SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ON

COURSE OUTLINE

COURSE TITLE: Mathematics II

CODE NO: MTH 259-3   **SEMESTER:** Three

PROGRAM: Mechanical Engineering Technician - Machining

AUTHOR: John Giguere

DATE: July 1997   **PREVIOUS OUTLINE DATED:** July 1996

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TOTAL CREDITS:

PREREQUISITES: MTH 153-3

SUBSTITUTE(S): MTH 126, MTH 142, MTH 220, MTH 221

LENGTH OF COURSE: **TOTAL CREDIT HOURS:** 48

I. COURSE DESCRIPTION:

The objectives of this course are to introduce the student to a number of fundamental concepts which include measurement within the different systems and linking with precision and accuracy. The application of different areas of mathematics in the machinist profession will be introduced. Topics will include algebra, geometry and trigonometry.

II. STUDENT PERFORMANCE OBJECTIVES:

The basic objectives are that the student develop an understanding of the methods studied, demonstrate a knowledge of the facts presented and show an ability to use these in the solution of problems. To accomplish these objectives, exercises are assigned. (Test questions will be of near equal difficulty to questions assigned in the exercises. The level of competency demanded is the level required to obtain an overall passing average on the tests.) The material to be covered is listed below.

III. TOPICS TO BE COVERED: Approximate Time Frame

1. Technical Measurement	5 periods
2. Algebra	20 periods
3. Plane and Solid Geometry	16 periods
4. Introduction to Trigonometry	12 periods

IV. LEARNING ACTIVITIES:

TOPIC NUMBER	TOPIC DESCRIPTION	REFERENCE CHAPTER ASSIGNMENTS
1.0	TECHNICAL MEASUREMENT	Calculator
1.1	Units of Measurement and the British Engineering System Measurement	Class notes
1.2	The "SI" Metric System	Chapter 2 pages 64-70 Class notes
1.3	Conversion Between the British and the Metric Systems	Pages 71-75
1.4	Approximate Numbers and Significant Digits	Pages 76-80
1.5	Arithmetic Operations with Approximate Numbers	Pages 81-89
2.0	ALGEBRA	
2.1	Signed Numbers	Chapter 3 pages 90-117
2.2	Introduction to Algebra	Chapter 4 pages 118-138
2.3	Simple Equations and Inequalities	Chapter 5 pages 139-176
2.4	Basic Algebraic Operations	Chapter 7 pages 209-236
2.5	Factoring	Chapter 8 pages 237-263
2.6	Algebraic Fractions	Chapter 9 pages 264 -301
2.7	Quadratic Equations	Chapter 11 pages 340-359
3.0	GEOMETRY	
3.1	Introduction to Geometry	Chapter 6 pages 177-208
3.2	Angles; Plane and Solid Geometry	Chapter 15 pages 466-514
4.0	TRIGONOMETRY	
4.1	Trigonometry of Right Triangles	Chapter 16 pages 515-542
4.2	Trigonometry With Any Angle	Chapter 17 pages 543-573

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V.   REQUIRED RESOURCES / TEXTS / MATERIALS:

1.   Text: Introduction to Technical Mathematics", Fourth Edition (or most current edition) by Washington, A.J. and Triola, M.F.

2.   Calculator: (Recommended) SHARP Scientific Calculator EL-531G. The use of some kinds of calculators may be restricted during tests.

VI.   EVALUATION PROCESS/GRADING SYSTEM:

MAJOR ASSIGNMENTS AND TESTS
While regular tests will normally be scheduled and announced beforehand, there may be an unannounced test on current work at any time. Such tests, at the discretion of the instructor, may be used for up to 30% of the overall mark.

At the discretion of the instructor, there may be a mid-term exam and there may be a final exam, each of which can contribute up to 30% of the overall mark.

The instructor will provide you with a list of test dates. Tests may be scheduled out of regular class time.

ATTENDANCE
It is your responsibility to attend all classes during the semester. Research indicates there is a high correlation between attendance and student success.

If you are absent from class, it is your responsibility to find out from your instructor what work was covered and assigned and to complete this work before the next class. Your absence indicates your acceptance of this responsibility.

Unexcused absence from a test may result in a mark of zero ("0"). Absence may be excused on compassionate grounds such as verified illness or bereavement. On return from an excused absence, you should ask your instructor to schedule the writing of a make-up test. Failure to do so will be considered as an unexcused absence.

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VI. EVALUATION PROCESS/GRADING SYSTEM (Continued):

METHOD OF ASSESSMENT (GRADING METHOD)

A+	Consistently outstanding	(90%-100%)
A	Outstanding Achievement	(80% - 89%)
B	Consistently above average achievement	(70% - 79%)
C	Satisfactory or acceptable achievement in all areas subject to assessment	(55% - 69%)
X or R	A temporary grade, limited to situations with extenuating circumstances, giving a student additional time to complete course requirements **(See below)**	(45% - 54%)
R	Repeat - The student has not achieved the objectives of the course, and the course must be repeated	(0% - 44%)
CR	Credit exemption	

The method of calculating your weighted average will be defined by your instructor. Since grades are based upon averages, it follows that good marks in some tests can compensate for a failing mark in another test.

Make-Up Test (if applicable)
An "X" grade may be assigned at the end of the regular semester if you have met **_ALL_** of the following criteria:

- an overall average between 45% and 54% was achieved
- at least 50% of the tests were passed
- at least 80% of the scheduled classes were attended
- all of the topic tests were written

If you are assigned an "X" grade, you may convert it to a "C" grade by writing a make-up test on topics agreed to by the instructor. This test will be available at the time agreed to by your instructor.

At the end of the regular term, it is your responsibility to obtain your results from your instructor and, in the event of an "X" grade, to inquire when the make-up test will be available.

The score you receive on this make-up test will replace your original test score and be used to re-calculate your weighted average. If the re-calculated average is 55% or greater, a "C" grade will be assigned. If the re-calculated average is 54% or less, an "R" grade will be assigned.

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VI. EVALUATION PROCESS/GRADING SYSTEM (Continued):

"R" and "X" Grades at the end of the Semester
If an "X" grade is not cleared by the specified date, it will become an "R" grade.
Except for extenuating circumstances, an "X" grade in Math will not be carried into
the next semester.

"R" Grades during the Semester
A student with **a** failing grade and poor attendance (less than 80% attendance)
may be given an "R" at any time during the semester.

VII. SPECIAL NOTES:

Students with special needs (e.g. physical limitations, visual impairments, hearing
impairments, learning disabilities), are encouraged to discuss required
accommodations with the professor and/or contact the Special Needs Office.

Advanced Standing
Students who have completed an equivalent post-secondary course must bring
relevant documents to the Coordinator, Mathematics Department:

- a copy of course outline
- a copy of the transcript verifying successful completion of the equivalent course

Note: A copy of the transcript must be on file in the Registrar's Office.

VIII. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the
instructor or the Prior Learning Assessment Office (E2203).