

**SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY**

**SAULT STE. MARIE, ONTARIO**



Sault College

**COURSE OUTLINE**

**COURSE TITLE:** *APPLIED MECHANICS – STATICS*

**CODE NO. :** *MCH 100*                      **SEMESTER:** *TWO*

**PROGRAM:** *CIVIL, ARCHITECTURAL & CONSTRUCTION  
TECHNICIAN*

**AUTHOR:** *Bob Hamel*

**DATE:** *January 2008*                      **PREVIOUS OUTLINE  
DATED:** *January 2007*

**APPROVED:**

	_____	_____
	<b>CHAIR</b>	<b>DATE</b>

**TOTAL CREDITS:** *4*

**PREREQUISITE(S):** *PHY 100*

**LENGTH OF  
COURSE:** *4 hours per  
week*

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*For additional information, please contact Corey Meunier, Chair  
The School of the Natural Environment, Technology and Skilled Trades  
(705) 759-2554, Ext.2610*

**I COURSE DESCRIPTION:**

The objective of this course is to introduce the student to a number of fundamental concepts of statics which should prove useful to the civil, architectural and construction technician student.

Every effort will be made not to dwell on the theory of these concepts but, to instead, stress practical applications through the extensive use of problem solving.

The topics to be covered will include, but may not be limited to the following: a review of the mathematics of mechanics; force systems; moments and torques; non-concurrent – coplanar forces (trusses); concurrent, non-coplanar forces; static and kinetic friction; centre of gravity and centroids.

**II TOPICS:****I MATHEMATICS OF MECHANICS**

Mathematics of Mechanics  
Conversions of Units

**II Fundamentals of Statics**

Newton's Laws  
Forces  
Vector Addition  
Moment of a Force and Couple

**III EQUILIBRIUM OF FORCES IN TWO DIMENSIONS**

The Three Conditions of Equilibrium  
Various Applications

**IV Analysis of Selected Determinate Structural Systems**

Planar Trusses.  
Pinned Frames With Multi-Force Members  
Flexible Cables With Concentrated Loads  
Retaining Walls

**V THE LAWS OF FRICTION**

the force of friction  
Coefficients of Static and Kinetic Friction  
Impending Motion  
Sliding versus Tipping Motion

**III EVALUATION PROCESS/GRADING SYSTEM:**

Your final grade in MCH100 will be determined on the basis of four tests to be administered during the semester. Each test will examine your knowledge of a number of topics and will be administered within one week of completing those topics.

The topics covered in each of the four tests are as follows:

Test #1 -----	Topics Number I & II	15%
Test #2 -----	Topic Number III	15%
Test #3 ----	Topic Number IV	15%
Test #4 ----	Topic Number V	15%
Assignments: 4		24%
Quizzes: 8		16%

Each of the four tests is worth 15% of your final grade. Each assignment will be worth 6%, and quizzes will be counted at 2% each. In order to obtain your letter grade the percentage-letter grade equivalents shown on page 4 will be used. If your final average is below 50%, or if you have received a failing grade in one or more of the unit tests, whether you receive an 'X' (Incomplete) or an 'F' (Fail) grade is entirely at the professor's discretion. The decision will be based upon your final average (e.g. 32% would result in an 'F' grade while 48% might result in an 'X' grade); your attendance during the semester; your attitude while in the classroom; your perceived level of effort during the semester; etc..

In any case, should you find yourself with an 'X' grade at the end of the semester, in order to upgrade your mark to a passing grade you will be required to write a "make-up" examination covering the entire course content. Should you receive a passing grade on the make-up exam (50% or higher) your X grade will be upgraded. The best you can do after having received an X grade as a result of a failing average is a 'C'! If you were required to write the make-up examination as a result of having failed or missed one test you may substitute the exam result for this test result.

Prior to administering any test you will be notified a full week in advance. Should you, for any reason (within reason of course), not be able to be in attendance on a day for which the test has been scheduled it is your responsibility to notify the professor prior to the test! If your reasons are acceptable, a date will be set during which you may write a substitute test for the one you have missed.

## IV REQUIRED RESOURCES/TEXTS/MATERIALS:

Onouye, Barry, ***STATICS AND STRENGTH OF MATERIALS, Foundations For Structural Design.*** Pearson-Prentice Hall. Toronto. 1988. ISBN 0-13-111837-4

The following *end of semester grades* will be assigned to students in postsecondary courses:

<b>Grade</b>	<b>Definition</b>	<i>Grade Point Equivalent</i>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.	
NR	Grade not reported to Registrar's office.	
W	Student has withdrawn from the course without academic penalty.	

**V SPECIAL NOTES:****Special Needs:**

If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Special Needs office. Visit Room E1101 or call Extension 493 so that support services can be arranged for you.

**Retention of Course Outlines:**

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

**Plagiarism:**

Students should refer to the definition of “academic dishonesty” in *Student Rights and Responsibilities*. Students who engage in “academic dishonesty” will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

**Course Outline Amendments:**

The course outline as detailed on pages 2 to 8 and *summarized* on page 9 lists the subtopics to be covered under each of the eight main topic headings. Some topics may be deleted from the outline or given only cursory coverage at the discretion of the course professor and/or others may be introduced. In other words, *the professor reserves the right to modify the course as he/she deems necessary depending on the needs of the student and the availability of resources.* This creates the possibility for some latitude in the grading scheme as detailed on page 10.

Substitute course information is available in the Registrar's office.

**VI PRIOR LEARNING ASSESSMENT:**

Students who wish to apply for advanced credit in the course should consult with the professor. Credit for prior learning will be given upon successful completion of the following:

- 1) A discussion with the professor will determine if the course that the student has previously taken at another *post secondary institution* is sufficiently close in content to warrant consideration.
- 2) Given that step (1) above is granted, the student will need to bring to the professor an **official** *course outline* for the course in question to verify step (1). See **VIII Direct Credit Transfers** below.
- 3) The student will be required to have available in the Registrar's office an **official** *transcript* from the *post secondary institution* in question. This transcript will contain the final grade of the course which is being presented to obtain a credit for this course in statics. See **VIII Direct Credit Transfers** below.
- 4) Given that the student has obtained at least a 'B' *standing* in the course in question, a credit for MCH 100 will be granted.

**VII DIRECT CREDIT TRANSFERS:**

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide an official transcript (**not a photocopy**) and an official course outline (**not a photocopy**) related to the course in question.