Credits: 0 hours lecture, 3 hours design studio per week

Instructor: Thomas E. Crippen, Professor of Mechanical Engineering

Text(s): (suggested) ENGR 3314 (Design Methodology) text of preceding semester.
Additional Material: Design Notebook

Course Information

Catalog Description: The goal establishment, planning and concept generation phases of a capstone design project required of all seniors in Mechanical Engineering. Includes the selection of a suitable project, an analysis of the design problem, the planning required to reach the desired goal, and the preparation of a project preliminary design document. Multidisciplinary teams will work on design problems defined in cooperation with representatives from industry when possible.

Prerequisites: ENGR 3314; concurrent registration or completion of MENG 3309, MENG 4311, MENG 4313.

Required, Elective, Selected: Required

Course Goals

Instructional Outcomes: By the end of this course students will be able to:
1. Write target specifications and final design specifications.
2. Develop a project plan.
3. As a team member, plan, prepare and deliver well-organized, logical oral presentations.
4. As a team member, produce the project preliminary design document using appropriate format, grammar, mechanics, and professional graphics.
5. Write periodic progress reports of their individual contributions to the design team activity.
6. Evaluate alternative design solutions using various socio-economic measures, e.g., business practice, economic, and quality of life.
7. Apply relevant aspects of professional codes of ethics when considering possible alternative decisions.
8. Collect, analyze, and evaluate new information from external sources.

Relationship to Student Outcomes: This course supports the following Mechanical Engineering Program Student Outcomes, which state that our students will:
1. be able to apply science, mathematics, and modern engineering tools and techniques to identify, formulate, and solve engineering problems.
2. be able to design thermal/fluid, mechanical, and electro-mechanical components or systems, individually or on interdisciplinary teams, and effectively communicate those designs in both technical and non-technical forums
3. be able to collect, analyze, and interpret data from prescribed and self-designed experimental procedures and formally communicate the results
4. be able to apply a broad-based educational experience to understand the interaction of engineering solutions with contemporary business, economic, and social issues
5. recognize that ethical behavior and continuous acquisition of knowledge are fundamental attributes of successful mechanical engineering professionals

Topics Covered
- Project definition
- Project planning
- Design report writing

Prepared By: T. E. Crippen Date: July 28, 2012

Office Hours:
Office hours are posted outside of my office (RBN 2041)

Important Academic Dates:
Consult the University Academic Calendar at http://www.utttyler.edu/schedule/files/academic-calendar-15-16.pdf

Important University Policies:
Important university policies regarding student rights and responsibilities, grade replacement, etc., can be found at http://www.utttyler.edu/academicaffairs/syllabuspolicies.pdf

Attendance Policy and Makeup Policy:
Attendance at every meeting is strongly encouraged. There will be no makeup for missed in-class work. An opportunity to make up other work may be available to students with an excused absence. Excused absences include absences for University-sponsored events and for religious observances (see the University policy link above for the procedures to follow). Other makeups are granted only in extreme cases and at the discretion of the instructor. Excused absence due to illness will require evidence of treatment by medical personnel or at a medical facility.

Course Schedule (with Grading Policy):
Available on Blackboard

Changes to Syllabus and Course Schedule:
I reserve the right to make changes to the syllabus or course schedule during the semester. Any changes to course policies will be announced in class, and an updated version of the syllabus or course schedule will be posted to Blackboard.