

ME 302 A1: ENGINEERING MECHANICS II
LECTURE: MW 4:00 – 6:00 PM PHO 210
DISCUSSION SECTION: TBD

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Textbook:

Williams JH, *Fundamentals of Applied Dynamics*, John Wiley and Sons, Inc., 1996.

Supplemental Textbooks/Resources:

Hibbeler, R.C., *Engineering Mechanics: Dynamics 10th ed*, Pearson Prentice Hall, 2004.
Meriam, J.L., Kraige L.G., *Engineering Mechanics: Dynamics 6th ed.*, JW & Sons, 2007.

Course Topics:

Kinematics of particles and rigid bodies

- Inertial reference frames; coordinate systems; orbital elements & trajectories
- Intermediate noninertial reference frames

Direct/Algebraic approach to kinetic analysis (Newtonian)

- Universal law of gravitation, linear and angular momenta, moments of inertia
- Work/energy relationship

Indirect approach to kinetic analysis (Lagrangian)

- Calculus of variations, Hamilton's principle, Lagrange's equation

Grading:

Quizzes + Projects:	15% (quizzes given weekly)
Exams 1:	20%
Exams 2:	30%
Final Exam:	35% (comprehensive; will be given on the date determined by registrar.)

Make-up Policy:

No make-ups will be given. If you miss an exam without a valid excuse, you will get a zero. If you have to miss an exam with an excuse, you will be graded based on the rest of your portfolio.

Assignments:

- (1) Homework problems will be assigned and solutions made available on Blackboard usually on Thursdays. **Please check promptly.** The homework

problems and lectures will serve as the basis for quizzes to be given the week after homework is assigned.

- (2) The project will serve as a platform for students to apply principles learned in class to real-world scenarios. Further information will be given during the semester.

ME 302 A1 Syllabus Spring 2011

WK	DATES	READING	TOPIC
1	1/19	CH 3	Review of Particle Kinematics
2	1/24 1/26	CH 3	Rigid Body Kinematics
3	1/31 2/2	CH 3	Rigid Body Kinematics
4	2/7 2/9	CH 4	Rigid Body Kinematics
5	2/14 2/16	CH 4	Particle Dynamics
6	2/22 2/23	CH 6	Exam on 2/22 Rigid Body Dynamics
7	2/28 3/2	CH 6	Rigid Body Dynamics
8	3/7 3/9	CH 5	Work and State Functions
SPRING BREAK			
9	3/21 3/23	CH 5	Generalized Coordinates
10	3/28 3/30	CH 5	Lagrangian Dynamics
11	4/4 4/6	CH 6	Lagrangian For Rigid Bodies
12	4/11 4/13		Review Exam on 4/13
13	4/20 4/21	CH 8	Small Oscillations
14	4/25 4/27	CH 8	Small Oscillations
15	5/2 5/4	CH 8	Small Oscillations

Note: Syllabus will be updated as the semester goes by.