SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title:	Applied Mechanics
Code No	MCH 230-3
Program	Mechanical Engineering Technician - Machining
Semester	Three
Date:	August 1986
Author:	G. Disano

New: XX Revision:

APPROVED:

Chairperson Date

Applied Mechanics MCH 230-3

Course Name **Course Number**

PHILOSOPHY/GOALS;

The objective of this course is to introduce the student to a number of fundamental concepts of applied mechanics which should prove useful to the machine shop technician students.

Every effort should be made by the instructor not to dwell on the theory of these concepts, but rather to stress their practical applications through problem solving.

METHODS OF ASSESSMENT (GRADING METHOD):

See attached sheet titled **GRADE REQUIREMENTS**

TEXTBOOK(S)

Introduction to Mechanics/ 2nd Edition
by Irving J* Levinson

OBJECTIVES:

GRADE REQUIREMENTS

MCH 230-3

APPLIED MECHANICS

(Mechanical Engineering Technician - Machining)

Your final grade in MCH 230 will be determined on the basis of four tests to be administered during the semester. Each test will examine your knowldge of a number of topics and will be administered within a week of completing those topics. The topics covered in each of the four tests are as follows:

Test # 1	Topic Number I
	Topic Number II
Test # 2	Topic Number III
	Topic Number IV
Test # 3	Topic Number V
	Topic Number VI
Test # 4	Topic Number VII
	Topic Number VIII

The four tests are of equal weight (i.e. each of the four tests is worth 25% of your final grade). As a result your final grade will simply be an average of your four test results. In order to obtain your letter grade the following percentage-letter grade equivalents will be used:

	76% - 100%
	66% - 75%
	55% - 65%
X or R :	0% - 54%

If your final average is below 55% whether you receive an X (Incomplete) or an R (Repeat) grade is entirely up to the instructor's discretion* The decision will be based upon your final average (i.e. 32% would result in an R grade while 50% 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 examination (55% or higher) your X grade will be upgraded to a C grade. The best you can do after receiving an X grade is a CM

Prior to administering any test, you will be notified a full week in advance. Should you for any reason not be able to be in attendance on a day for which a test has been scheduled it is your responsibility to notify the instructor 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.

G. Disano, August 1986

REFERENCE TEXT: INTRODUCTION TO MECHANICS, Second Edition

TOPIC NO.	**PERIODS**	**TOPIC** DESCRIPTION	REFERENCE
I		**TECHNICAL MEASUREMENT** - three systems of units - base quantities and base units - S.I. prefixes and their abbreviations - derived quantities and derived units - the divisions of mechanics: statics and dynamics - the mathematics of mechanics: review of trigonometry - the conversion of units	Chapter 1
II		**FORCES AND FORCE SYSTEMS** - scalar and vector quantities - force, a vector quantity - magnitude, direction and line of action - the addition of vectors - the subtraction of vectors - the resultant of two or more forces - moment of a force - couples	Chapter 2
III		**CENTRE OF GRAVITY** - determination of the centre of gravity - centre of gravity of grouped particles - centres of gravity of plane figures - centres of gravity of simple and composite solids - centroids	Chapter 3
IV		**FRICTION** - the force of friction - the coefficients of friction - the laws of friction	Chapter 6

TOPIC NO.	PERIODS	TOPIC DESCRIPTION	REFERENCE
V		**UNIFORMLY ACCELERATED MOTION** - types of motion - distance and displacement - speed and velocity - acceleration - uniformly accelerated motion - gravity and freely falling bodies - Newton's First Law of Motion - Newton's Second Law of Motion - Newton's Third Law of Motion - the relationship between mass and weight - normal acceleration	Chapter 9
VI		**WORK, ENERGY AND POWER** - the concept of work - energy - kinetic energy - potential energy - Law of Conservation of Energy - power	Chapter 12
VII		**ROTATIONAL MOTION** - circular motion - centripetal acceleration - centripetal force - angular displacement - angular velocity - angular acceleration - rotational work and power	Notes
VIII		**SIMPLE MACHINES** - simple machines - mechanical advantage - velocity ratio - efficiency - Law of a Machine - the lever - the inclined plane - the wheel and axle - the screw - pulley systems - gear trains - worm and wheel	Notes