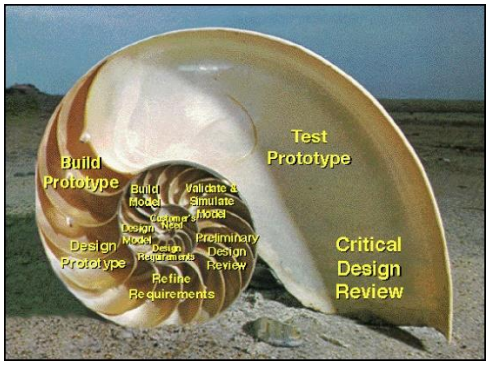
EE400D ELECTRICAL ENGINEERING DESIGN SEMINAR AND PROJECT



Learning Objectives

First course in a two-course capstone design sequence fulfilling integrative learning capstone category. Design terminologies and processes. Realistic constraints due to performance, economics, reliability, safety, aesthetics, packaging, codes and standards. Ethics, social and environmental impact. Teamwork, written communication and presentations.

"I'm not quite sure what were supposed to be learning but I learned a whole lot with respect to designing and creating what was once just an idea" S'12 400D Student Comment

COURSE OBJECTIVES:

1. You will research, design, and implement **a real-world project** and learn some practical technical skills along the way (e.g. SolidWorks, Eagle CAD, C++, SMT Manufacturing, etc.).
2. You will learn the principles of **critical thinking** and the **engineering method**.
   - An example of critical thinking is taking individual responsibility and be accountable for your work within the context of a company/project.
   - Part of the engineering method is learning how to design from **requirements,** including those generated by realistic internal and external constraints and standards.
3. You will learn how to make effective **written and oral presentations**
4. Students will learn to develop the management skills needed to oversee the design of complex engineering projects, with considerations of real world economic, **environmental**, **sustainability**, **manufacturability**, **ethical**, **health and safety**, social and political constraints and standards.
5. Ancillary Objectives: You will…
   - Be challenged to think about your **career path** and to place a **high value** on it.
   - Learn about surviving and hopefully **thriving in a company** before it costs you your job.

CONTACT INFORMATION

Instructor — G. C. Hill
Office/Lab — Not applicable ~~ECS-519/VEC-415~~
Hours — Tuesday and Thursday from 11:00 a.m. to 1:00 p.m.[1]
Zoom by Appointment: https://csulb.zoom.us/j/85606252981
E-mail — hellogaryhill@gmail.com
Website — https://www.arxterra.com/classes/engineering-method/
http://www.csulb.edu/~hill/ee400/

Grading Procedure[2]

Journal / Management	30%
Design Review(s)	15%
Documentation w/ Video	20%
Verification and Validation – Mission Accomplished	20%
Miscellaneous[3]	10%

COURSE OVERVIEW

1. **Journal** grade is assigned by the instructor.
2. **Management** grade is assigned by the instructor after consultation with instructional assistant, company president, project manager and team members (peer review).
3. There will be Preliminary (PDR), and/or Critical (CDR) **Design Review** Presentations.
4. The **Documentation** grade is defined by a list of interdependent tasks, typically closed with a link to a Blog Posts, and/or the Final Design Document, with an accompanying Project Video
5. The **Mission Accomplished** grade is defined by the completed Verification Test Plan/Report, and Validation of the Project grade.
6. The **Realistic Constraints** and **Engineering Standards** grade is comprised of your Quiz grade following lecture material on this topic.
7. Over the duration of the course, assessment opportunities may come up from time to time. These "assessments" include your attendance, quiz grades, team's meeting minutes, and others, will make up the **Miscellaneous Grade**.

[1] ~~If I am not in my office, look for me in ECS-316 and VEC-415~~
[2] See University, College and Department rules for information on withdrawing from the class. I do not give incomplete (I) grades
[3] Realistic Constraints and Engineering Standards

CLASS PREREQUISITES

EE346 Microprocessor Principles and Applications, EE330 Analog Electronic Circuits I, EE370 Control Systems and EE386 Digital Signal Processing

Pre/Co-requisite: EE382 Communication Systems I

CLASS MEETINGS

Lecture/Lab	Days	Times	Room
EE400D-01/02	TuesThurs	3:30 – 4:20pm, 4:30 – 5:45pm	~~ECS Room 316~~
Zoom Meeting ID: https://csulb.zoom.us/j/84753998809			
EE400D-03/04	TuesThurs	6:00 – 6:50am, 7:00 – 8:15pm	~~ECS Room 316~~
Zoom Meeting ID: https://csulb.zoom.us/j/88031210180			

TEXTBOOKS

Depending on the path you take during the semester (management, systems, technical), you will primarily be using one of these sources.

- NASA Systems Engineering Handbook Revision 2 (required) by National Aeronautics and Space Administration (Author) Complementary Course on Space System Engineering
- The Engineering Capstone Course by Hoffman, Harvey F.
- Invent Design Make by Prof. Rudy Schlaf and Eric Tridas at the University of South Florida.

CHEATING AND PLAGIARISM

COE has a zero-tolerance policy for cheating or plagiarism. *Note:* Any time another person's work is used without giving them proper credit, it is considered plagiarism and cheating. Any individual caught cheating on quizzes, exams, homework, or lab projects will be punished. At the instructor's sole discretion one or more of the following actions may be taken.

- A requirement that the work be repeated;
- Assignment of a score of zero (0) for the specific demonstration of competence, resulting in the proportional reduction of final course grade;
- A reduction of one letter grade from your final course grade
- Assignment of a failing final grade;
- Referral to the Office of Judicial Affairs for possible probation, suspension, or expulsion.

The official CSULB Policy on Cheating and Plagiarism can be found here.

Computers and Mobile Devices

During the lecture, the computers in lab and any laptop or tablet should be used for looking at the lecture material and/or to take notes only. These devices may not be used for browsing the web or linking to any social media sites. These devices may be taken offline at the instructor's discretion.

During class, cell phones should be muted and put away (i.e., not on the table top, lap, floor, etc.). During quizzes and exams students will not have access to these devices.

During the lab, the computers in lab and any laptop or tablet should be used for working on your assigned projects. These devices may not be used for browsing the web, working on assignments from another class, streaming, games, or linking to any social media sites. These devices may be taken offline at the instructor's discretion and additional disciplinary action may be taken as defined in the Cheating and Plagiarism section of this syllabus.

Please ask the instructor before recording audio or taking any pictures or videos in class/lab