

ECE 4522 — Senior Design II
Spring Semester 2001

- Catalog Data: ECE 4522. EE Senior Design II. Credit: 2. Lecture: 1. Laboratory: 1. Implement, debug, and verify a large-scale team-based multidisciplinary team-based design project that meets or exceeds design specifications. Lectures on implementation-related issues such as test specification, verification, manufactuability, quality assurance, and project management. Prerequisite: ECE 4512.
- Textbook: G. Voland, *Engineering By Design*, Addison-Wesley, 1999, ISBN 0-20-14985-10.
- Reference: P. Horowitz and W. Hill, *The Art of Electronics*, 2nd Edition, Cambridge University Press, 1994, ISBN: 0-521-37095-7.
- Coordinator: Dr. Raymond S. Winton, Professor of Electrical and Computer Engineering
- Goals: Students will complete the implementation phase of their two-semester design experience in which they establish test specifications to verify design requirements, execute these tests on their projects, and verify results against predicted data from their simulations. Students will also familiarize themselves with practical aspects of engineering including project management, procurement, production support, and quality assurance.

Prerequisites by Topic:

1. Completion of the design and simulation phase of the project as required in ECE 4512.

Topics:

1. PROJECT MANAGEMENT: (5 Lectures):
 - A. Review project design goals from ECE 4512.
 - B. Test specifications and their relevance to the design objectives.
 - C. Implementation issues and conformance with relevant industrial standards.
 - D. Verification of the design requirements and simulations through laboratory testing.
 - E. Technical reviews with project advisor.

2. PROFESSIONAL DEVELOPMENT (5 Lectures):
 - A. Project Management and Documentation
 - B. Training and Education Through Professional Activities
 - C. The Engineering Marketplace

3. DESIGN REVIEWS (5 Lectures):
 - A. Evaluate Other ECE 4512 and 4522 Presentations
 - B. Preliminary Design Review
 - C. Final Design Review (Emphasis on Implementation and Testing)
 - D. Project Web Site

Computer Usage:

The students will use contemporary computer tools, such as MATLAB and PSPICE to simulate key aspects of their designs and verify performance. Students will also use standard desktop publishing packages such as Microsoft Word, Powerpoint, and Excel to document their projects.

Laboratory:

- A. Implementation (5 classes)
- B. Theoretical Aspects of the System Design (5 classes)
- C. Design Verification and Certification (5 classes)

ABET category content as estimated by faculty member who prepared this course description:

Engineering Science:	0 credits or 0%
Engineering Design:	2 credits or 100%

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