EC582 Electrical and Computer Engineering Design I Autumn 2009

Catalog Description: Presents fundamentals of engineering designing and leads to skills development of a specific design proposal. Technical communication skills, both written and oral, are employed throughout.

Texts: Pocket Book of Technical Writing for Engineers & Scientists, Leo Finkelstein, McGraw-Hill, 2005;
Design for Electrical and Computer Engineers, J. Salt & Rothery, Wiley, 2002

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Course Objectives:
1. Students will learn methods needed to explain complex technical material to diverse audiences in clear and understandable ways.
2. Students will learn how to make effective written and oral presentations
3. Students will learn the principles of engineering design as applied to a capstone experience
4. Students will research and design a complex system
5. Students will learn to work effectively in teams
6. Students will learn to develop the management skills needed to oversee the design of complex engineering projects, with considerations of economic, environmental, sustainability, manufacturability, ethical, health and safety, social and political issues.

Summary: Teams will produce strong technical content for a design flow. Consider this as a lab course; technical communication lab skills: written, schematic, and oral, are employed throughout the term.
Revision of technical content and design, along with prototyping will be performed in the linked ECE 682 or ECE683(Design II).

The EE honor system applies. Every team member is responsible for creating a paper trail that documents their contributions to all aspects that will go into the grade evaluation.

Course Plan:

Week	Subject
1	Technical Writing in a Design Flow **Resumes, Write about previous project/design experience**
2	Speaking/Writing Details, S&R Chp. 1. Writing Overview - Organization and Style - Finkelstein Chp. 1, 2-6 Technical Mechanism and Process Descriptions
3	Project Design Flow Methods – S&R Chp. 2, Overview of 3, 4, 6 Group Work: Tasks, Assignments, Writing, Editing, Visual Aids
4	Requirements Analysis and Customer Interviews. Quiz 1
5	Proposals & Presentation - Organization, Content, and Format.
6	Spiral Flow: System Level to Detail Design.
7	**Proposals, Status Review Meetings, Peer Evaluations**
8	Design content: models in CAD tools. Report Revision Strategies - precise technical details
9	Prepare Presentations. Quiz 2
10	**Draft Report/ Final Presentation/Wrap up.**
11	**Final Report + Team Peer Evaluations + Indiv. Reports**

Team Forming Assignment: Complete the following by the second week.

1. 582 Information Surveys
2. Resumes
3. Short (2 pgs.) report on a significant work/project experience and give a technical description of an artifact from that experience.

EE582 Autumn Design I

Week	Start	Topics & Assignments	Due
1	9/23	Class Overview, Projects. Technical Definitions and Artefacts	Survey Sheets
2	9/28	Discuss: Tech. Design & Writing, Indiv. Presentations, Course Sheets	Resumes & Indiv. Exp. Essay Individual Presentations
3	10/5	Discuss Tech. Descriptions Chp 2. Project Design Flow	Individual Presentations
4	10/12	Technical Reading and Design. Team Assignments	Quiz 1. Tech. Descr. Essay.
5	10/19	Technical Abstraction and Design Content.	Problem Statements
6	10/26	Project Discussions.	Indiv. Reviews.
7	11/2	Report Style Guidelines.	Proposals Status Review Meetings Peer Evaluation
8	11/9	Design Content and Reports.	Status Review Meetings Tech. Descr. Rewrites Due.
9	11/16	Teamwork for Group Presentations	Quiz 2
10	11/23	CAD Methods & Models. Thanksgiving Break	Group Presentations Draft Reports
11	11/30	Comments on Draft Reports. Class Wrap up.	Group Presentations Peer Evaluation – Final Indiv. Reports Final Reports
Finals Week			

Assignments and Grading

Individual Assignments

Engineering Experience Essay
(one pg. Significant engineering experience and 1pg related technical artifact description)
+ Resume (1pg or less) – Write toward one of the ece582 projects
+ Individual Presentation – 2 ppt. Slides = 10%

Technical Description Essay
(2 pages)
+ Review of other Technical Description Essay (1 page)
+ Rewrite of your Technical Description Essay = (2 pages) 12%

Individual Report. 8%
(expand on one of your parts of Draft Report)

Quizzes (2) 8%

38%

Peer Evaluations (2) 12%

Team Assignments

Problem Statement
(1-2 pages)
+ Proposal Report
+ Status Review Meeting = 15%

Draft Report
(~20 pages or less plus appendix)

+ Final Presentation = 20%

Final Report 15%

50%

Total Grade 100%