

ENTC-376 Strength of Materials

- Syllabus
- Reading Assignment
- How to get Class Information
- Lab Book Discussion
- Statics Review
 - Vectors
 - Free Body Diagrams
 - Sum of Forces and Moments

Reading Assignment

- Read Chapter 1 of Mechanics of Materials and be ready to discuss.

ENTC 376 – Strength of Materials - Spring – 2009

COURSE OBJECTIVES:

To prepare students with the fundamental principles and problem solving skills for stress analysis and design of structural and machine members. This course is a prerequisite for the ENTC 363 Mechanical Design Applications I course.

LECTURE/Room: T-Th, 9:35 a.m. – 10:50 a.m., Thompson 107A

INSTRUCTOR: Randy Kelley; THOM 118F; 862-8472; kelley@entc.tamu.edu (or rdkelley111@gmail.com)

OFFICE HOURS: Tuesday/Thursday 11:00 a.m.-12:00 p.m. or by appointment.

TEXT: Hibbeler; **Mechanics of Materials**, 7th Ed., Pearson Prentice Hall, 2008.

PATH TO SUCCESS:

1. Read the assigned reading in the text prior to class. I will not waste class time reading it to you. Also, I will highlight some of the most important topics in class, but not all of the important topics.
2. Go to all classes and pay attention.
3. Do the homework.
4. Be prepared with plenty of questions during class and lab and be an active participant in all discussions.

GRADING:

NOTES:

- No late homework will be accepted and no make-up work will be allowed except for authorized absences per TAMU regulations. If you are planning out-of-town trips, including interviews, be aware of our class schedule when making your plans.
- Laboratory theory may be included in the exams.
- Class attendance is mandatory; 2 unexcused absence of class will lose all credits for this category.

Exam 1	15%	
Exam 2	20%	
Final Exam	25%	A ≥ 90%
Laboratory ^(1, 2)	20%	B ≥ 80%
Quizzes	5%	C ≥ 70%
Homework ⁽¹⁾	10%	D ≥ 60%
Class Attendance ⁽³⁾	5%	
TOTAL	100%	

Week		Topic	
1 – 1/20	T	Introduction & Review of Statics	
1/22	R	Stress	Chapter 1
		No Lab	
2 – 1/27	T	Stress	Chapter 1
1/29	R	Strain	Chapter 2
	Lab 1	#1, Lab Policy, Group Formation, Intro to Strain Gages	
3 – 2/3	T	Mechanical Properties of Materials	Chapter 3
2/5	R	Mechanical Properties of Materials, Axial Load	Chapter 3, 4
	Lab 2	#2, Installation of Strain Gages (Beam & Coke Can)	
4 – 2/10	T	Axial Load	Chapter 4
2/12	R	Axial Load, Torsion	Chapter 4, 5
	Lab 3	#3, Tensile Test on United Model SFM Test system #4, Tensile Test on Anisotropic Materials	
5 – 2/17	T	Torsion	Chapter 5
2/19	R	Torsion, Bending	Chapter 5,6
	Lab 4	#5, Torsion Test #6, Determining Modulus of Elasticity & Poisson's Ratio	
6 – 2/24	T	Bending	Chapter 6
2/26	R	Bending	Chapter 6
	Lab 5	#7, Stress Concentration	
7 – 3/3	T	Bending	Chapter 6
3/5	R	Exam 1	

		No Lab	
8 – 3/10	T	Transverse Shear	Chapter 7
3/12	R	Transverse Shear	Chapter 7
	Lab 6	#8, Principal Stresses and Strains	
10 – 3/17	T	Spring Break	
3/19	R		
11 – 3/24	T	Combined Loadings	Chapter 8
3/26	R	Combined Loadings	Chapter 8
	Lab 7	#9, 3-point Bending Test on United Model SFM Test System	
12 – 3/31	T	Combined Loadings	Chapter 8
4/2	R	Combined Loadings	Chapter 8
	Lab 8	#10, Combined Bending and Torsion Tests	
13 – 4/7	T	Stress Transformation	Chapter 9
4/9	R	Stress Transformation	Chapter 9
	Lab 9	#11, Thin-Walled Pressure Vessel	
14 – 4/14	T	Stress Transformation	Chapter 9
4/16	R	Stress Transformation	Chapter 9
15 – 4/21	T	Review	
4/23	R	Exam 2	
16 – 4/27	T	Review	
4/30	R	Review	
5/5	T	Review	
		Final Exam: May 8, Friday 12:30 – 2:30 p.m.	

How to get the class information

The easiest way to access the ETID FTP site (from anywhere on the globe):

- Go to the department web site, <http://etidweb.tamu.edu>
- Click on the **Current Student**
- From the newly opened page, under *Department Resources* select either the **FTP File Server Link** or **Off-campus FTP Server Access**
- At least one of the 2 links will connect you to the **ETID FTP** site. Then next thing you need to do is to select your class folder which contains course material that your instructor has placed there for you.

Lab Manual

- Go to the class web site previously mentioned.
- Click on ENTC-376
- Click on Lab Manual
- Download and print.

Statics Review

- Lets work some problems.