MEEG 211: Engineering Dynamics

R.V. Roy

UD

August 29, 2017

Presentation

Instructors: Prof. R. Valéry Roy, SPL 332
Prof. Dustyn Roberts, SPL110

Grad TAs: Ben Remer & Shaoyu Yang, SPL 131

Undergrad TAs: Justice Calderon, EJ Carron, Marc Christian, Nathaniel Merrill, Erin Rezich.

Office Hours (Roy): TR 4:45PM-5:30 PM & by appointment

Office Hours (Roberts): M 12:00 PM-1:00 PM, W 10:00 AM-11:00 AM & by appointment

Course Web site: log on to www.udel.edu/canvas

Piazza: piazza.com/udel/fall2017/meeg211/home

Course Schedule/Description

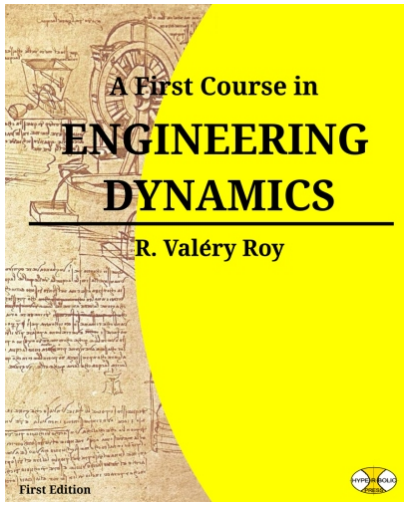
Section 10: TR 3:30-4:45PM MEM127. Enrollment: 80
Section 11: TR 2:00-3:15PM MEM127. Enrollment: 42

The course aims to provide Mechanical Engineering students in their sophomore year with the fundamentals of Dynamics. The emphasis is on understanding the physical principles governing motion of rigid bodies and applying them to solve engineering problems.
PREREQ: Grade of C- or better in MEEG112 or CIEG211.

Note 1: To register to MEEG301/311, a grade of C- or better in MEEG211 will be required.
Note 2: This course is no longer offered in the winter session or spring semester. Registration to CIEG311 is limited.

Textbook

A First Course in Engineering Dynamics (2nd Edition)
R. Valéry Roy
Hyperbolic Press
2016
color: ISBN 0990696987, ▸ Link
b&w: ISBN 0990696987, ▸ Link



Recitations

Schedule:
Section 20: F 11:15-12:05PM SHL 123
Section 31: F 11:15-12:05PM GOR 117
Section 22: F 12:20-1:10PM SHL 116
Section 30: F 12:20-1:10PM GOR 117

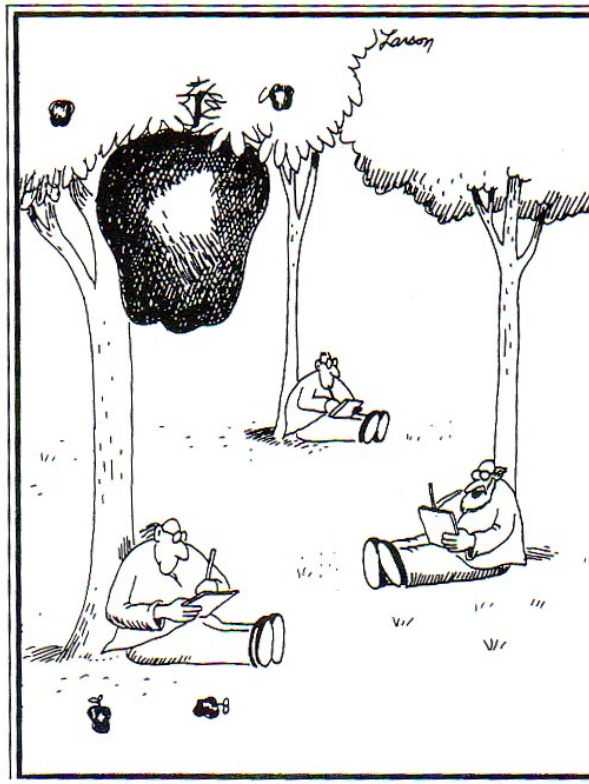
Students must attend a recitation section. The recitation consists of problem-solving applied to the material covered during lectures.

Why Learn Engineering Mechanics?

The study of mechanics is essential for all students wishing to understand the world around them.

As a foundational course, it is pivotal to the intellectual development and to the education of scientists and engineers.

It provides students with a great opportunity to learn how to describe a physical phenomenon in the language of mathematics. Learning mechanics is learning to develop a systematic modeling method to transform a physical system into a mathematical representation.



"Nothing yet. ... How about you, Newton?"

Homework

Homework is due at the beginning of the recitation. Late homework will not be accepted. Problems are chosen to reinforce the course material. Your ability to solve problems independently is critical to your success in this class. Solutions will be posted. Once your homework is returned to you, consult Canvas for solutions, and solve these problems again closed-book. Use Piazza as a discussion forum.

Credits: 10%

Exams

Two exams are scheduled:
Exam 1: October 6 (5-7PM), WLF100 credits: 30%
Exam 2: November 10 (5-7PM), WLF100 credits: 30%

Exams are scheduled outside lecture time and are closed book/closed notes. No make-up exams will be scheduled.

Final Project

In lieu of a final exam, you will participate to a final project in groups of three students. The project will be announced on or near November 10 and will be due during the exam week.

This year, the project will have a computational component to be coded in Python. To prepare to this task, small Python exercices will be included in homework assignments. A primer of essential Python libraries such as SymPy, Matplotlib, IPython, NumPy, etc will be provided, along with example codes relevant to Dynamics.

Credits: 26%

iClickers

This course will make use of iClickers.
Register your clicker on Canvas.

Clickers will be used throughout the semester.

Typically, each lecture will start with a question to test your knowledge on some fundamental aspect of the material covered in the previous lecture.

Online Quizzes Through Canvas (new!)

To prepare for Exams I and II, two comprehensive quizzes will be assigned through Canvas.

An entrance quiz (vector calculus) and an exit quiz (comprehensive) will also be assigned.

Credits: 4%.

Final Grade

Grades will be rounded to the nearest 1/10th percent and your final grade will be assigned according to the following grading scale:

	A ≥ 94.0	**A-** $90.0 - 93.9$
B+ $87.0 - 89.9$	**B** $84.0 - 86.9$	**B-** $80.0 - 83.9$
C+ $77.0 - 79.9$	**C** $74.0 - 76.9$	**C-** $70.0 - 73.9$
D+ $67.0 - 69.9$	**D** $64.0 - 66.9$	**D-** $60.0 - 63.9$
F < 60		

A few pointers to Succeed in MEEG 211

MEEG211 is a challenging course. Mechanics is analytic, rational, and systematic. It is not intuitive.

1. Learning "Dynamics" requires lots of practice. The necessary effort can only be put forth by the student alone.

2. Work on the material in the textbook ahead of each lecture. As soon as you can, study the material again in the textbook after each lecture. Solve the problem covered in class.

3. During the live lectures, listen carefully (take cursory notes).

4. Before attempting homework problems, solve the example problems covered in class and in the textbook.

5. You cannot learn by simply reading or copying problem solutions. Do not passively read the textbook problem solutions or the homework solutions. Attempt to solve each problem by yourself outside of class.

A few pointers to Succeed in MEEG 211

6. Do not fall behind. Follow the recommendations for assigned work after each lecture. **Seek help immediately** if you cannot understand a particular concept or example problem. Post your questions on Piazza.

Use of Canvas/Piazza

Consult Canvas periodically for weekly homework assignments and due dates, homework solutions & grades, exams dates, announcements, and other course material.

Use Piazza as a discussion forum. If you have a general question about the material in a given week, or need pointers regarding a homework problem, post it on Piazza. Try and answer each other's questions. Extra credits (up to 2%) are given to helpers.

Random Notes

1. The principles underlying engineering dynamics are relatively simple, involving very few formulas to memorize. The real challenges lie in problem solving.

2. A frequently heard complaint: *I worked on my assignment for three hours and didn't get anywhere*. Chances are, you have not studied the example problems covered in class or in the textbook.

3. We will learn to solve problems analytically. We will plug in numbers (if any) in final results as the last step.

4. There is no need of calculators in exams.

Random Notes (cont.)

5. During lectures, put your phone, laptop or tablet away.

6. Attendance is key to your success and will be monitored (with iClickers). Students will be allowed a maximum of 3 missed lectures. Points will be deducted from the total for each unexcused absence exceeding the maximum allowable.

7. Punctuality is important for the smooth running of lectures. Arrive on time. I will also make a point of finishing class on time.

8. Students are not permitted to leave the classroom during lectures and exams except for extreme emergencies. If you need to leave before the end of a class, let me know ahead of time.

Academic Integrity

In accordance with University policy, academic dishonesty can result in a permanent stain on your academic record.

Plagiarism (stealing the words or ideas of another),
Fabrication (falsifying information, data, or research),
Cheating (copying someone else's work such as homework, quizzes, exams, computer codes)
Academic misconduct (acts that disrupt the educational process and/or gives you an unfair advantage),
or Allowing or Assisting another to commit these acts

CORRUPT THE EDUCATIONAL PROCESS.

Course notes, exams, and other documents constitute a professor's intellectual property, and such materials are not to be shared, online or otherwise.

Academic Integrity

Follow the UD Code of Conduct. It will improve your learning experience and the value of your UD degree!

See ▸ www1.udel.edu/studentconduct/policyref.html

Diversity and Inclusion

The University of Delaware is committed to offering a positive learning environment based upon open communication, mutual respect, and nondiscrimination.

It is my intent that students from all diverse backgrounds and perspectives be well-served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that the students bring to this class be viewed as a resource, strength and benefit.

Inclusion of Diverse Learning Needs

This course is open to all students who meet the academic requirements for participation. Any student who has documented a need for accommodation should contact Disability Support Services and the instructor privately to discuss the specific situation as soon as possible. Disability Support Services can be reached at 302-831-4643, or dssoffice@udel.edu. DSS staff will coordinate accommodations for students.

The University of Delaware is committed to all students' learning and welcomes students with disabilities. If you have a documented disability and need for an accommodation in this course, please contact the Office of Disability Support Services located at dssoffice@udel.edu or call 302-831-4643 to coordinate accommodations.

Harassment

It is unacceptable and a violation of university policy to harass, discriminate against or abuse any person because of a person's race, color, national origin, gender, sexual orientation, disability, religion, age or any other characteristic protected by applicable law. Such behavior threatens to destroy the environment of tolerance and mutual respect that must prevail for this university to fulfill its educational mission.

Contact the Office of Equity and Inclusion ▸ how-to-report if you believe a violation has occurred.

Absences

Absences on religious holidays listed in University calendars is recognized as an excused absence. Nevertheless, students are urged to remind the instructor of their intention to be absent on a particular upcoming holiday.

Absences on religious holidays not listed in University calendars, as well as absences due to athletic participation or other extracurricular activities in which students are official representatives of the University, shall be recognized as excused absences when the student informs the instructor in writing during the first two weeks of the semester of these planned absences for the semester.