

ENGR 2242 – DYNAMICS

Spring 2019

Syllabus

Instructor: Bill Saari

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Office Hours: 12:00 – 12:50 MWF, 11:00 – 11:50 TR

Course Website: <http://www.ar.cc.mn.us/saari/engr2242>

Course Description

Topics include kinematics and kinetics of particles and planar rigid bodies, introduction to vector calculus, principle of work and energy, conservation of energy, impulse and momentum, and impact.

Major Areas of Course Content

1. Particle Kinematics: Rectilinear and curvilinear motion
2. Particle Kinetics: Rectilinear and curvilinear motion, force and acceleration, work, energy, impulse, momentum, and impact
3. 2-D Rigid Body Kinematics: Translation, rotation about a fixed axis, and general plane motion
4. 2-D Rigid Body Kinetics: Translation, rotation about a fixed axis, and general plane motion work, energy, impulse, and momentum
5. Moment of inertia for a rigid body

Learner Outcomes

1. Comprehend and apply fundamental engineering concepts related to dynamics
2. Present clear and accurate solutions with respect to mathematics and units of measure

Prerequisite

PHYS 1327 or equivalent

Textbook

Engineering Mechanics: Dynamics 14th Edition by Hibbeler

Grading

Grades will be determined based on a weighted average of percentages.

Exams: 4 of 5 exams (the lowest exam score will be dropped) x 25% = 100%

A > 90%, B > 80%, C > 70%, D > 60%, F < 60%

Exams

Exams will be closed book, closed notes. Exam 5 will be during the final exam week, and will be cumulative and multiple choice. There will be no make-up exams under any circumstance. To account for an emergency on an exam date, your lowest exam score will be dropped.

In-Class Exercises and Additional Problems

There will be several in-class guided exercises that will be completed in groups. These exercises will be collected and count as extra credit. The extra credit will be applied to your next exam score. Extra credit will be assigned based on the accuracy of the solution, and your contributions to your group. An additional non-guided problem will be distributed during class on the day of the exercise. This should be completed individually, and may or may not be collected for extra credit at the next class period. All exercises and

problems are distributed in class only. I will not e-mail any exercises to you or post them on the course website.

Homework

Homework will be assigned on a regular basis. Homework will not count towards your grade, but it is critical that you do all of the homework problems. You can submit your homework to me if you would like feedback on your work.

Academic Dishonesty

You are encouraged to work with others in the class. However, I expect the work you turn in to be your own efforts. Instances of academic dishonesty will be dealt with according to the regulations of Anoka-Ramsey Community College.

Class Conduct

You are expected to be courteous towards the instructor and your classmates. You are expected to be on time for lecture. Cell phones and notebook computers should be turned off and put away during lecture. You should not talk to your classmates while I am talking or while one of your classmates is asking a question. If you have a question about the course material, ask me and I will be more than happy to answer your question. The instructor reserves the right to take any necessary action for class disruptions in accordance with the Student Handbook.

Tentative Course Schedule

Week of	Tuesday	Thursday
Jan 14	Ch 12	Ch 12
Jan 21	Ch 12	Ch 12
Jan 28	Ch 13	Ch 13
Feb 4	Ch 13	Ch 14
Feb 11	Ch 14	Exam 1
Feb 18	Ch 14	Ch 14
Feb 25	Ch 15	Ch 15
Mar 4	Ch 15	Ch 15
Mar 11	No Class	No Class
Mar 18	Ch 16	Exam 2
Mar 25	Ch 16	Ch 16
Apr 1	Ch 17	Ch 17
Apr 8	Ch 17	Exam 3
Apr 15	Ch 18	Ch 18
Apr 22	Ch 18	Ch 19
Apr 29	Ch 19	Exam 4
May 6	Review	Review
Exam 5: Thursday, May 16, 9:40 – 11:40 am		