CECS 311 - Syllabus
Principles of Computer Engineering II
Spring 2019
Instructor: Eric Hernandez

OFFICE HOURS:	M/W 5:30-6:30pm in VEC-403 or by appointment		
E-MAIL ADDRESS:	engr.eric@gmail.com		
COURSE WEBPAGE:	http://www.engreric.com/		
LECTURE:	Sec: 1, Class #: 3482,	Tue., Thur., 5:00 P.M. to 5:50 P.M.	VEC-402
LABORATORY:	Sec: 2, Class #: 3483,	Tue., Thur., 6:00 P.M. to 7:15 P.M.	ECS-411

A. DESCRIPTION

This is a continuation of 211 into the amazing world of electronics. At the core of all computing and modern devices is the use of electricity to perform meaningful and useful work. This class will focus on the practical applications of electronics and circuits to computing systems.

B. ORGANIZATION

This is a lecture and lab based course in which topics are presented in the lecture and demonstrated in the lab through a series of projects that build upon each other. It is very important that each lab is completed as most labs will rely on the knowledge gained from the previous one. Successful completion of the course is reliant upon completion of the labs.

C. COURSE OBJECTIVES

1. To Build upon the fundamentals of 211 and design more useful circuits.
2. To continue learning the operation of electrical devices, components.
3. To learn the applications of these components and how they work together in a circuit.
4. To build an understanding of how to analyze these circuits.
5. To apply knowledge of mathematics, science and engineering to electrical and electronic systems
6. To conduct experiments and interpret data.
7. To identify, formulate and solve engineering problems.
8. To be able to form and test hypotheses. This is vital for debugging and troubleshooting.
9. To effectively communicate results using the nomenclature and jargon of the industry.

D. COURSE TOPICS

Fundamentals of Electricity	Semiconductor Materials	Diodes
Linear Power Supplies	Bipolar Junction Transistors	BJT Amplifiers
Field Effect Transistors	H-Bridges	Operational Amplifiers
Comparators	Passive Filters	Active Filters
Switching Power Supplies	Digital/Analog Interfacing	Measuring Instruments
Oscilloscopes	Soldering	

E. TEXT AND REQUIRED MATERIALS

Grob's Basic Electronics: (12th Edition)
by Mitchel E. Schultz

Modeling Software:

Multisim 11.0 by National Instruments – A free student version is available

LTSpice – Free full version from Linear Technologies

Supplies:

Breadboard, wire and other discrete components (Resistors, Capacitors and Inductors as required)

F. GRADING PLAN

Coursework will be weighted as follows:

1.	Quizzes	10%	Only the 5 highest ones will be counted.
2.	Midterm 1	25%	
3.	Midterm 2	25%	
4.	Labs and Homework	20%	Late labs will lose 5% per **day**.
5.	Final Project	20%	

A – 100%-90%
B – 89%-80%
C – 79%-70%
D – 69%-60%
F – 59%-0%

Grades will be curved once at the end of the semester, but you can never receive a grade lower than the scale above.

G. ATTENDANCE

Although not explicitly recorded, attendance is vital for success in this class. Quizzes may or may not be announced one lecture before and exam material will be discussed throughout.

H. CHEATING AND PLAGARISM

Cheating and ***plagiarism*** will not be tolerated in this course. Any individual caught cheating on quizzes, homework, lab projects, or the final exam will be punished to the full extent allowed under University regulations. Plagiarism on papers or assignments is not acceptable and work that is plagiarized will not receive credit. Plagiarism is considered cheating. *Note:* any time another person's work is used without giving them proper credit, it is considered plagiarism and cheating.

At a minimum, any student caught cheating will receive no credit for the work concerned, and will receive a reduction of one letter grade from their final course grade.

The official CSULB Policy on Cheating and Plagiarism can be found here:
http://web.csulb.edu/divisions/aa/catalog/current/academic_information/cheating_plagiarism.html

I. TENTATIVE SCHEDULE (Dates may vary due to holidays and project requirements)

Week 1	Review of Fundamentals - Ohms Law, Power, KVL, KCL, Series, Parallel
Week 2	Semiconductors/P-N Junctions, Ch 27 - Diodes and Diode Applications
Week 3	Ch 27 - Diodes and Diode Applications, Rectifiers
Week 4	Linear Power Supplies
Week 5	Chapter 28 - BJTs - Bipolar Junction Transistors, Switching Circuits
Week 6	Chapter 29 – BJT Amplifiers, Midterm 1 Review
Week 7	Midterm 1, BJT Amplifiers Continued
Week 8	Chapter 30 - FETs - Field-Effect Transistors and FET Circuits
Week 9	Chapter 33 - Operational Amplifiers, Comparators
Week 10	
Week 11	Filters – Passive
Week 12	Switching Power Supplies
Week 13	Filters – Active
Week 14	Digital/Analog Converters, Weighted Summer, Midterm 2 Review
Week 15	Midterm 2
Finals Week	CECS 311 - Final Exam (refer to CSULB schedule for day and time)

J. CLASS PREREQUISITES (Dates may vary due to holidays and project requirements)

CECS 211, CECS 201 all with a grade of "C" or better.

K. COE TUTORING SERVICES AVAILABLE FOR MAJOR CLASSES

The College of Engineering Tutoring Center offers free tutoring for many lower and upper division engineering courses in MAE, CECS, CECEM, CHE and EE. Tutors are available Monday through Friday during the fall and spring semesters between the hours of 9:00am-6:00pm in EN2-300.

Visit the following website for detailed tutoring schedules:

http://web.csulb.edu/colleges/coe/views/essc/academic_success/engineering_tutor.shtml#asp_ETP

L. ACCOMMODATIONS:

Students with disabilities who need reasonable modifications, special assistance, or accommodations in this course should promptly direct their request to the course instructor. If a student with a disability feels that modifications, assistance, or accommodations offered are inappropriate or insufficient, he/she should seek the assistance of the Director of Disabled Student Services on campus.

M. FOOD AND HOUSING ASSISTANCE

Any student who is facing academic or personal challenges due to difficulty in affording groceries/food and/or lacking a safe and stable living environment is urged to contact the CSULB Student Emergency Intervention & Wellness Program. The website outlining the resources available is www.csulb.edu/basicneeds. Students can also e-mail supportingstudents@csulb.edu or call 562/985.2038. If comfortable, students may reach out to the professor as they may be able to identify additional resources.