ECE 2200
Electrical Engineering for Civil Engineers
Spring 2019 Class Syllabus

Instructor: Arn Stolp
Office: MEB 2262
Phone: U of U: 581-4205
E-mail: arnstolp@ece.utah.edu (I rarely check my e-mail, so let me know by some other method if you send me email that I need to read.)
Office hours: My “office hours” are the problem sessions. Otherwise, it’s catch me if you can. To increase your chances, talk to me in class, or leave a phone message to say when you’d like to see me. I’m usually around until at least 2:00 p.m. M, W, & F. If I’m not in my office, check the lab.

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

Required books and lab supplies:
Practical Electronics for Inventors, 3\textsuperscript{rd} or 4\textsuperscript{th} Ed, by Paul Scherz
3 required class material packs (available on website) & Ring binder
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 \textit{really want} that? Do you really \textit{want} to be the clueless one?

ECE 2200 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: W & F 9:40 -10:30 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: M 9:40am in WEB WEB L103 & W __________ in __________
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 coming, 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. The reading page
numbers are for the 3rd edition (4th edition page may be a little different).

Supplementary Packets:
I've supplemented the textbook with packs of class material which you will download from
the class web site (http://www.ece.utah.edu/~ece2210/index2200.html). You should have
received a class email with links. The packets are separated into class notes, homework
assignments, and lab instructions. The packets available now will cover the first half of
the class, additional packets will be available in March. Much 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.
Expect a homework assignment for each lecture, to be turned in twice-a-week, usually on
Mondays and Thursdays, all from the Homeworks packet. 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.

On the 2nd floor of MEB, in center hallway, you'll find some lockers with slots in the doors.
Drop your homework in the ECE 2210 HOMEWORK locker by 5:00 p.m. of the due date.
I will accept some late homework for some credit. Bring it directly to me, and don't do it
habitually. Solutions will be posted in my office window. Graded homework, lab
notebooks and exams will be returned to a file cabinet in MEB 2101 according to a folder
number you will receive later. Once you get your number, you should write it on the
upper left-hand corner of everything you hand in. Your material will be an unlocked drawer and will not be secure. If you want your material returned to a locked drawer simply remove your file and slip it under my office door.

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. The class may be split into two or more rooms on exam days, listen in class for details.

Final: In your last lab (ask 1st class day), or Wed., 9:40am 3/6/19 (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 2265 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 collect and grade these notebooks.

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:

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<tr>
<th></th>
<th>Pts</th>
<th>% of total</th>
<th>Grade</th>
</tr>
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<tbody>
<tr>
<td>Homework:</td>
<td>50</td>
<td>&gt; 93</td>
<td>A</td>
</tr>
<tr>
<td>Labs:</td>
<td>60</td>
<td>90-93</td>
<td>A-</td>
</tr>
<tr>
<td>Midterm:</td>
<td>100</td>
<td>87-90</td>
<td>B+</td>
</tr>
<tr>
<td>Final:</td>
<td>100</td>
<td>83-87</td>
<td>B</td>
</tr>
<tr>
<td>Total:</td>
<td>310</td>
<td>80-83</td>
<td>B-</td>
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<tr>
<td></td>
<td></td>
<td>77-80</td>
<td>C+</td>
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<tr>
<td>Failed lab:</td>
<td>-15</td>
<td>73-77</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>70-73</td>
<td>C-</td>
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<tr>
<td>Cheating:</td>
<td>-310</td>
<td>67-70</td>
<td>D+</td>
</tr>
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<td></td>
<td></td>
<td>63-67</td>
<td>D</td>
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<td>60-63</td>
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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.
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, January 17, January 10 for session I). Late adds will be allowed January 18-27, requiring only the instructor’s signature. Any request to add a class after January 27, 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 January 27.

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, January 10, 2019.

Withdrawal from Full Term Length Classes
Students may WITHDRAW from classes without professor’s permission until Friday, March 6, 2019. Between January 18 and March 6, a “W” will appear on the transcript AND tuition will be charged. Refer to Class Schedule, Tuition and Fees for tuition information.
Withdrawals after March 6 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 (April 21, 2019).

Withdrawal from Session I & Session II
See the web page for details:  http://registrar.utah.edu/academic-calendars/spring2020.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,
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, January 22). Late adds will be allowed January 23-February 1, requiring only the instructor’s signature. Any request to add a class after February 1, 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 February 1st. ***

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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, January 22, 2016.

Withdrawal from Full Term Length Classes
Students may WITHDRAW from classes without petition until Friday, March 4, 2016. From January 22-27 a “W” will appear on the transcript but NO tuition will be charged. Between January 27 and March 4, a “W” will appear on the transcript AND tuition will be charged. Refer to Class Schedule, Tuition and Fees for tuition information. Withdrawals after March 4 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 or University College (450 SSB) if you are a pre-major. Petitions must be received before the last day of classes (Tuesday, April 26).

Withdrawal from Session I & Session II
Students may WITHDRAW from session I classes without petition until Friday, February 5, 2016.

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., calculus, physics). See an advisor or departmental handbook. 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.

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COLLEGE OF ENGINEERING GUIDELINES
Spring Semester 2016

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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.

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**Adding Classes**

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**A $50 FEE WILL BE ASSESSED BY THE REGISTRAR’S OFFICE FOR ADDING CLASSES AFTER February 1st. ***
See Course Objectives and Pedagogy.wpd in ECE2210a.misc

Course Objectives
1. Study DC circuits, analysis, and parts.
2. Extend these concepts to AC circuit analysis.
3. Learn about the behavior of capacitors and inductors in first-order transient analysis.
4. Prepare to pass the electrical portion of the FE exam, a requirement for graduation from the Civil and Mining Engineering departments.
5. Encounter and handle real equipment and parts in the lab.
6. Perform experiments to augment the material learned in class. Take, analyze and interpret real data in an engineering notebook.

Teaching and Learning Methods (Not included as part of the student’s syllabus)

Lectures
Lectures are a very important part of this class. I lecture in a way that encourages class responses and participation for two reasons; 1. To keep the students engaged and listening, and 2. To help me determine if they are following along. I also hand out most of the notes and example that I use in lecture before I start. This way their attention can be focused on what I’m saying rather than taking notes. I don’t, however, expect students to retain much from my lectures in the long run– for that they need to do some work on their own.

Homework
I assign homework for nearly every lecture and I encourage students to start on this homework as soon as they can after the lecture. This helps them test and solidify their understanding and retain what they learn. I try to make the assignments progress from easy problems to harder ones so that the individual steps are not too big. I also encourage students to work from an understanding of underlying concepts and not from examples. I include answers to most of the problems so that students get immediate feedback as they work.

Problem sessions
Students can ask questions in the problem sessions about specific homework problems or concepts that give them trouble. They also provides me with feedback as to what concepts are not well understood. Any extra time is used for extra examples and to discuss how class material relates to the wider world.

Labs
Labs are another place where students put the class concepts to use, this time in a practical hands-on way. They also see concrete examples of what we talk about in class. They also learn to use electronic test equipment and how to identify and use parts.

Exams
Even though students are encouraged to learn underlying concepts and not just solutions to individual problems, they don’t always take my advice. I try to make at least one problem of each exam unlike anything they have seen before, for which they need to use concepts. This experience can be rough on them, but I think it is essential to push them away from working from examples to working from concepts.