

ENG EC464 Senior Design Project II

2008-2009 Catalog Data:

Prereq: ENG EC 463. Continuation of a team project in an area of electrical and computer engineering, as proposed in EC 463. Application of technical, communication, personal, and team skills. Oral and written communication of technical information, including progress reports, technical memos, final report, and oral presentations. Includes lab. 4 cr. Spring sem.

Status in the Curriculum: Required

Class/Lab Schedule:

LAB: 4 hrs/wk (TR 4-6), additional hrs as needed for informal design reviews, problem solving and project completion

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

Coordinator:

Michael Ruane, Professor, ECE Department

Prerequisites by topic:

Senior standing in EE or CE

ENG EC463 Senior Design Project I

Goals:

To provide students with:

- Technical, communication, personal, and team skills needed for successful design in electrical and computer engineering.
- Knowledge of specifications and standards, information collection, design strategies, modeling, computer-aided design, optimization, system design, failure, reliability, and human factors.
- Proficiency in oral and written communication of technical information.
- Understanding of team dynamics and ethical issues in design.
- Experience to complete a 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 methodology to ECE problems
2. identify and collect engineering experimental data
3. search for information and standards related to their design needs
4. utilize appropriate models and computer tools to the design process;
5. perform testing and failure analysis on their designs;
6. incorporate appropriate human factors into their designs;
7. prepare a written proposal for a substantial, team-based engineering project;
8. deliver technical information through an oral presentation, reports and logbooks;
9. understand and optimize team organization, relationships, and working dynamics
10. develop a customer relationship and mentality
11. recognize and address ethical issues related to design and engineering

Course Outcomes mapped to Program Outcomes:

Program:	a	b	c	d	e	f	g	h	i	j	k
Course Outcome:	1 6	2 5	1 2 3 4 5 6	9 10	1	11	7 8 10	1	2 3 4	11	4
Emphasis:	2	5	5	4	5	3	4	2	4	2	4

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

Topics in Project Assignments:

Assignments Topics

Logbook reviews (individual, 3-week cycles) -8

Final cumulative logbook review (individual) -8

Personal progress memo in April (individual)-9, 10, 11, 1-6

Critical design review (team)-1, 2, 3, 4, 5, 6, 8

Progress report (team)-1, 2, 3, 4, 5, 6, 8

Test Cycle I (team)-2, 5, 8

Test Cycle II - Functional test (team) -2, 5, 8

Degree of success @ ECE Day (team)-9, 10, 11, 4, 5

Users' Manual (team)-8

Team topics 2008-2009: 11 teams of 5 students each: TTM Temp Monitor; iPHONE

Personal Services; Pill Dispensing System; Rail Gun; Drafting Zone Detector; T-Nav:

Nav Sys-Public Transport Activity Monitoring; Vehicle Anti-theft Device ; UQC;

Underwater Phone; HUD Night Vision ; DSP Guitar

Contribution of Course to Meeting the Professional Component:

Engineering topics: 100%

Prepared by: Michael Ruane, Professor, ECE

Date: June 9, 2009