



**CIVIL 2800-A02  
Solid Mechanics 1**

**Course Info & Outline  
Fall 2006**

**Instructor:** Dr. Ehab El-Salakawy, P.Eng.  
**Room:** E1-434 (Engineering I)  
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**Phone:** 474-8319  
**Office Hours:** Open for walk in

**Lecture Time & Place**

Mon/Wed/Fri 9:30 am - 10:20 am in E2-130 (Engineering II)

**Tutorial Time & Place**

Tuesday 8:30 am - 9:50 am in E2-350 (Engineering II)

**Course Main Objectives**

- 1- To Extend Equilibrium Analysis to Deformable Bodies applying the Three Fundamental Concepts of Solid Mechanics:
  - Equilibrium
  - Force-Temperature & Force-Deformation Behaviour of the Material
  - Geometry of Deformation
- 2- To Develop an Understanding of the Fundamentals of Elementary Solid Mechanics (*Finite Element Method* and *Computer-Aided Engineering* are direct extensions to this course)

**The course will cover the following topics:**

<b>Topic</b>	<b>Chapter</b>
Properties of Plane Areas and Equations of Statics	1
Stress and Strain	2
Axial Deformation	3
Torsion	4
Shear Force and Bending Moment Diagrams	5
Stresses Due to Bending	6
Bi-Axial Stress Systems	7

**Course Web Site**

<http://jump.umanitoba.ca/cp/home/displaylogin> Please frequently visit this site.

**Text Books**

- 1- “*Mechanics of Materials*” Fifth Edition 2003, by R.C. Hibbeler, Prentice Hall International, Inc., 848 pp.
- 2- “*Mechanics of Materials*” Second Edition 2000, by Roy R. Craig, John Wiley & Sons, Inc., 752 pp.

## Course Assessment

Assignments/Tutorials	20%	<b>Tentative Test Dates:</b>
Test 1:	15%	Tuesday, October 10, 2006
Test 2:	15%	Tuesday, November 7, 2006
Final Exam:	50%	Tuesday, December 19, 2006
Total:	100%	

Note: November 15<sup>th</sup> is the last day for voluntary withdrawal.

## Assignment Due Dates

Assignment No.	Due Date	Day	Time
1	September 19 <sup>th</sup>	Tuesday	10:30 am
2	September 29 <sup>th</sup>	Friday	4:30 pm
3	October 10 <sup>th</sup>	Tuesday	10:30 am
4	October 20 <sup>th</sup>	Friday	4:30 pm
5	November 3 <sup>rd</sup>	Friday	4:30 pm
6	November 17 <sup>th</sup>	Friday	4:30 pm
7	December 7 <sup>th</sup>	Thursday	4:30 pm

## Assignment Guidelines

- (1) Late submission of assignments and tutorials will be accepted up to 5 working days following the due date. Each late day after the due date will result in 10% reduction of the mark for each individual assignment/tutorial (maximum reduction of the mark is 50%).
- (2) Solutions of assignment problems shall be **neatly laid out** and all intermediate and final **answers clearly highlighted**. The detailed working out of the solution must also be included. Failure to do this will result in misinterpretation of your solution which could lead to it being marked incorrectly.
- (3) Solutions **MUST BE WRITTEN ON ONE SIDE OF EACH PAGE ONLY**. If you fail to follow this advice and write on both sides of each page only one side will be marked.
- (4) Solutions should be **securely attached** in a folder with your name, **surname underlined**, student number, engineering department, subject name, subject code and the assignment number clearly marked on the outside. Each page should be numbered at the bottom. If stapled to the folder, only one staple on the top left hand corner of the page please.
- (5) Assignments are to be handed by the appropriate submission date and time to the tutor at the tutorial session or in Room A229 (Agriculture Engineering Building). **They will not be accepted at any other place.**
- (6) Marked assignments will be handed back approximately two weeks after they were submitted, during lecturing or tutorial sessions.
- (7) Assignment solutions will be available some time during the semester. You will be informed when and where they are available.
- (8) Answers will only be marked if handed in the correct order.
- (9) Write every second line so that your work can be easily marked.
- (10) Every question should be started on a new page.
- (11) **Marks may be taken off from the total for poor presentation of solution**, e.g. no FBD (Free body diagram) or free hand drawings.