

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: APPLIED MECHANICS (STATICS)

Code No.: MCH 100-3

Program: _____

Semester: One

Date: June 12, 1987

Author: G. MacLean

New: _____ Revision: XX

APPROVED: *G.P. Chazotte*
Chairperson

87-08-18
Date

Course Name

Course Number**PHILOSOPHY/GOALS**

The general objective of this course is to introduce the student to some fundamental concepts of Applied Mechanics.

It will provide practice in understanding and solving typical problems that are associated with the operation of mechanical devices. It will also provide logical explanations for observations made every day in our technically oriented society.

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

GRADE REQUIREMENTS

The student grade will be established by averaging four tests. The tests will be weighed equally and will be written shortly after completion of the indicated topics.

TEST #1 -- TOPIC II & III
TEST #2 -- TOPIC IV & V
TEST #3 -- TOPIC VI & VII
TEST #4 -- TOPIC VII

In reporting the letter grade, the following equivalents will be used.

A = 85 - 100%
B = 70 - 84%
C = 55 - 69%
R = BELOW 55%

If the final average grade is 40% to 54% and the student's attendance has been satisfactory, an opportunity will be given to write a final exam covering all topics. The best grade possible in this case would be a "C".

"Satisfactory attendance" will be defined as attending at least 38 of the allotted 45 hours of class time.

A minimum of three days notice will be given for all tests. It is expected that all students will be present for all tests. Evidence of special circumstances will be required before a special test will be scheduled. Tests not written will be recorded as zero marks.

COURSE OUTLINE

TOPIC NO.	PERIODS (approx.)	TOPIC DESCRIPTION
I	1	INTRODUCTION - discussion of course outline, general objectives, evaluation methods, attendance requirements - definition of " statics " and " dynamics "
II	6	SOLUTION OF RIGHT AND OBLIQUE TRIANGLES - trigonometric functions - theorem of pythagoras - cosine law - sine law - conversion of units
III	6	FORCE SYSTEMS IN EQUALIBRIUM - vectors - components and resultants - moments - couples - beam reactions
IV	3	CENTER OF GRAVITY - determination of location of the C. of G. - determination of location of the centroid
V	6	EQUILIBRIUM OF TWO DIMENSIONAL SYSTEMS - collinear, concurrent, and parallel forces acting on a body in equilibrium
VI	9	ANAYLSIS OF STRUCTURES - tension and compression members - members carrying no load - analysis of trussess - analysis of frames

VII	3	LIQUID PRESSURE
		- buoyancy
		- forces on a submerged surface
		- transmission of fluid pressure
		- mechanical advantage
VIII	12	FRICTION
		- laws affecting frictional force
		- coefficients of static and kinetic friction
		- mechanical advantage
		- problems concerning simple machines -- involving wedges, screw threads, belts, disk friction, and rolling resistance

Each section will be followed by a series of problems used to reinforce the subject matter. These problems will be selected, as much as possible, to relate to the student's chosen field of specialty.

Periods shown include class discussion, problem solving, and testing.