School of Engineering EGR
Mercer University

Syllabus for *EGR 232*
Statics/Solid Mechanics
Fall Semester 2007
Meeting Days TTh
12:15 –1:30 pm
Room EGC *218*

Instructor: Dr. Dick Kunz, Associate Professor
Department of Mechanical and Industrial Engineering

Office: Suite 105F, School of Engineering
Hours: In general: MTWThF 8:00 am – 5:00 pm, **except:**

F	10:00 am – 11:00 am
MWF	11:00 am – 1:00 pm
MW	2:00 pm – 5:00 pm
TTh	12:15 pm – 1:30 pm

Phone: 301-4061 (w)

Email: kunz_rk@mercer.edu

Textbook:
Required: *Statics and Mechanics of Materials,* 2nd Edition, by R.C. Hibbeler, 2004.
ISBN: 0-13-028127-1
Reference: *Statics and Strength of Materials,* William A. Nash, (Schaum's Outline Series)

Catalog Description:
Equilibrium of concurrent force systems. Stress, strain, and axial deformation. Hooke's law. Rigid-body equilibrium. Stress and deformation in shafts and beams. Shear and bending moment diagrams. Column buckling.

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

- Combine and resolve forces and moments in 2-D and 3-D
- Prepare appropriate free body diagrams.
- Solve 2-D and 3-D rigid body equilibrium problems.
- Solve problems involving friction and distributed loads.
- Determine internal structural loads in trusses and frames.
- Calculate stress and deformation in structures subjected to axial loads.
- Solve problems involving torsion of circular shafts.
- Calculate shear and bending stresses in beams, using shear and bending moment diagrams.
- Calculate beam deflections under various loading and support conditions.
- Determine critical column buckling loads

Corequisites:
MAT 192, PHY 161

Grading:

Homework	10%
Quizzes	15%
Tests (3)	15% each
Final Exam	30%

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

Course Standards:

1. **Homework** is a significant part of the grade, as working problems independently is the only way to have a good understanding of the course material and to form good engineering work habits. Problems will be assigned each class period and will be collected at the beginning of the next class period. Late homework will not be accepted. The lowest homework grade will be discarded.

   Homework must be done neatly in pencil. Please place your name, date and assignment number on each page in the upper right hand corner. Messy, unorganized papers will receive less than full credit. Sketches should be neat, complete, and well-labeled. Show all forces, coordinate systems, governing equations, and assumptions that are used in the solution. Solutions must follow logically, step by step. Thus, your complete solution is supported by what you have presented. Show all your work. Clearly indicate your answer with the correct units as appropriate. Begin each problem on a new sheet of paper, and staple all the sheets together in order.

   You may work together, but copying from any source is not permitted. Each student must turn in his/her own work. DO NOT COPY HOMEWORK.

2. **Reading** assignments will be posted at each class meeting. You are expected to read the listed sections before the next class to prepare for the material to be covered.

3. **Quizzes**: Short, 10-minute quizzes will be handed out periodically at the beginning of class. Problems will be similar to the homework. Quizzes may or may not be announced in advance. Quizzes will be closed notes and closed book. A calculator is recommended. No make-up quizzes will be given. The lowest quiz grade will be discarded.

4. **Tests:** There will be three 75-minute tests during the semester. Problems will be similar to the homework and quizzes. All tests will be closed notes and closed book. A calculator is recommended. No make-up tests will be given without a documented excuse.

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, 14 December, 2:00 – 5:00 p.m.**

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 during posted office hours, catch me after class to schedule a time, call, email, or stop by my office.

2. 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 and to all work handed in. By turning in a paper to the instructor, each student certifies that he/she has neither given nor received unauthorized aid in its completion. Plagiarism is a violation of the honor code and is prohibited. When in doubt, please ask to avoid potentially embarrassing situations.

3. Please turn off cell phones before entering the classroom.

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. If you do not have an active e-mail address on the first day of class, please secure one.

5. Students requiring accommodations for a disability should inform the instructor at the close of the first class meeting or as soon as possible. If you are not registered with Disability Services, the instructor will refer you to the Disability Support Services office for consultation regarding documentation of your disability and eligibility for accommodations under the ADA/504. In order to receive accommodations, eligible students must provide each instructor with a "Faculty Accommodation Form" from Disability Services. Students must return the completed and signed form to the Disability Services Coordinator on the 3rd floor of the Connell Student Center. Students with a documented disability who do not wish to use academic accommodations are also strongly encouraged to register with Disability Services and complete a Faculty Accommodation Form each semester. For further information, please contact Carole Burrowbridge, Disability Services Coordinator, at 301-2778 or visit the website at http://www.mercer.edu/stu_support/swd.htm