Description:
Continuation of the application of the design process in the team solution of a state-of-the-art problem. Aerospace, mechanical, thermo-fluid or material problems are considered. Working models are produced based on the design requirements established in Senior Design I.

Objectives:
1. To present topics needed by a designer but not covered elsewhere
   - Robust design, decision theory, optimization.
   - Manufacturing processes, reliability.
   - Codes/standards, patents, litigation.
2. To foster awareness about different requirements during a design process
   - Requirement for / role of creativity.
   - Requirement for continuing study.
   - Role of ethics.
3. To provide experience in writing/speaking/communication

Overview:
Subject material in this course will include the design process, as well as design projects of varying scales. In addition, the course will include material on selected subjects chosen to help round out and bring together the students' knowledge. The course will place emphasis on initiative to develop definitions and formulate solution approaches. The course will rely on self-learning in manner which is expected in the work force. A large and long-term project (fall through spring) will be assigned to facilitate practical implementation of engineering design and the design process.

This course is intended to complete the students engineering education. Thus, upon completion of this course, the student must demonstrate:
- an ability to apply knowledge of mathematics, science and engineering;
- an ability to design systems, components and processes to meet desired needs;
- an ability to function in multi-disciplinary teams;
- an ability to identify, formulate and solve engineering problems;
- an understanding of professional and ethical responsibility;
- an ability to communicate effectively
- an ability to use the techniques, skill and modern engineering tools necessary for engineering practice;
- the ability to understand the impact of engineering solutions in a global and societal context; and
- knowledge of contemporary issues.

Prerequisites:
EAS 4710: EAS 4700
EML 4502: EML 4501
EGN 4413: EGN 4412
Projects:
In Senior Design II, students are required to complete the detail design phase and build and test a prototype according to the design specifications selected in Senior Design I. Both formal written and oral reports will be required as noted. Each individual student must maintain a design notebook (logbook), in which written records of all significant activities and events must be kept. These must be submitted upon the request of the instructor.

Presentations:
Each member from each team will be expected to give a progress report each week, as required by the instructor. Formal design reviews will be conducted as scheduled below. During formal reviews, each team will be limited to about 15-20 minutes, and each team member must participate.

Reports:
A formal written report must be presented for the Detailed Design, as noted below. The format to be followed will be provided later in class.

Schedule:
Class          T, Th 7:30 – 10:20am
Laboratory periods will be used for team meetings, work sessions, design reviews and presentations.
Written Detail Design Report     due Feb. 15
Oral presentation of Detail Design     Feb. 5, 7, 12
Spring Break                           Mar. 10 - 15
Final Report/Prototype presentation   Week of Apr. 7 or 14 (8,10, 15 or 17)

Grades:
Each of the following items will contribute to your final overall grade:
  Written Detail Design Report     20%
  Oral presentation of Detail Design     20%
  Final Report/Prototype presentation     20%
  Weekly reports,presentations/attendance*     20%
  Design Notebook                     20%

* Attendance of each team member during weekly presentations to instructor is mandatory. The performance of a team as well as individual student’s contribution to the team project will be measured by reports, presentations, a prototype and peer evaluation.
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