

MEE380

FALL 2004

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Office Hours: Text:
Tentative: T, Th 10:30-11:30 p.m. Class Room: Boardman 310
or by *e-mail* appt. Class Meeting: T,Th 8:00 to 9:15 a.m.

WEB PAGE:

[HTTP://WWW.UMAINE.EDU/MECHENG/PETERSON/CLASSES/MEE380/2005/2005-DEFAULT.HTM](http://www.umaine.edu/mecheng/peterson/classes/mee380/2005/2005-default.htm)

I. PHILOSOPHY

This course reinforces the dynamics courses taken sophomore year and provides an introduction to the design process. The development of analytical skills results from practice doing problems and from understanding the derivations of the important equations. This class will provide an opportunity to practice skills as well as demonstrate proficiency. In addition, an engineer needs to know when to perform analysis. Occasional problems will be included as homework that addresses this objective, and this will be a primary objective of the design portion of the class.

II. COURSE OBJECTIVES

- To demonstrate proficiency in developing the equations of motion for dynamic systems.
- To reinforce basic problem analysis skills.
- To begin the process of learning and practicing design skills needed for engineering practice.

III. EXPECTATIONS

- Attend class, attendance will not be taken, but it is the responsibility of students to obtain any information from their peers if they miss class.
- Homework is a significant factor in this course. The homework must be completed neatly and turned in using the approved format. Any homework that is late or deviates from the specified format will not be graded at the discretion of the instructor and grader. Solutions will be posted.
- It is expected that all academic honesty issues will conform to University regulations and that everyone will maintain a level of professionalism such that no issues will arise in this area. The policy on academic integrity is available and should be reviewed.
- If you wish to request an accommodation for a disability, please contact either your instructor or Ann Smith, Coordinator of Services for Students with Disabilities (Onward Building, 1-2319) as early as possible in the semester.

IV. CLASS SCHEDULE

This schedule is tentative and will be used for planning.

Class Session	Date	Topic
1	Sept. 6	Introduction and Preliminary Diagnosis
2	Sept. 8	Review of Problem Solving Methods
3-5	Sept. 13-20	Plane Kinematics of Rigid Bodies (Section 3.3)
6-7	Sept. 22-27	Intermediate Frames (Section 3.5)
8-10	Sept. 29 – Oct. 6	Inertial Frames (Section 4.2)
	Oct. 11	Fall Break
11	Oct. 13	Quiz #1 (includes inertial frames)
12	Oct. 18	Introduction to Indirect methods (Section 2.3)
13-18	Oct. 20 – Nov. 8	Variational Formulation -- System of Particles (Sec. 5.1-5.3)
19-24	Nov. 10 – Nov. 29	Equation of motion for a Holonomic System (section 5.5)
25-26	Dec. 1 – Dec. 6	Work Energy and Constraints (Section 5.6-5.7)
27	Dec. 8	Quiz #2
23 – 24	Dec. 13	Design Project
	Dec. 15	Testing and Presentations
	Dec. 19 – 23	Final Exams
	Final Exam Period	Final report Due

V. SOFTWARE

The official software for this class is Matlab. You can use MathCAD if you choose for the assignments, but the only support for your work will be using Matlab and Matlab examples will be used if software is used in class. Use of software for an engineer is like use of any other tool. You should be able to pick up a tool and learn how to use it. You are welcome to use other tools, but do not expect any support and expect to provide clear documentation of your work.

VI. GRADING

Aspect	Points	Total
Homework		20
Quizzes (2)	2@25%	50
Design Presentation and Demo		10
Design Project Final Grade		20
	Total	100

EXTRA CREDIT!!! Participation in the cardboard canoe race – Family and friends weekend

5 points on your final grade – maximum – will be awarded if you *win* and report on your design.

You must write a design analysis to receive credit for this assignment.

Homework will be graded and returned. Homework will become part of your class notes. Class notes MAY be graded depending on the need for clarification. The notes will then become part of your homework grade. Homework will be graded individually but can represent collaboration with your colleagues.

The quizzes represent a significant portion of your grade. It is expected that a large variation between class members will be in this area. Quizzes will be closed book and closed note with a single information card (4 inch by 6 inch or smaller) to be used to jog your memory. If you miss any quiz you will need to have a reasonable excuse. If the excuse is reasonable, your class grade will depend on the grades you have received on the quizzes that you have taken. Make up exams will not be given. Chronic absence from quizzes and class or unacceptable excuses will result in assignment of a zero for the exam grade. If you have any questions about this rule ask! All questions regarding quizzes or assignments must be submitted within 24 hours of return of the assignment. The question must be in writing and must be accompanied by the original unmarked copy of the assignment. Exceptions will not be made to the policy of no verbal discussion of grading details or clarification. Quizzes represent individual effort and absolute personal integrity is expected.

The design documents and design project represents a significant portion of the grade. These are a group project and depend on meeting a number of specified criteria. The design proposal is the explanation of the basis for selection of the design that will be used for the analysis stage of the project. The conceptual design document will be formatted according to the handout. This is an important step in the design process. The design project final grade will be based on the presentation and final document for the project.