

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

COURSE OUTLINE

COURSE TITLE: TECHNICAL MATHEMATICS

CODE NO: MTH 200-4 SEMESTER: III

PROGRAM: COMPUTER ENGINEERING. ELECTRICAL, ELECTRONIC, CIVIL,
ARCHITECTURAL AND MECHANICAL TECHNICIAN

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DATE: APRIL 1993 PREVIOUS OUTLINE DATED: JUNE 1992

APPROVED: 
DEAN, SCHOOL OF SCIENCES *ic*
NATURAL RESOURCES

DATE  ^ / ^ ^

MATHEMATICS

MTH 200-4

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TOTAL CREDIT HOURS: 45

PREREQUISITES): MTH 128-4, MTH 220-5 or MTH 426-4

I. PHILOSOPHY/GOALS: This mathematics course for technicians begins with a brief review of algebra. An in-depth study of solid mensuration involving composite shapes is followed by analytic geometry of the straight line and conic sections. The course concludes with an introduction to statistics.

II. STUDENT PERFORMANCE OBJECTIVES:

Upon successful completion of this course the student will be able to:

1. Calculate distances, areas and volumes of solid figures and calculate various weights and costs of composite shapes.
2. Understand and use algebra techniques and graphs to study straight lines and the conic sections.
3. Understand and apply statistical descriptive measures of central tendency and variation.
4. Use analytic geometry and various algebraic processes to find a linear or non-linear empirical equation from laboratory raw data.

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 on the following page.

MATHEMATICS

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III. TOPICS TO BE COVERED:

Approximate Time Frames
(Optional)

- | | |
|-----------------------------------------------------------|----------|
| 1. Algebra Review | 3 hours |
| 2. Solid Mensuration | 15 hours |
| 3. Analytic Geometry of straight lines and conic sections | 12 hours |
| 4. Statistics | 15 hours |

IV. LEARNING ACTIVITIES
(optional)

REQUIRED RESOURCES

Topic No.	Periods		
		Algebra Review	
(1)		- linear equations - literal equations - exponents	pages 38-41, Ex.1-11, 1-36 pages 41-44 , Ex 1-12, 1-36 pages 19-20, Ex 1-5, 1-56
(2)	15	Solid Mensuration	
		- units of measurement	Appendix B pages A-4 to A-16, Ex. B-1, 1-35 Ex. B-2, 1-36 Ex. B-3, 1-23
		- composite distances - composite areas - composite volumes - weights, cost estimates	Appendix C pages A-18 to A-25, Ex. C-1, 1-79 Teacher provided handout sheets
(3)	12	Analytic Geometry	
		- straight line - circle, parabola, ellipse, hyperbola	pages 564-569 Ex. 20-2, 1-40 pages 571-600 Ex. 20-3, 1-35 Ex. 20-4, 1-29 Ex. 20-5, 1-31 Ex. 20-6, 1-31 Ex. 20-7, 1-31 Ex. 20-8, 1-28
(4)	15	Statistics	
		- frequency distributions	pages 614-618 Ex. 21-1, 1-23
		- measures of central tendency	pages 618-622 Ex. 21-2, 1-32
		- standard deviation	pages 623-628 omit formula 21-5 Ex. 21-3, 1-24
		- fitting a Straight Line to a Set of Points	pages 628-634 Ex. 21-4, 1-11 <i>oái</i>
		- non linear empirical equations	Teacher provided handout sheets

MATHEMATICS

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COURSE NUMBER

V. EVALUATION METHODS:

The students will be assessed by written tests, including major periodic tests based upon large blocks of the subject matter and some unannounced short quizzes on current work, the latter being given at the discretion of the Instructor. A final test on the whole course may also be included. A letter grade will be based upon a student's average of all his test results. See also the mathematics department's annual publication *Mathematics Department Evaluation Guidelines* for further details. This publication is made available to the students early in each academic year.

GRADING:	A+	=	90 - 100%
	A		80 - 89%
	B		65 - 79%
	C		55 - 64%
	1, X or R	=	less than 55%

VI. REQUIRED STUDENT RESOURCES;

Washington, *Basic Technical Mathematics with Calculus*, 5th edition, Benjamin Cummings (Metric Version).

Suggested electronic calculator: SHARP EL-531G

VII. SPECIAL NOTES:

Students with special needs (e.g. physical limitations, visual impairments, hearing impairments, learning disabilities) are encouraged to discuss required accommodations confidentially with the instructor.

Your instructor reserves the right to modify the course as he/she deems necessary to meet the needs of students.