ABET Course Syllabus – Mechanical Engineering

MECH 4381 – Senior Design Project I

Fall 2011

CREDITS: 3 hours**.**

CONTACT HOURS: One 165-minute meeting/lecture per week.

COURSE COORDINATOR NAME/INSTRUCTOR: Yonas Tadesse.

TEXTBOOK/SUPPLEMENTAL MATERIALS: No textbooks required

COURSE DESCRIPTION:
Senior Design Project 1 (3 semester hours) is a project-based capstone course. Student groups design, build, and test a device that solves an open-ended mechanical engineering design problem. MECH 4381 focuses on background research and engineering analysis, MECH 4382 on prototype construction and testing. As a designated MECH Writing-Intensive Course, MECH 4381/4382 also focuses on the refinement of students' engineering communications skills and their use of writing as a critical-thinking and learning tool.

PREREQUISITES/CO-REQUISITES:
MECH 2320, MECH 3310, MECH 3315, MECH 3350, MECH 4310 and ECS 3390.

COURSE DESIGNATION: Required.

COURSE LEARNING OUTCOMES (CLOs from 4381 &4382):
1. Recognize design needs, gather relevant information, formulate the problem, and conceptualize various solutions. ABET outcome (**c, e, h, j**).
2. Develop project management skills: work breakdown structure, manufacturing plan, cost estimation, resource allocation and scheduling. ABET outcome (**a, c, e, g**).
3. Carry out detailed component /system-level design, and make decisions using evaluation and analysis tools. ABET outcome (**a, c, e, k**).
4. Function in disciplinary or multi-disciplinary teams. ABET outcome (**d, g**).
5. Document, report, present project progress and final results. ABET outcome: (**f, g**).

TOPICS TAUGHT:
Open ended design projects.
Project selection and formulation.
Project planning.
Searching relevant materials from online resources, publications and patents.
Engineering design process.
Manufacturing considerations.
Engineering presentation.