# EECE5001/EECE 5031 Senior Design I

# Autumn, 2020

###### Course Description

###### Catalog Data: 20-EECE-5001/5031. Electrical Engineering / Computer Engineering Senior Design I. Credits 3. First of two semester laboratory series in which students create a significant product capitalizing on their prior four years of electrical/computer engineering education. Each student selects a project advisor, and works with them to select a design problem, identify the requirements and specifications of the product, and design the product.

###### Prerequisites: Senior standing in electrical or computer engineering

###### Prereqs by topic: Senior standing in electrical or computer engineering

###### Textbook: Clive L. Dym, Patrick Little, and Elizabeth J. Orwin, Engineering Design, a Project-Based Introduction, 4th Edition, Wiley.

###### ISBN 13: 978-1118324585; ISBN-10: 9781118324585

Available to buy or rent from Amazon. Important content will be covered in class.

In**structors:** Professor P.B. Kosel, Rhodes Hall 837 (EE) email:

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**Coordinators:** Professor Wei Wei (EE) email weiw3@ucmail.uc.edu

Professor Carla Purdy (CompE) [purdycc@ucmail.uc.edu](mailto:purdycc@ucmail.uc.edu)

Office hours: email 3-4 Tues, 2-3 Wed, 2-3 Fri

OR email for an appointment

**Time/ Location:** 5-7 p.m Tuesdays Somewhere in cyberspace (CompE section)

Zoom meeting info (works for whole semester):

Meeting number 993 1071 9411

Password: DesignClass

**Grading:** The final grade will be determined in the following way:

Advisor Reports (50 pts.), elevator pitch (20 pts.), & TES (Team Effectiveness Survey)-(3)-(10 pts)—total100 pts;

Preliminary Proposal 50pts; Detailed Proposal 100pts;

DHF (Design History file) 125pts;

Final Presentation (graded 50% advisor, 50% instructor) 125pts

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| WEEKLY SCHEDULE—**revised September 1, 2020**  **NOTE: If you are unable to attend the online sessions, you should submit any presentations required as video to Canvas.** | | | |
| WEEK | DATE | TOPIC | WEEKLY  ASSIGNMENTS  **1-CANVAS SUBMISSIONS DUE BY SUNDAY AT MIDNIGHT AFTER THIS DATE**  **2-PRESENTATIONS DUE IN CLASS ON THIS DATE** |
| Week 1 | 08/25 | Course introduction, organization**,** available senior design projects (development/research), design history file [DHF], student survey.  All nonvideo submissions will go into the DHF (table of contents will be available on Canvas) | 3 assignments:  1. Student Survey (individual—**now due Friday Sept 04** to Canvas—will not be counted late);  Team Formation;  2. DHF Requirements (Format and Table of Contents)—update this EVERY WEEEK; do with team if formed, if not do individually;  **SET UP A DHF FILE REPOSITORY TO BE USED THIS SEMESTER AND NEXT AS SOON AS YOUR TEAM IS FORMED: give access to the instructor of the section your team will be working in; send email to instructor with access info (you need to do this AFTER your team is formed)**  3. do this last part of the hw as soon as possible:  **dev/research; team if formed; email team/advisor and topic to instructor as soon as known—email title is: EECS Team info—(state which section will you will work in if team members are in more than 1 section): Prof. Kpsel (EE): Prof. Wei (EE-JCI); Prof. Purdy (CompE)** |
| Week 2 | 09/01 | Team formation  Ethics  What happened at Boeing? | Dym chapters 15-17: Team Dynamics  Bios of team members (work and coop experiences). **Make entries into DHF 4a. by Sun Sept 6**  **Also report members of your team**  A team member of each formed team gives 1-2 minute presentation.  In class;  Each student without a team gives 2 minute presentation identifying type of project they would like to join. |
| Week 3 | 09/08 | **Project Description Example** and **Example Gantt Chart** (taken from real-life project).  **Preliminary proposal.**  Describing your project for different audiences (customer, business, tech): “elevator pitch”--customers  First check of DHF. | Sun Sept 13 : Project overview (preliminary proposal)—dhf sec and submit names of faculty advisors. Discuss project constraints.  Elevator Pitch video (up to 1 min—target is customer)—show in class week 4  Make entries into DHF 4b.  First check of DHF.  Team Effectiveness Survey 1  **In class:** 2-min presentations as in week 2. |
| Week 4 | 09/15 | Detailed project proposal, budget and Gantt chart.  Each team gives 1-2 minute presentation. (elevator pitch) | Dym chapters 1-3  Make entries into DHF 3ab and DHF 5gh.  First **weekly progress report** signed by advisor. (Weekly progress report each week from now on). (submit to Canvas by Sun) |
| Week 5 | 09/22 | Submit detailed system design. Give 1-2 minute presentation. Second check of DHF. | Dym chapters 4-**6**  Sun Sept 27: Students prepare detailed project proposal, budget and Gantt chart. **Weekly progress report.** |
| Week 6 | 09/29 | Detailed developer-hour effort and project cost estimates.  Standards  Library presentation (Cheng Hong, Engineering Library) | Dym chapters 7-9  Team Effectiveness Survey 2. **Weekly progress report.** |
| Week 7 | 10/06 | Use of resources in preparation of detailed design and citation of work of others. | Submit requirements and technical specification documents. Third check of DHF.  **Weekly progress report.** |
| Week 8 | 10/13 | Oral 2-minute presentation by each team on Project and Gantt chart. | Students submit task time-line and task/team member effort matrix. (as included in DHF)  **Weekly progress report.** |
| Week 9 | 10/20 | Interfacing issues and specifications. | Detailed proposal DUE.  Make entries into DHF 5d. **Weekly progress report.** |
| Week 10 | 10/27 | Project types and project planning (Dym). | Test plan and test matrix determined. Make entries into DHF 5f.  Students identify their specific project tasks.  **Weekly progress report.** |
| Week 11 | 11/03 | Second 2-minute presentation specifically on section 4 of the Final Design Plan Format – **Tasks with task assignments**. Each team member prepare only one ppt-slide describing their assigned task with block diagram and design. | Turn in individual ppts from presentation and include these in team section of DHF.  **Weekly progress report.** |
| Week 12 | 11/10 | All teams prepare a two-minute **Final Design Plan and Budget presentation**. Third 2-minute presentation on Final Design Plan and Budget given by each team.Each student speaks separately to the **block diagram or circuit** that represents their task. First presentation grades are allocated. | **Weekly progress report.** |
| Week 13 | 11/17 | All teams prepare a six-minute **Technical Design Review** giving **in-depth technical details about the project**. **Fix: weeks 13-15** | Make entries into DHF 5d. Review of all monthly TES files.  Team Effectiveness Survey 3. **Weekly progress report.** |
| Week 14 | 11/24 | Continuation of six-minute **Technical Design Review presentation by each team** giving **in-depth technical details about the project and summary of assigned tasks and hours/person (from Gantt chart). Presentations are graded and** hard copies of the Technical Design Reviews are turned in. | **Weekly progress report.** |
| Week 15 | 12/01 | Continuation of Technical Design Review presentations by each team and grading. | Submit Technical Design Review ppts (based on your presentation). |