SAULT COLLEGE OF APPLIED ARTS &. TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: MATHEMATICS

CODE NO.: MTH120-4 **SEMESTER:** 4 HRS/WK

PROGRAMS: NVIROMMEMTAL ENG./PULP & PAPER/WATER RESOURCES

WrHOR: MATHEMATICS DEPARTMENT

DATE: JUNE 1996 **PREVIOUS OUTLINE DATED:** AUGUST 1995

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

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TOTAL CREDIT HOURS: 68

PREREQUISITE: None

SUBSTITUTE: MTH 119, MTH 142

I.   PHILOSOPHY/GOALS

This course consists of an introduction to technical calculations, and a review of plane geometry, basic trigonometry and mensuration, that will give the successful student an ability to work with plane and/or solid shapes and right triangle trigonometry. An ability to calculate distances, areas and volumes of standard shr.oes and basic algebraic formulae is the primary goal. The course concludes with a review oi secondary school algebra.

1!   STUDE?JT 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. The material to be covered is listed below and on the following page:

III.   TOPICS TO BE COVERED: TIME FRAME:

(1)   Principles of geometry, Pythagorean
theorem, vocabulary and simple
formulae of various shapes.   6 hrs.

(2)   Basic trigonometry, including angles,
trig, functions, right triangles, use
of calculator and applied problems.   7 hrs.

(3)   Mensuration of basic standard shapes
(distances, areas and volumes) using
their straight forward standard
formulae   16 hrs.

111. TOPICS TO BE COVERED: (Cont'd)   **TIME FRAME:**

(4) Algebra review, fundamental operations,
     vocabulary, exponents, radicals, add,
     subtract, multiply and divide expressions,
     simple equations and applications, special
     products, factoring, L.C.D., operations on
     algebraic fractions, fractional equations
     and formula manipulation   26 hrs.

(5) Mensuration as above where formula
     rearranging is required   8 hrs.

IV. LEARNING ACTIVITIES: **REQUIRED RESOURCES:**
                                                  (REFERENCES)

TOPIC   NO. OF
          PERIODS   TOPIC DESCRIPTION   REFERENCES

               GEOMETRY PRINCIPLES   Chp. 2
               .Pythagorean Theorem   Ex. 2.1 pg. 51-52
               .Vocabulary of Geometry   Ex. 2.2 pg. 57-58
               .Simple basic shapes & related
                formulae

               BASIC TRIGONOMETRY   Chapter 4
               .Angles   Ex. 4.1 Odds pg. 107
               .Trig. Functions Defined   Ex. 4.2 Some Odds
                                                      pg. I11
               .Right Triangles   Ex. 4.3 Odds pg. 115
               .Applications   Ex. 4.4 Odds pg. 119
               .Review   Ex. 4.5 Odds pg. 122
                                                   Review Ex. 4.6 Odds pg.
                                                   124

       16   MENSURATION OF BASIC STANDARD   Chapter 2
               SHAPES
               .Distances   Ex. 2.3 pg. 61
               .Areas   Ex. 2.4 pg. 64
               .Volumes   Ex. 2.6 pg. 70
               Using straight forward standard formulae   Review Ex. Pg- 72-74

                                                   Handout sheets by instructor

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IV. LEARNING ACTIVITIES: **REQUIRED RESOURCES:**
                                           (REFERENCES)

TOPIC NO.	NO. OF PERIODS	TOPIC DESCRIPTION	REFERENCES
4.	26	ALGEBRA REVIEW	Ch. 1 and Ch. 6
		.Numbers, Literal Symbols, Laws of	Ex. 1.1, 1.2, Odds
		Algebra, Zero	Ex. 1.4 Odds p. 21
			p. 5 &. 10
		.Exponents	Ex. 1.6 Odds p. 26
		.Scientific Notation, Roo~.i & Radicals	Ex. 1.5, Odds p. 23
		.Add/Subtract Algebraic Expressions	
			Ex. 1.7 Odds p. 30
		.Multiply Algebraic Expressions	Ex. 1.8 Odds p. 32
		.Divide Algebraic Expressions	Ex. 1.9 Odds p. 34
		.Simple Equations	Ex. 1.10 Odds p. 38
		.Literal Equations & Formulae	Ex. 1.11 Odds p. 41
		.Applied Verbal Problems/Review	Ex. 1.12 Odds p. 44
			Review Ex. Odels
			p. *6 a;; requireci
		.Special Products	
		.Factoring -	
		- Common Factor/Difference of Squares	Ex. 6.1 Odds p. 167
		- Trinomials	Ex. 6.2, 6.3
			p. 171 ,& 176
		.Equivalent Fractions	Ex. 6.5 Odds p. 181
		.Multiply/Divide Fractions	Ex. 6.6 Odds p. 184
		.Add/Subtract Fractions	Ex. 6.7 Odds p. 189
		.Equations with Fractions	Ex. 6.8 Odds p. 194
		.Review	
		.Handout Sheet of Various Formulae	
		MENSURATION OF DISTANCES, AREAS, VOLUMES where formula rearrangement is required	Instructor Handout and Text

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V.   EVALUATION METHODS:

The student's progress will be assessed by periodic written tests. The student's final grade is based upon an (weighted) average of the test results. ATTENDANCE AT ALL TESTS IS REQUIRED. Unexcused absence from a test will result in a mark of zero for that test. A student may be prevented from attending a test by illness or bereavement. Upon return to classes, the student must see the instructor at the end of the first mathematics class attended to arrange a time and place for a make up test. In addition, if the absence is due to illness the student must present a note from the student's doctor or from the College nurse.

If, at the end of the semester, a student has an average between 45% and 54%, the instructor will consider permitting the student to do make up work in hope of raising his/her standing to a passing level. If a student has not written all the topic tests, or if the student has attended fewer than 80% of the scheduled classes, or if the student has not done all of the assigned work during the semester, then the make up privilege will not be granted. At the discretion of the instructor a student who is granted the make up privilege may be required to write one topic test in hope of raising his/her average or he/she may be required to write an examination on the whole course. Such tests and examinations are not provided for the purpose of obtaining grades higher than "C".

   to circumstances beyond the control of the instructor, the time available for the student to prepare for the make up test or examination is usually so limited that the student has little opportunity to improve. Hence, the student should make diligent efforts to avoid any need for make up privileges.

Marks allotted to each question on a test are usually shown. Please enquire if they are not. The questions on a test do not necessarily have equal values.

AVERAGE	GRADE
90% to 100%	A +
80% to 89%	A
65% to 79%	B
55% to 65%	C
0% to 54%	R

 A passing grade will be based on a minimum average of 55%.

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VI. REQUIRED STUDENT RESOURCES:

TEXTBOOK(S):
1.   WASHINGTON - "BASIC TECHNICAL MATHEMATICS WITH CALCULUS", Sixth
      (Metric) Edition, Benjamin Cummings.

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

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.