

MECHANICAL ENGINEERING PROGRAM

ABET COURSE SYLLABUS

ME 242: Dynamics (3 credit): Required Course

Course Description (2008-2010 Catalog):

Problem course in engineering dynamics, emphasizing the engineering applications of rigid body motion and mechanisms. Kinematics, energy, momentum, and impulse momentum methods utilized.

Prerequisite Course: CEE 241, PHYS 180-180L, and MATH 182

Prerequisite by Topic:

- Statics
- Physics
- Calculus

Textbook: " Engineering Mechanics, Dynamics " 6th Edition, by Meriam and Kraige, J. Wiley

Other Reference Material: N/A

Course Coordinator: Georg F. Mauer, Professor

Course learning outcomes:

1. Develop an understanding of the fundamental principles governing the motion of objects and the interaction between forces acting on objects and their ensuing motion.
2. Develop the ability to formulate realistic dynamic models of physical systems and to analyze and predict the behavior of these systems using the established models.
3. Practice numerical and symbolic analysis of kinematics and dynamics using state of the art software tools.

Relationship of Course to Mechanical Engineering Program Educational Outcomes:

Goal1: 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	L			M	M			

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Topics Covered:

1. Kinematics of particles. (6 classes)
2. Kinetics of particles including the application of Newton's second law. (4 classes)
3. Energy and momentum methods for the kinetics of particles (4 classes)
4. Systems of particles (2 classes)
5. Kinematics of rigid bodies. (5 classes)
6. Plane motion of rigid bodies: forces and accelerations. (4 classes)
7. Plane motion of rigid bodies: energy and momentum methods. (2 classes)
8. Exams (3 classes)

Laboratory Projects: None

Class/Laboratory Schedule: 75 minutes lecture two sessions per week

Assessment of Student Progress toward Course Objectives

Three written exams, home-works, and final exam

Class/Laboratory Schedule: MW 1:00-2:15 PM (Spring and Fall Semester)

Contribution of Course for meeting Professional Component:

(a) Mathematics and basic sciences:	0 credit
(b) Engineering Topics (Design/Science):	3 credit
(c) General Education:	0 credit
(d) Others:	0 credits

Prepared By:

Georg Mauer

Date:

September 10, 2009