Spring 2013

TTh, 5:00pm – 6:20pm, Room THH102

Professor:	Virgil Adumitroaie	Teaching Assistant:	Thien Pan
Office:	SSC101 (MT, 6:30pm - 8:00pm)	Office:	VHE 202 (MT, 10am-12pm; Th, 10-11am)
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**Course Text:** F. P. Beer, E. R. Johnston, Jr., J. T. DeWolf and D. F. Mazurek; "Mechanics of Materials"; Sixth Edition; McGraw-Hill Publication (2011)

**Course References:** In addition to the above text, some course material and in-class problems may come from various other sources.

**Pre-requisites**: An undergraduate statics course (AME 201 or CE 205). Upper division standing (grade of C- or better) in any engineering major. Other students may be admitted on a case-by-case basis.

**Course Objectives**: Stress, strain and deflection of mechanical elements due to tension, shear, bending, or torsion; combined loads; energy methods, statically indeterminate structures; strength-based design. This course is designed to give A&M Engineering students an understanding of the mechanics of deformable bodies. The topics covered in this course will give students a solid understanding of concepts necessary in the mechanical design process.

Course Websites: 6th Edition Website	highered.mcgraw-hill.com/sites/0073380288/student_view0
AME Department	ae-www.usc.edu
ASME	asme.org
AIAA	aiaa.org
Strength of Materials Journal	springerlink.com/content/j2j442v55243
Mechanics of Materials	sciencedirect.com/science/journal/01676636
ME Magazine	memagazine.asme.org
AW&ST	aviationweek.com

## Course Schedule: See below.

## Course Assignments: See below.

**Grading**: There are 13 homework assignments, each of which is valued at 10 points (~24% of grade). Each of the two midterm exams is 120 points (~22%) and the final examination is 170 points (~32%). The exams will be closed book and closed notes. You may bring a pocket calculator, but not a laptop, PDA, or any wireless devices.

Under close guidance from the professor, all <u>homework</u> and exams will be graded by the assigned grader. If dissatisfied with the grading in a specific instance, the student may appeal to the professor to re-evaluate the grade. An appealed grade may be raised, lowered, or remain as originally scored. (Caution: The final grade in this course depends in significant measure on graded homework, and thus we take very seriously the academic integrity issue inherent in this activity. Do your own work.)

**Class Participation**: Attendance will be taken periodically; it is expected that students will want to attend every class meeting. Active participation in the class and on the Blackboard discussion board will be noted.

**Office Hours**: Prof. Adumitroaie is available for office hours on MT, 6:30pm - 8:00pm in SSC101. The TA, Thien Pan is available MT, 10am-12pm; Th, 10-11am, in VHE 202.

**Homework:** All homework assignments are due at 11:59pm on the dates indicated below and will be submitted via the Blackboard website. It is your responsibility to make sure you have submitted the correct files and to verify after submission that the uploaded files are readable. Include your name, date, course number and assignment number in your submitted homework.

Late homework will be accepted up to two days past due date with 2 points penalty per day. Homework turned in later than past due date + 3 days will not receive any credit. No homework will be accepted after the last class meeting.

Course schedule and assignments are summarized below. This syllabus is subject to change as announced in class.

DATE	CLASS	TOPIC(S)	HOMEWORK
Week 1		Introduction.	Assigned: #1 (Jan 17)
Jan 15; Jan 17	1; 2	Concept of Stress.	
Week 2		Concept of Stress (continued).	Due: #1 (Jan 24)
Jan 22; Jan 24	3; 4		Assigned: #2
Week 3		Stress and Strain.	Due: #2 (Jan 31)
Jan 29; Jan 31	5; 6		Assigned: #3
Week 4		Axial Loading.	Due: #3 (Feb 7)
Feb 5; Feb 7	7; 8		Assigned: #4
Week 5		Torsion.	Due: #4 (Feb 14)
Feb 12; Feb 14	9; 10		Assigned: #5
Week 6		Torsion (cont).	Due: #5 (Feb 21)
Feb 19; Feb 21	11; 12		Assigned: #6
Week 7		Pure Bending.	Due: #6 (Feb 28)
Feb 26; Feb 28	13; 14		Assigned: #7
Week 8		Analysis and Design of Beams for Bending.	
Mar 5; Mar 7	15; Midterm Exam	MIDTERM EXAM I (Based on chapters 1-3)	
Week 9		Shearing Stresses in Beams and Thin-Walled	Due: #7 (Mar 14)
Mar 12; Mar 14	16; 17	Members.	Assigned: #8
Week 10	No Classes	Spring Recess	
Mar 19; Mar 21			
Week 11	18; 19	Transformations of Stress and Strain.	Due: #8 (Mar 28)
Mar 26; Mar 28		Principal Stresses Under a Given Loading.	Assigned: #9
Week 12	20; 21	Principal Stresses Under a Given Loading (cont).	Due: #9 (Apr 4)
Apr 2; Apr 4			Assigned: #10
Week 13	22; 23	Deflection of Beams.	Due: #10 (Apr 11)
Apr 9; Apr 11			Assigned: #11
Week 14	Midterm Exam; 24	MIDTERM EXAM II (Based on chapters 4-7)	Due: #11 (Apr 18)
Apr 16; Apr 18		Energy Methods.	Assigned: #12
Week 15	25; 26	Energy Methods (continued). Columns.	Due: #12 (Apr 25)
Apr 23; Apr 25			Assigned: #13
Week 16	27; 28	Columns (continued). Review for final.	Due: #13 (May 2)
Apr 30; May 2			
Week 17	Final Exam	FINAL EXAM (Comprehensive)	
May 9		(4:30pm-6:30pm)	

## Course References:

Russell C. Hibbeler, Mechanics of Materials, Third Edition, Prentice-Hall Publishing Co., 1997

**Academic Integrity**. The Viterbi School of Engineering adheres to the University's policies and procedures governing academic integrity as described in SCampus (http://www.usc.edu/dept/publications/SCAMPUS/). Students are expected to be aware of and to observe the academic integrity standards described in SCampus, and to expect those standards to be enforced in this course.

**Students with Disabilities**. Any Student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m. - 5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.