

ME 302 A1: ENGINEERING MECHANICS II

Instructor: Prof. Kamil L. Ekinici (ekinici@bu.edu)

Graduate TA: Caity Bogdan (cbogdan@bu.edu)

Office: ENG 408

Office Hours: F 4-5 pm

Email: ekinici@bu.edu

Discussion/Drop-in Hrs: Tue. TBA, ENG 410

Textbook:

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

Supplemental Resources:

Handouts will be given during class.

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)

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

Indirect approach to kinetic analysis (Lagrangian)

- Hamilton's principle, Lagrange's equation

Grading:

Quizzes + Projects:	10% (quizzes given weekly)
Exam 1:	25% (on 10/14/2014 during class)
Exam 2:	30% (on 11/19/2014 during class)
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 upon the rest of your portfolio. **NO MAKE-UPS, NO EXTENSIONS, NO EXCEPTIONS.**

Attendance Policy:

You are required to attend every class. Attendance will be taken. You must arrive to class on time.

Electronics Policy:

You are encouraged to use a scientific calculator. You are not allowed to use any other electronics, including cell phones, lap top computers and so on, during class.

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 Fall 2014

WK	DATES	READING	TOPIC
1	9/3		Review of Particle Kinematics
2	9/8 9/10	CH 3	Rigid Body Kinematics
3	9/15 9/17	CH 3	Rigid Body Kinematics
4	9/22 9/24	CH 4	Rigid Body Kinematics
5	9/29 10/1	CH 4	Particle Dynamics
6	10/6 10/8	CH 6	Moment of Inertia
7	10/14 10/15	CH 6	Tuesday is Monday schedule. Exam on 10/14
8	10/20 10/22	CH 5	Rigid Body Dynamics
9	10/27 10/29	CH 5	Generalized Coordinates
10	11/3 11/5	CH 5	Work and State Functions Hamilton's Principle
11	11/10 11/12	CH 6	Lagrangian Dynamics
12	11/17 11/19	CH 6	Exam on 11/19
13	11/24		Lagrangian For Rigid Bodies
FALL RECESS			
13	12/1 12/3	CH 8	Small Oscillations
14	12/8 12/10	CH 8	Small Oscillations

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