

EE 4311 – Senior Design I
Required Course

Instructor: Dr. Nathan Huntoon

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Office Hours: TTh 10:00-12:30 or by appointment

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Catalog Course Description

This focus of this course is the engineering design process. Students will be responsible for going through the engineering design process to develop a design project. This course is taught in coordination with CS4345 and ME4380 enabling interdisciplinary design projects. The design project segment of this course involves choosing a specific senior design project which has electrical engineering requirements from the available projects proposed by the faculty. Depending upon the specifics of the project, each student will design, construct, and test a solution and submit a formal report to the faculty in charge of the project.

Prerequisite: EE Senior standing.

Textbook & Other Related Material

Textbook

Engineering Design Methods Strategies for Product Design, Nigel Cross, Fourth Edition, John Wiley & Sons 2008

References

Manufacturers' specifications, application notes, etc., as applicable to the project.

Prerequisites

Senior standing in Electrical Engineering

Restrictions

Projects must include engineering design. Also, certain safety requirements are imposed.

Course Objectives: This course is for first semester senior students. The students form teams at the start of the semester. These teams continue through the second semester (EE4312). The course teaches the typical stages of design development. The student teams perform the concept, feasibility and initial design phases. Students present a concept review, submit a proposal for their project and present a design review. Lectures cover the overall design process, engineering ethics and professional topics. Students experience the iterative nature of design and learn from each other's presentations.

Topics Covered:

| | | |
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| 1 | Engineering Design Process Overview | 1.5 |
| 2 | Project Selection | 1.5 |
| 3 | Interdisciplinary Engineering | 9 |
| 4 | System Engineering | 6 |
| 5 | Design Process Models | 3 |
| 6 | Design Documentation | 1.5 |
| 7 | Engineering Requirements | 3 |
| 8 | Acceptance Testing | 3 |
| 9 | Alternative Design Generation and Analysis | 3 |
| 10 | Design Iteration | 1.5 |
| 11 | Engineering Ethics | 3 |
| 12 | Preliminary Design Reviews | 6 |
| | Total | 42 |

Laboratory:

The students will begin working on their project in the Senior Design Lab toward the end of the semester.

Class Schedule:

Tuesday Thursday 12:30-1:50, Junkins 112

Course Grading:

Homework: 25%

Peer Review: 15%

Class Participation: 10%

Final Project: 50%

Grading Policy

All homework and reports must be turned in prior to the start of class the day they are due. Assignments that are turned in late are docked 20% per day, no exceptions. I only accept reports electronically, you may submit pdf files, Microsoft Word files, Open Office Writer files or LaTeX files. The computer labs have Microsoft Word, and Open Office is a free download if you do not have one of these programs already.

Disability Accommodations:

If you need academic accommodations for a disability, you must first contact Disability Accommodations & Success Strategies (DASS) at 214-768-1470 or www.smu.edu/alec/dass.asp to verify the disability and to establish eligibility for accommodations. Then you must schedule an appointment with the professor to make appropriate arrangements.

Academic Honesty:

Academic dishonesty may be defined broadly as a student's misrepresentation of his or her academic work or of the circumstances under which the work is done. This includes plagiarism in all papers, projects, take-home exams, or any other assignments in which the student represents work as being his or her own. It also includes cheating on examinations, unauthorized access to test materials, and aiding another student to cheat or participate in an act of academic dishonesty. Failure to prevent cheating by another may be considered as participation in the dishonest act. I am not forgiving of cheating. I take this matter very seriously, so don't push me on it.

The Honor Code of Southern Methodist University (from SMU student handbook): Intellectual integrity and academic honesty are fundamental to the processes of learning and evaluating academic performance; maintaining them is the responsibility of all members of an educational institution. The inculcation of personal standards of honesty and integrity is a goal of education in all the disciplines of the University. The faculty has the responsibility of encouraging and maintaining an atmosphere of academic honesty by being certain that students are aware of the value of it, that they understand the regulations defining it, and that they know the penalties for departing from it. The faculty should, as far as is reasonably possible, assist students in avoiding the temptation to cheat. Faculty must be aware that permitting dishonesty is not open to personal choice. A professor or instructor who is unwilling to act upon offenses is an accessory with the student offender in deteriorating the integrity of the University. Students must share the responsibility for creating and maintaining an atmosphere of honesty and integrity. Students should be aware that personal experience in completing assigned work is essential to learning. Permitting others to prepare their work, using published or unpublished summaries as a substitute for studying required materials, or giving or receiving unauthorized assistance in the preparation of work to be submitted are directly contrary to the honest process of learning. Students who are aware that others in a course are cheating or otherwise acting dishonestly have the responsibility to inform the professor and/or bring an accusation to the Honor Council. Students and faculty must mutually share the knowledge that any dishonest practices permitted will make it more difficult for the honest students to be evaluated and graded fairly, and will damage the integrity of the whole University. Students should recognize that their own interest, and their integrity as individuals, suffers if they condone dishonesty in others.