



Syllabus for EGR 236.004
Dynamics
Spring Semester 2018
Meeting Days MWF 9:00 – 9:50 am
Room EGC 218

Instructor: Dr. Richard Kunz, Associate Professor
Department of Mechanical Engineering

Office: EGC 105F

Hours: MW 10-12, 2-3; F 11-12
and by appointment

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Textbook:

Required: *Engineering Mechanics: Dynamics Plus MasteringEngineering with Pearson eText -- Access Card Package*, by R. C. Hibbeler, 14th ed, Pearson/Prentice-Hall, 2016. ISBN: 978-0-13-411699-0

Catalog Description: Planar kinematics of particles and rigid bodies. Planar kinetics of particles and rigid bodies: force and acceleration, work and energy, and impulse and momentum.

Course Objectives: Upon successful completion of this course, you should be able to do the following:

- Determine position, velocity, and acceleration of particles in 2-D and 3-D.
- Prepare appropriate free body diagrams for particles and rigid bodies that are not in equilibrium.
- Determine forces and accelerations for systems of bodies in motion.
- Solve dynamic problems involving linear and angular momentum.
- Determine effects of impact on two bodies in a plane.
- Solve dynamic problems involving friction.
- Use work and energy relationships to solve dynamic problems.
- Calculate mass moment of inertia for bodies.
- Determine translational and rotational planar movements for rigid bodies.

Prerequisites:

EGR 232, MAT 192, PHY 161

Grading:

Homework and quizzes	15%
Tests (3)	17% each
Final Exam	34%

Grade Averages (minimum): A (90-100), B (80-89), C (70-79), D (60-69), F(<60)

Course Standards:

1. In this course, as in many other engineering disciplines, a relatively small number of fundamental physical principles are applied to the solution of a wide range of problems of engineering importance. Your success in this course, as well as later on your success as an engineer, will be largely determined by your ability (i) to understand the information that is known and the results that are needed; (ii) to synthesize and apply the relevant principles to determine the results that are needed; and (iii) to communicate and document your work. These are not skills that most people are born with, and so they must be developed. In this course, the approach to developing these skills will consist of the following elements:

- Statement and/or development of fundamental physical principles in class, backed up by information in the textbook.
- Demonstration and collaborative application of these principles to the solution of problems in class, backed up by information in the textbook.
- Independent solution of problems outside of class.

Your success in the course, as measured by your grades on the homework, tests, and final exam, will be determined in large part by the level of your involvement in each of these three elements, both in class and outside of class.

The assigned homework is intended to provide you with the **practice** needed to develop the necessary skills. The **evaluation** of your skills is provided by the tests and final.

2. **Homework** is an important part of learning, as performing the homework is the only way to have a good understanding of the course material, to develop the skills necessary to independently solve problems, and to form good engineering work habits.
 - **Reading assignments** will be made each class period, covering the material to be discussed during the next class meeting. You are expected to read the listed sections before the next class to prepare for the material to be covered. Following class, you may find it helpful to review the sections of the text covered in class to further elucidate key concepts.
 - **Homework Problems** will generally be assigned each class period and due two class periods later at the beginning of class. Late homework will not be accepted. Homework will be assigned and graded through the MasteringEngineering.com web application. Instructions for accessing the website and details of its implementation are at the end of this syllabus.
3. **Quizzes:** There *may* be occasional, unannounced 10 – 15 min. quizzes at the beginning of class. The quizzes will be similar to the homework problems. Each quiz will count as one homework assignment. There will be no make-up quizzes.

4. **Tests:** There will be three 50-minute tests during the semester. Problems will be similar to the homework. All tests will be closed notes and closed book. A calculator is recommended. No make-up tests will be given without a documented excuse. Tentative test dates are: **Mon. 5 Feb.; Wed. 28 Feb.; Wed. 4 Apr.** Test dates will be confirmed at least one week in advance.
5. **Final Exam:** There will be a comprehensive final exam. It will be closed notes and closed book. It will consist of problems similar to those on the tests.

The final exam will be given **Friday May 4, 9:00 am – 12:00 pm**

Additional Information:

1. Please feel free to arrange a meeting with me at any point that you feel you need it. If you would like to see me, come to my office, catch me after class to schedule a time, call, or email.
2. Please turn off mobile devices before entering the classroom.
3. The **honor code** provisions as outlined in the *Catalog* and in the student handbook, *The Lair*, and on the web at <http://www2.mercer.edu/HonorCouncil/default.htm> apply to everyone. Plagiarism is a violation of the honor code and is prohibited. When in doubt, please ask to avoid potentially embarrassing situations.
4. Electronic communication is an important adjunct to face-to-face communication, including from professor to students, students to professor, and students to students. You must have regular access to your Mercer e-mail. Access to the Web and to the Internet is also integral to the class work. A number of laboratories on campus will provide access, in addition to EGC 117 and EGC 216-A,B.
5. Students requiring accommodations for a disability should inform the instructor at the close of the first class meeting or as soon as possible. The instructor will refer you to the ACCESS and Accommodation Office to document your disability, determine eligibility for accommodations under the ADA/Section 504 and to request a Faculty Accommodation Form. Disability accommodations or status will not be indicated on academic transcripts. In order to receive accommodations in a class, students with sensory, learning, psychological, physical or medical disabilities must provide their instructor with a Faculty Accommodation Form to sign. Students must return the signed form to the ACCESS Coordinator. A new form must be requested each semester. Students with a history of a disability, perceived as having a disability or with a current disability who do not wish to use academic accommodations are also strongly encouraged to register with the ACCESS and Accommodation Office and request a Faculty Accommodation Form each semester. For further information, please contact Katie Johnson, Director and ADA/504 Coordinator, at 301-2778 or visit the ACCESS and Accommodation Office website at <http://www.mercer.edu/disabilityservices>.
6. This syllabus is subject to change. Changes to the syllabus will be communicated via email and in-class announcement

First, make sure you have these 3 things...

1. **Email:** You'll get some important emails from your instructor at this address.
2. **Course ID:** EGR236004KUNZS18
3. **Access code or credit card:** An access code card may be packaged with your new book or may be sold by itself at your bookstore. Otherwise, you can buy instant access with a credit card or PayPal account during registration.



Next, get registered and join your course!

1. Go to www.pearson.com/mastering/engineering.
2. Under Register Now, select **Student**.
3. Confirm you have the information needed, then select **OK! Register now**.
4. Enter your instructor's Course ID (EGR236004KUNZS18), and choose **Continue**.
5. Enter your existing Pearson account **username** and **password** and select **Sign in**.
You have an account if you have ever used a Pearson MyLab & Mastering product, such as MyLab Math, MyLab IT, or Mastering Chemistry.
 - If you don't have an account, select **Create** and complete the required fields.
6. Select an access option.
 - Enter the access code that came with your textbook or was purchased from the bookstore.
 - Buy access using a credit card or PayPal account.
7. From the "You're Done!" page, select **Go to My Courses**.
8. Select **Yes** and enter your Course ID to join your course. Click **Continue**.
9. If asked, enter your Student ID according to the instructions provided and click **Continue**.
That's it! You should see the Course Home page for the course.

To sign in later:

1. Go to www.pearson.com/mastering/engineering or www.pearson.com/mastering/computer-science and select **Sign In**.
2. Enter your Pearson account **username** and **password** from registration, and select **Sign In**.
 - If you forgot your username or password, select **Forgot your username or password?**

To join another course for the same textbook (no additional purchase needed):

1. **Sign in** with the **username** and **password** that you specified during registration.
2. Click **My Courses** in the upper left and then choose **Join a Course**.
3. Enter the Course ID from your instructor and click **Continue**.
4. If asked, enter your Student ID according to the instructions provided and click **Continue**.
5. To switch courses, select **My Courses** from the course menu (left side).
6. Select any active course link that appears below "Switch to another course".