ENG EC463 Senior Design I
Fall 2009

2009-2010 Catalog Data:
ENG EC 463 Senior Design Project I Development of the technical, communication, personal, and team skills needed for successful design in electrical and computer engineering. Specifications and standards, information collection, design strategies, modeling, computer-aided design, optimization, system design, failure and reliability, human factors. Oral and written communication of technical information. Team dynamics and ethical issues in design. Design project for a small-scale electrical or computer system. Preparation of detailed proposals for senior design projects in the following semester. Includes lab. 4 cr. Fall sem.

Class/Lab Schedule:
4 hours – lecture (TR 8-10 am)
1 hour – team informal design reviews in ECE conference room(s)
24/7 access to PHO113 lab area after October 1.

Textbooks and other required materials:
Ford, and Coulston
"Design for Electrical and Computer Engineers: Theory, Concepts and Practice", 2007 Edition
McGraw Hill Higher Education
ISBN: 978-0-07-338035-3
Engineering log books will be provided by ECE

References:
Kim R. Fowler
Electronic Instrument Design - Architecting for the Life Cycle
Oxford University Press, NY, NY 1996
ISBN 0-19-508371-7 TK7881.F68 1st Edition
Barnes & Noble at Boston University, Amazon.com ~$65

Coordinator:
Michael Ruane, Professor, ECE Department

Prerequisites by topic:
Senior standing in EE or CSE

Goals:
To provide students with:

1. Development of the technical, communication, personal and team skills needed for successful design in electrical and computer engineering.
2. Experience with specifications and standards, information collection, design strategies, modeling, computer aided design, optimization, system design, failure and reliability, human factors.
3. Practice in the oral and written communication of technical information.
4. Appreciation of team dynamics and ethical issues in design.
5. Preparation of detailed team proposals for senior design projects in following semester (SC464).
6. Mentoring and resources for executing a team-based design project for a small-scale electrical or computer system.

Course Outcomes:
As an outcome of completing this course, students should be able to:

1. apply a systematic engineering design process to ECE problems;
2. identify and collect engineering data and standards related to their design needs;
3. apply appropriate models and computer tools to the design process;
4. perform testing and failure analysis on their designs;
5. incorporate appropriate human factors into their designs;
6. prepare a written proposal for a substantial, team-based engineering project;
7. deliver technical information through an oral presentation, logbook, and final project report; and
8. recognize and address team and ethical problems related to design.

Course Outcomes mapped to Program Outcomes:

Program:	**a**	**b**	c	d	e	f	g	h	i	j	k
Course Outcome:	1 2 3 4 5	1 4 7	1 2 3 4 5 7	1 6 7 8	1 2 3 4 5	1 2 5 8	6 7	1 2 5 8	2 7	1 2 5 8	1 4 7
Emphasis:	4	4	5	5	4	3	5	3	4	3	4

1=not at all; 5=a great deal;

Status of Continuous Improvement Review of this Course:
Date Last Reviewed: **Reviewed by**:

Topics in Project Assignments:

Assignments	**Topics**
Project Definition Requirements Review	1,2,5,7
Ethics Memo	7,8
Conceptual Design Review	1,2,3,5,7
Mockups/First Deliverables	1,2,3,4,5
Test Plan	1,4
First Deliverable	1,3,4,8
Test Report and Video	1,4,7
Detailed Design Review	1,2,3,4,5,7
Final Proposal	6,7

Contribution of Course to Meeting the Professional Component:

Engineering topics: 100%
Math & Basic Science: 0%
General Education: 0%

Prepared by: Michael Ruane, Professor **Date:** October 7, 2009