SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: Applied Mechanics

CODE NO.:   MCH 100

PROGRAM: Civil Engineering Technology

SEMESTER: I

AUTHOR: S. Ienco

DATE: June 1990

NEW: _____   REVISION: ___x___

APPROVED: _____   __90/06/25__
          CHAIRPERSON   DATE

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Total Credit Hours 48

Prerequisite (s)   None

I.   PHILOSOPHY/GOALS:

The objective of this course is to introduce the student to a
number of fundamental concepts of statics which will prove useful
to the civil engineering 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.

II.   STUDENT PERFORMANCE OBJECTIVES:

1.   Solve problems using trigonometric functions.

2.   Solve problems involving the manipulation of force vectors,
      resultant of a force, moment of a force and couples.

3.   Solve problems involving centroid and centre of gravity of
      simple cross-sectional areas, built-up sections, two-
      dimensional figures and three-dimensional figures.

4.   Solve problems using a free body diagram sketch and the
      equations of equilibrium.

5.   Analyze trusses by graphical method, evaluation of joints
      and isolation of sections.

6.   Solve problems using basic concepts of friction.

III. TOPICS TO BE COVERED:

1.   Mathematics of Mechanics.

2.   Force Systems.

3.   Centre of Gravity.

4.   Equilibrium.

5.   Force Analysis of Structures.

6.   Friction.

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IV.   TOPIC DESCRIPTION

TOPIC NO.	TOPIC DESCRIPTION	REFERENCE

1.   Introduction   Chapter 1

            - Discussion of Course Outline,
              General Objectives, Evaluation
              Methods, Attendance Requirements
            - Definition of Statics and Dynamics
            - Right Triangles
            - Trigonometric Functions
            - The Theorem of Pythagoras
            - The Cosine Law
            - The Conversion of Units

2.   Force Systems   Chapter 2

            - Forces
            - Scalar and Vector Quantities
            - Addition of Vectors
            - Subtraction of Vectors
            - Resultant of Force Systems
            - The Components of a Force
            - Moments of a Force
            - Couples
            - Beam Reactions

3.   Centre of Gravity   Chapter 3

            - Determination of the Centre of Gravity
            - Centroid
            - Centroid and Centres of Gravity of
              Two-Dimensional Figures and Three-
              Dimensional Solids

4.   Equilibrium of Two-Dimensional Systems
                                                       Chapter 4
            - Collinear Force Systems
            - Concurrent Force Systems
            - Parallel Force Systems

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IV. TOPIC DESCRIPTION

TOPIC NO.	TOPIC DESCRIPTION	REFERENCE
5.	**Force Analysis of Structures**	Chapter 5
	- Simple Trusses - Tension and Compression Members - Members that Carry no Load - Analysis of Trusses - Analysis of Frames	
6.	**Friction**	Chapter 6
	- The Laws of Friction - Coefficients of Static and Kinetic Friction - Problems Involving Simple Machines; Wedges Screw Threads, Belts, Disc Friction	

V. REQUIRED STUDENT RESOURCES (including textbooks and workbooks)

INTRODUCTION TO MECHANICS
Latest Edition
Levinson
Prentice Hall

VI. METHOD OF EVALUATION

A final grade will be derived from the results of three tests,
and quizzes weighed as follows:

Quizzes of equal weight	25%
Three tests each worth 25%	75%
TOTAL	100%

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The grading system used will be as follows:

A+	90% - 100%
A	80% - 89%
B	70% - 79%
C	55% - 69%
R	Repeat

1)   Minimum acceptable grade for this course is 55%.

2)   The in class quizzes will cover one problem that was dealt
     with during a lecture or assigned for homework. The quiz
     problem can be given at any time during class hours without
     advance notice; and the student is expected to solve the
     problem under examination conditions.

     The results of these quizzes, in addition to making up part
     of your overall grade, should be used by the student as a
     guide to check his/her progress in the course on a regular
     basis.

3)   Homework problems are assigned during lecture, inspected by
     the instructor during subsequent lecture, followed by a
     discussion and solution to selected problems.

4)   If at the end of the semester your overall average of the
     combined quizzes and three tests is below 55%, then it will
     be up to the instructor whether you receive an R repeat or a
     rewrite. The criteria employed for arriving at that decision
     is class attendance, class participation and overall grade,
     which should be a least 45%.

5)   In case a rewrite is granted, it will be permitted only once
     it will cover the entire course outline and will limit the
     maximum obtainable grade for the course to 60%.

6)   Attendance is an absolute must for success in this course.
     Unless you have some legitimate excuse for missing a
     lecture, I will expect 100% attendance.