

**SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE MARIE, ON**



COURSE OUTLINE

Course Title: Mathematics

Code No.: MTH 126-4

Semester: winter

Program: Forestry Technician

Author: John McGauley

Date: January 1998

Previous Outline Dated: June 1997

**Approved: Q ^ A t / ^ / L ^) & Q*~-- f t
V Dean ' & Date**

Total Credits: 4

Prerequisite(s): Mth 113-4

Substitutes: Mth 119, Mth 142, Mth 220, Mth 221

Total Credit Hours: 64

Copyright © 1997 The Sault College of Applied Arts & Technology
Reproduction of this document by any means, in whole or in part, without the prior written permission of The Sault College of Applied Arts & Technology is prohibited.
For additional information, please contact Judith Morris, School of Liberal Studies, Creative Arts and Access, (705) 759-2554, Ext. 516

I. COURSE DESCRIPTION:

When the student has successfully completed this course, he/she will have demonstrated an acceptable ability to pass tests based upon the course contents as listed elsewhere. If, after completing the course, the student takes further courses (or employment) in which he/she is required to apply this material, he/she should then, through practice, be able to develop a good command of this subject matter.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

A. Learning Outcomes and Elements of the Performance:

The basic objectives are that the student develop an understanding of the methods studied, a knowledge of the facts presented and an ability to use these in the solution of problems. To accomplish these objectives, exercises are assigned. Tests questions will reflect the sort of work contained in the assignments. 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 pages.

TOPICS:

Approximate Time Frame

1	Fractions, fractional equations and formulae	14hrs
2	Algebraic and graphical solution of systems of equations	12 hours
3	Ratio, proportion and variation	5 hours
4	Trigonometry	10 hours
5	Exponents, powers and roots, quadratic equations	7 hours

IV. REQUIRED RESOURCES:

1. Introductory Algebra and Trigonometry with Applications. Calter, Rogers
2. Calculator (Recommended) SHARP Scientific Calculator EL-531L. *The use of some kinds of calculators may be restricted during tests.*

V. LEARNING ACTIVITIES:

TOPIC NUMBER	TOPIC DESCRIPTION	REFERENCE CHAPTER ASSIGNMENTS
1.0	FRACTIONS, FRACTIONAL EQUATIONS, FORMULAE,	
1.1	Equivalent fractions	Ex. 17-1, pp. 350-351
1.2	Multiplication and division of fractions	Ex. 17-2, p. 355-356
1.3	Addition and subtraction of fractions	Ex. 17-3, pp. 362-363
1.4	Solving fractional equations	Ex. 18-1, p. 373
1.5	Literal equations and formulae	Ex. 18-2, p. 376
1.6	Applications	Ex. 18-3, pp. 380-381
1.7	Review exercises	pp. 382-383
2.0	ALGEBRAIC AND GRAPHICAL SOLUTION OF SYSTEMS OF EQUATIONS	
2.1	Solving systems of equations by graphing	Ex. 19-1, pp. 390-391
2.2	Solving systems of equations by addition or subtraction	Ex. 19-2, pp. 395-396
2.3	Solving systems of equations by comparison	Ex. 19-3, p. 398-399
2.4	Solving word problems by using systems of equations in two unknowns	Ex. 19-4, pp. 403-405
2.5	Solving systems of equations in three unknowns	Ex. 19-5, pp. 408-409
2.6	Review exercises	pp. 419-420
3.0	RATIO, PROPORTION AND VARIATION	
3.1	Write the ratio of numbers or quantities in simplest form	Ex. 26-1, p. 588
3.2	Solve a proportion for an unknown term	Ex. 26-2, pp. 593-595
3.3	Direct variation	Ex. 26-3, pp. 600-602
3.4	Joint, inverse and combined variations	Ex. 26-4, pp. 607-609
3.5	Review exercises	pp. 609-611
4.0	TRIGONOMETRY	
4.1	Sine, cosine and tangent functions	Ex. 15-1, p. 294
4.2	Inverse trigonometric functions	Ex. 15-2, p. 297
4.3	Solve right triangles	Ex. 15-3, pp. 302-303
4.4	Solve word problems by using trigonometry	Ex. 15-4, pp. 307-310
4.5	Find the functions of angles of any size	Ex. 22-1, pp. 492-493
4.6	Find an angle from a given function value	Ex. 22-2, pp. 499-500
4.7	The Sine Law	Ex. 22-3, pp. 505-506
4.8	The Cosine Law	Ex. 22-5, pp. 513-514
4.9	Review exercises	pp. 515-516

V. LEARNING ACTIVITIES (cont'd):

TOPIC NUMBER	TOPIC DESCRIPTION	REFERENCE CHAPTER ASSIGNMENTS
5.0	EXPONENTS, POWERS AND ROOTS, QUADRATIC EQUATIONS	
5.1	Multiplication and division Power of a product Power of a quotient Power of a power Zero exponent Negative exponent	Ex. 7-3, pp. 136-137
5.2	Roots of numbers Fractional exponents	Ex. 20-1, pp. 426-427
5.3	Scientific notation	Ex. 6-6, p. 118
5.4	Solving a pure quadratic equation	Ex. 21-1, pp. 456-458
5.5	Solving a quadratic equation by factoring	Ex. 21-2, p. 463
5.6	Solving a quadratic equation by use of the quadratic formula and completing a square	Ex. 21-3, p. 469
5.7	Solving word problems involving quadratic equations	Ex. 21-4, pp. 473-478
5.8	Review exercises	pp. 483-484

VI. EVALUATION PROCESS / GRADING SYSTEM:

MAJOR ASSIGNMENTS AND TESTING

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.

VI. EVALUATION PROCESS / GRADING SYSTEM (cont'd):

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.

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.

VI. EVALUATION PROCESS / GRADING SYSTEM (cont'd):

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.

"R" and "X" Grades at the end of 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.

VI. SPECIAL NOTES:

Special Needs

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.

VII. PRIOR LEARNING ASSESSMENT

Students who have related employment-centered experience should see the Prior Learning Assessment (PLA) Coordinator.