

## ECE 409– ELECTRICAL AND COMPUTER ENGINEERING PROJECT I

Type (check one): Required:  X  Elective: \_\_\_\_\_

**2005-2006 Catalog Data:** ECE 409. Electrical and Computer Engineering Project I. (Formerly ECE 409/410) Design, development and implementation of student selected projects. Projects are sponsored by local and national industry. Includes complete engineering and testing as well as economic analysis. Written reports are required with the final product in engineering report form. A required oral presentation of the project to industry sponsors, faculty and students. Prerequisites: ECE 332, senior standing and approval of department advisor. Offered in the Fall semester. *One semester; one credit.*

**Prerequisites:** ECE 332, senior standing and approval of ECE department advisor

**Co-Requisites:** None

**Textbooks:** Susan Stevenson & Steve Whitmore, *Strategies for Engineering Communication*, New York: Wiley, 2002  
J. Eric Salt & Robert Rothery, *Design for Electrical and Computer Engineers*. New York: Wiley, 2002.

**Other Required Materials:** None

**Other References:** None

**Instructor:** Dr. Fred H. Terry, Professor of Electrical and Computer Engineering

**Course Objectives:**

1. Learn proper library search methods for information on selected subject.
2. Organize the problem statement and design specifications.
3. Present alternate solutions and list advantages and disadvantages of each.
4. Present final solution and reasons for choice involving realistic constraints such as economic factors, reliability, aesthetics, and ethics.
5. Provide an economic evaluation of the project.
6. Perform testing of the overall solution in the process of constructing and evaluating for performance against the original design objectives.
7. Experience meeting progress report deadlines.
8. Learn how to organize a written presentation.
9. Learn and use good techniques in the oral presentation of the subject.

**Prerequisites by Topics:** Familiarity with the essay writing process, outline strategies, and problem statement development as well as electrical engineering analysis and design.

**Topics:**

1. Strategies for drafting technical documents.
2. Revising and editing strategies.
3. Analyzing the writing process.
4. Rhetorical strategies: persuasive and informative writing.
5. Strategies for teamwork and workplace communication
6. Stylistic strategies: order and emphasis.
7. Oral presentation strategies
8. Poster strategies
9. Requirements analysis.
10. Managing the design process.
11. Detailed design, testing, and design management.

**Class Schedule:** One 50-minute session per week

**Prepared by:**  Fred H. Terry  **Date:**  October 2005

**Professional Component:**  
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Category (check one)	<input type="checkbox"/> Math/Basic Science <input checked="" type="checkbox"/> Engineering <input type="checkbox"/> General Education <input type="checkbox"/> Other
Design (check one)	<input checked="" type="checkbox"/> Significant <input type="checkbox"/> Some <input type="checkbox"/> None
Realistic Constraints (check all that apply)	<input checked="" type="checkbox"/> Economic <input type="checkbox"/> Environmental <input type="checkbox"/> Sustainability <input type="checkbox"/> Manufacturability <input type="checkbox"/> Ethical <input type="checkbox"/> Health & Safety <input type="checkbox"/> Social <input type="checkbox"/> Political

**Relationship to Program Outcomes:**

Check all that apply:

- (a) an ability to apply knowledge of mathematics, science, and engineering
- (b) an ability to design and conduct experiments, as well as to analyze and interpret data
- (c) an ability to design a system, component, or process to meet desired needs
- (d) an ability to function on multi-disciplinary teams
- (e) an ability to identify, formulate, and solve engineering problems
- (f) an understanding of professional and ethical responsibility
- (g) an ability to communicate effectively
- (h) the broad education necessary to understand the impact of engineering solutions in a global and societal context
- (i) a recognition of the need for and an ability to engage in life-long learning
- (j) a knowledge of contemporary issues
- (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice