

**ENGR 4412/4422**  
**Senior Engineering Design I & II**  
**Spring 2005**  
**Department of Physics and Engineering**  
**University of Central Oklahoma**

<b>Location</b>	Howell Hall 110
<b>Time</b>	M from 1:00 – 3:50 p.m.
<b>Instructor</b>	Evan Lemley, Ph.D.; Assoc. Prof., Department of Physics and Engineering
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<b>Office Hours</b>	TR 10:00 a.m. - 11:00 a.m. & F 9:00 a.m – 10:00 a.m. or by appointment.
<b>Final</b>	M May 2, 2005 from 1:00 p.m. – 2:50 p.m. <b>See Below.</b>

**Final**

There is no Final Exam for this course, but on the day of the final all students will participate in project presentations.

**Course Description**

Through discussions with the course instructor and other faculty members, students will determine a design-related engineering problem they wish to study. A detailed written project proposal will be submitted and approved by the chosen faculty project director. Working as individuals or in teams, students will apply the design process by developing projects from the proposal stage to the test, evaluation, and implementation stages. Students are expected to follow this course with ENGR 4422 Senior Engineering Design II.

**Prerequisites**

ENGR 3312 Engineering Laboratory II for ENGR 4412

ENGR 4412 Senior Engineering Design I – for ENGR 4422

**Textbook**

There is no textbook for this course. The instructor will hand out guides for proposal writing, design methodology, report writing and other topics.

**Objectives**

Upon completion of this course, the student will be able to

1. Identify an engineering or research problem and state the problem with realistic constraints.
2. Prepare a written proposal for a project that contains engineering design solutions or a research plan that will satisfy stated constraints.
3. Propose a plan of work to complete the solution to an engineering or research problem and to meet a deadline.
4. Work as a team member or an individual to develop a solution to an engineering or research problem.

**Course Outline**

1. Individuals or groups identify an engineering or research problem through literature review and discussions with Physics and Engineering Faculty. If a student wants to propose his/her own design project the student must write a brief document (with literature review) that documents an engineering or research problem and a basic idea for solution of the problem.

2. Individuals or groups each identify a Faculty Project Director. Once the faculty member and project are chosen, the student(s) involved in the project must complete a form that contains the signature of the project director as well as one more faculty member that is willing to serve as a Project Reviewer. Project Reviewers will read any project reports and may serve as advisers for the chosen project. Project Reviewers need not be faculty members, but must be approved by the course instructor.
3. The Individuals or groups produce a proposal that includes potential solutions to the chosen engineering or research problem and a budget. The proposal will follow a specific format specified by the instructor.
4. Work as a team member or an individual to develop a solution to the engineering or research problem

### Instruction Techniques

10% lecture // 90% project progress reports and direct interaction with each group.

### Grading Policies

The following table shows the breakdown of credit for the course.

#### For ENGR 4412 Design 1

Project Proposal	20%
Weekly Project Presentations	20%
Weekly Project Memos	20%
Final Project Report	20%
Final Project Presentation	20%
<b>Total</b>	<b>100%</b>

#### For ENGR 4422 Design 2

Weekly Project Presentations	25%
Weekly Project Memos	25%
Final Project Report	25%
Final Project Presentation	25%
<b>Total</b>	<b>100%</b>

### Tentative Grading Scale

90-100% -- A, 80-90% -- B, 70-80% -- C, 60-70% -- D, <60% -- F