

MECHANICAL ENGINEERING PROGRAM

ABET COURSE SYLLABUS

ME 100: Introduction to Mechanical and Aerospace Engineering (2 credit): Required Course

Course Description (2008-2010 Catalog):

Introduction to mechanical and aerospace engineering profession. Engineering problems and calculations and creativity in the design process. Ethics and professionalism in engineering design. Laboratory and machine shop demonstrations.

Prerequisite Course: Mechanical Engineering major

Prerequisite by Topic:

1. College Algebra.
2. Trigonometry.
3. Elementary chemistry.

Textbook: A.R. Eide, R.D. Jenison, L.H. Mashaw, L.L. Northup, *Introduction to Engineering Design and Problem Solving*, 4th Edition, McGraw Hill

Other Reference Material: N/A

Course Coordinator: Georg F. Mauer, Professor

Course learning outcomes:

- **Basic engineering calculations.** Convert quantities from one set of units to another such as SI and US Customary and apply basic algebraic and geometrical concepts to solve simple technical problems.
- **Engineering Method.** Approach a technical problem employing the basic steps of the engineering method starting with an understanding of the problem and ending with a verification and check of results.
- **Engineering Design.** Be aware of the value of the engineering design process to develop effective engineering systems to meet a desired need. Build, test, and evaluate completed designs in the laboratory.
- **Overview of Disciplines with Mechanical Engineering.** Be knowledgeable of the many facets of mechanical engineering such as fluids, vibrations, controls, kinematics, etc as a result of especially designed seminars by various expert members of the faculty and laboratory experiences.

Relationship of Course to Mechanical Engineering Program Educational Outcomes:

Goal 1: Provide mechanical engineering graduates with technical capabilities.					Goal 2: Prepare the mechanical engineering graduates to have effective workplace skills.				Goal 3: Instilling a sense of responsibility as a professional member of society.			
1.a	1.c	1.d	1.e	1.f	2.a	2.b	2.c	2.d	3.a	3.b	3.c	3.d
H	M	H	H	H	H		H	M	H		M	
(L)ow		(M)edium			(H)igh							

Topics Covered:

1. Introduction and Engineering History. 4 classes.
2. The design process - 6 classes.
3. Steps in the design process: Problem solving, problem definition, solution idea generation, refinement and analysis, decision and implementation, case studies. 2 classes.
4. Engineering analysis. 3 classes.
5. Mathematical Modeling and Engineering Software Applications. 3 classes.
6. Dimensions and Units. 2 classes
7. Team Design Reports and Oral Presentations. 4 classes
8. Ethics. 2 classes
9. Exams. 2 classes

Laboratory Projects: None

Class/Laboratory Schedule: 50 minutes lecture two sessions per week

Assessment of Student Progress toward Course Objectives

Two written exams, home-works, Team Project report and Presentation of ME 100 Lab Design, and final exam

Class/Laboratory Schedule: MW 1:00-1:50 PM (Spring and Fall Semester)

Contribution of Course for meeting Professional Component:

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| (a) Mathematics and basic sciences: | 0 credit |
| (b) Engineering Topics (Design/Science): | 2 credit |
| (c) General Education: | 0 credit |
| (d) Others: | 0 credits |

Prepared By:

Georg Mauer

Date:

September 10, 2009