MECH 360 - Mechanics of Materials – Course Syllabus (2016 Fall Term)

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This course presents some key fundamental principles and analytical techniques that will enable you to tackle practical problems in Mechanics of Materials and Engineering Design. The course concentrates on stress analysis of loaded components and structures. It focuses on understanding of basic concepts and their application to practical engineering calculations

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Lecture: Tuesdays and Thursdays, 8.00 - 9.30 am, West Mall Swing Space, Room 121.

Tutorial 1: Mon 14:00-15:00 pm, Friedman Building, Room 153.

Tutorial 2: Mon 15:00-16:00 pm, Hugh Dempster Pavilion, Room 301.

Prerequisite: MECH 224 or MECH 260 at UBC, or its equivalent at other universities.

Course Objectives: (1) Understand stresses and strains in one, two, and three dimensions; (2) Calculate stresses and strains in one dimensional statically determinate and indeterminate members; (3) Apply stress analysis principles to practical problems in mechanics of materials and engineering design; (4)Apply energy methods to determine displacements due to multiple loads and to stability problems; (5) Understand elementary stability concepts and failure criteria.

Marking scheme: Quizzes 10%, Midterm 1: 15%, Midterm 2: 15%, Final Exam: 60%. *(All exams are 'closed book - open mind'. You may use only the official Mech 360 formula sheet, with no added notes). To pass the course you will need to pass the final exam.*

Books: Mechanics of Materials by Ferdinand Beer, Jr., E. Russell Johnston, John DeWolf, David Mazurek. (*any edition is OK*)
or Mechanics of Materials (9th Edition), by Russell C. Hibbeler.

Course Outline: Read the sections indicated below from the course text book (TB) Mechanics of Materials by Beer & Johnston (7th Edition) before each lecture and solve the assigned problems.

Homework Assignments: Homework assignment will be posted every Tuesday and solutions the following week. Completion of these assignments is your own responsibility. The practice they give you is essential for you to learn and absorb the course material – you will

certainly see the benefits at exam time.
Friendly advice: do no try to 'save time' by just looking over the solutions. This does not work; the real payoff comes from the struggle to understand. Flying on a plane flown by a pilot who has read all the instructions but who has never previously handled the controls is not a good idea.

Class website: The class website is available in **connect**. Content coverage will depend on the class.