and "withdraw". Drop implies that the student will not be held financially responsible and a "W" will not be listed on the transcript. Withdraw means that a "W" will appear on the student's transcript and tuition will be charged.

Drop Period – No Penalty

Students may DROP any class without penalty or permission until Friday, September 4, 2020 (Friday, August 28 for 2200).

Withdrawal from Full Term Length Classes

Students may WITHDRAW from classes without professor's permission until Friday, October 16, 2020.

Between September 5 and October 16, a "W" will appear on the transcript AND tuition will be charged. Refer to Class Schedule, Tuition and Fees for tuition information.

Withdrawals after October 16 will only be granted due to compelling, nonacademic emergencies. A petition and supporting documentation must be submitted to the Dean's Office, 1602 Warnock Engineering Building. Petitions must be received before the last day of classes (December 3, 2020).

Withdrawal from Session I & Session II

See the web page for details: http://registrar.utah.edu/academic-calendars/fall2020.php

Repeating Courses

When a College of Engineering class is taken more than once, only the grade for the second attempt is counted. Grades of W, I, or V on the student's record count as having taken the class. Some departments enforce these guidelines for other courses as well (e.g., math, physics, biology, chemistry). Attempts of courses taken at transfer institutions count as one attempt. This means a student may take the course only one time at the University of Utah. Courses taken at the University of Utah may not be taken a second time at another institution. If a second attempt is needed, it must be at the University of Utah. Please work with your department advisor to determine the value of repeating courses. Students should note that anyone who takes a required class twice and does not have a satisfactory grade the second time may not be able to graduate. It is the responsibility of the student to work with the department of their major to determine how this policy applies in extenuating circumstances.

Appeals Procedures

See the Code of Student Rights and Responsibilities, located in the Class Schedule or on the UofU Web site for more details

Appeals of Grades and other Academic Actions

If a student believes that an academic action is arbitrary or capricious he/she should discuss the action with the involved faculty member and attempt to resolve. If unable to resolve, the student may appeal the action in accordance with the following procedure:

1. Appeal to Department Chair (in writing) within 40 business days; chair must notify student of a decision within 15 days. If faculty member or student disagrees with decision, then,
2. Appeal to Academic Appeals Committee (see http://www.coe.utah.edu/current-undergrad/appeal.php for members of committee). See II Section D, Code of Student Rights and Responsibilities for details on Academic Appeals Committee hearings.

ECE 2200

A. Stolp

Tentative

08/08/20

COURSE SCHEDULE

Week		Date	lect	Topics	Textbook
1	T	08/25	1	Introduction, Basic electrical units & symbols, Kirchhoff's laws, Switches	Ch1, 2.1-3, 2.17, 3.3
	Th	08/27	2	Resistance, Ohm's law, Power, Resistors in parallel & series, Dividers	2.5-7, 2.11-12, 3.5
2	T	09/01	3	Voltage and current dividers, Sources, Nodes, Grounds, Branches, Meters	2.10, 2.12-16
	Th	09/03	4	Superposition, Practical voltage and current sources, Batteries, Solar	2.18, 3.2, 5.6, notes
3	M	09/07		Labor Day	
	T	09/08	5	Thevenin & Norton Equivalent Circuits, Max power transfer	2.19, notes
	Th	09/10	6	Networks, Nodal analysis	2.17, notes
4	T	09/15	7	Introduction to AC & Signals	2.29
	Th	09/17	8	Capacitors, RC first order transients	2.23, 3.6
5	T	09/22		Exam 1	
	Th	09/24	9	Inductors, Resonance, RL first order transients	2.24, 2.30, 3.7
6	T	09/29	10	First order transients	2.34
	Th	10/01	11	Steady-state Sinusoids, Phasors, & Complex numbers	2.25-26
7	T	10/06	12	Phasors, Impedance, & AC circuits	2.27
	Th	10/08	13	AC circuit examples	2.29-30
8	T	10/13		Exam 2	
ECE 2210 Continues on as shown below					
	Th	10/15	14	Filters & Bode plots	2.31-33, notes
	lab lect		15	Second order transients, Laplace Impedance, Transfer functions	2.34, notes
9	T	10/20	16	Second order transients, Time-domain solutions	notes
	Th	10/22	17	Second order transients, Initial and final conditions	notes
10	T	10/27	18	Second order transient examples, Systems	notes
	Th	10/29	19	Diodes basics, Diodes in DC circuits	4.2
11	T	11/03	20	Diodes in AC circuits, Rectification	4.2, notes
	Th	11/05	21	Transistors, bjt	4.3
12	T	11/10		Exam 3	
	Th	11/12	22	Transistors, Switching circuits, MOSFETS	4.3, notes
	lab lect		23	Operational Amplifiers	Ch 8
13	T	11/17	24	Operational Amplifiers	Ch 8
	Th	11/19	25	DC motors, PWM	Ch 14, notes
14	T	11/24	26	RMS and AC Power	2.21-22
	Th	11/26		Thanksgiving	
15	T	12/01	27	AC Power, Transformers	2.28, 3.8
	F	12/04		Review, 3:05 pm	
16	M	12/07		Review, 1:00 pm	
	T	12/08		Final Exam, 8:00 - 10:00 am	

ECE 2200 Fall Semester, 2020

A. Stolp 8/18/20

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

ECE 2200 Fall Semester, 2020

MERRILL ENGINEERING BUILDING (BLDG. 064)

SECOND FLOOR PLAN