RI: EML 4521C - ENGINEERING DESIGN
Common Course Syllabus

Catalog Description: 3 CREDITS. The design process, including decision theory, creativity concepts, human factors, optimization techniques, reliability, statistics and professional ethics. Engineering economy. Material selection and testing. Fatigue and fracture design.

Goals: This course is designed for students to work collaboratively in a team environment to design an engineering system. It will foster creative thinking, expose students to a diversified background, and enhance teamwork, communication and collaboration skills.

Prerequisite/Corequisite:
1. Senior standing and departmental approval.
2. EML 4127 – Applied Thermal/fluid Engineering
3. EML 4500 – Machine Design

Corequisites:
1. EML 4263C – Fabrication of ME Systems
2. EML 4350 – Finite Element Analysis for Engineering Design

Topics:
1. Design process
2. Creativity, and problem solving
3. Team building
4. Proposal preparation
5. Communication skills (report, proposal writing, oral presentation)
6. Project planning and management
7. Engineering ethics
8. Safety, hazard, and environmental consideration
9. Engineering economics and marketability

Course Outcomes: (numbers in parentheses indicate correlation of the outcome with the appropriate ABET program outcomes 1-7)
1. The students will be able to formulate and analyze problems, and synthesize and develop solutions based on fundamental principles. (1)
2. The students will design basic mechanical components or processes to meet desired specifications using appropriate engineering tools and techniques. (2)
3. The students will demonstrate an understanding of professional, societal and ethical responsibility. (4)
4. The students will function effectively in teams and communicate their ideas to their peers. (3,5)
5. The students will recognize the need to engage in life-long professional development and learning. (7)

updated 10/24