SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

Sault College

COURSE OUTLINE

COURSE TITLE: Applied Resource Calculations 1

CODE NO. :   MTH107-3   **SEMESTER:**   One

PROGRAM: Forestry, Fish and Wildlife,Parks and Recreation

AUTHOR: J. McGauley

DATE: **August 2007**   **PREVIOUS OUTLINE DATED:**   **August 2006**

APPROVED:

_____   _____
                                   DEAN   **DATE**

TOTAL CREDITS: 3

PREREQUISITE(S):   None

HOURS/WEEK: 3

I.   COURSE DESCRIPTION:
This course includes a review of fundamental algebraic processes,
estimation, reduction and conversion of units, practical applications in
plane and solid geometry, ratio, proportion and percent.

II.   LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate
the ability to:

1.   Determine the significant digits of a number.
        Approximate measurement calculations using accuracy and
        precision.
        Convert between the Metric, Imperial and the U.S. systems of
        measurement using dimensional analysis.

2.   • Determine the area and perimeter of a circle, a triangle, a
          quadrilateral, and a trapezoid.
        • Use the Pythagorean theorem to solve right angled triangles.

3.   Determine the surface area and volume of:
        • A rectangular prism
        • A triangular prism
        • A cylinder, cone, frustrum, sphere and pyramids.

4.   • Add,subtract, multiply and divide algebraic expressions
        • Solve linear equations
        • Add, subtract ,multiply and divide fractional algebraic
          expressions
        • Solve fractional equations.

5.   Factor, multiply and divide algebraic expressions.

6.   Solve worded problems involving ratio, proportion and variation.

7.   Convert decimals into fractions and percent and vice versa.

III.   TOPICS:

1.   Estimation, Dimensional Analysis, and the Metric, Imperial and U.S.

System of measurement.
2. Plane Geometry.
3. Solid Geometry.
4. Algebra review, products and factors.
5. Ratio, proportion, and variation.
6. Percent.

TOPIC NUMBER	TOPIC DESCRIPTION	ASSIGNMENTS	
1.0	**Estimation, Dimensional Analysis and Units Rounding**		
1.1	Approximate numbers and rounding off procedures	Ex:	3-1 3-2 3-3 3-4 3-5 3-6 3-7
1.2	Dimensional analysis for conversion between systems of measure and within systems	Ex.	4-1
1.3	The "SI" metric system and the British Engineering System	Ex.	4-2 4-3 4-4 Class notes
2.0	**Plane Geometry**		
2.1	Lines and angles	Ex.	13-1
2.2	Triangles		13-2 13-3
2.3	Quadrilaterals		13-4
2.4	Definition and theorems of the circle		13-5
2.5	Review		Review exercise
3.0	**Solid Mensuration**		
3.1	Prisms	Ex.	14-1
3.2	Cylinders		14-2
3.3	Pyramids and Cones		14-3
3.4	Frustum		14-3

3.5	Spheres		14-4
4.0	**Review of Elementary Algebra**		
4.1	Operations with signed numbers	Ex.	6-1 6-2 6-3 6-4 6-5
4.2	Introduction to Algebra: i) Adding and subtracting ii) Laws of exponents	Ex.	7-1 7-2 7-3
4.3	a) Multiplication of algebraic expressions including Special Products	Ex.	8-1 8-2 8-3 8-4 8-5 8-6
	b) Division of algebraic expressions	Ex.	9-1 9-2
4.4	Solutions and properties of linear equations	Ex.	10-1 10-2 10-3
4.5	Factoring	Ex.	16-1 16-2 16-3 16-4
4.6	Equivalent fractions	Ex.	17-1
4.7	Multiplication and division of fractions	Ex.	17-2
4.8	Addition and subtraction of fractions	Ex.	17-3
5.0	**Ratio, Proportion and Variation**		
5.1	Write the ratio of numbers or quantities in simplest form	Ex.	26-1
5.2	Solve a proportion for an unknown term	Ex.	26-2
5.3	Direct variation	Ex.	26-3
5.4	Joint, inverse and combined variations	Ex.	26-4
5.5	Review exercises		
6.0	**Percent**		
6.1	Converting to and from percent	Ex.	5-1
6.2	Solving percentage problems	Ex.	5-2
6.3	Percent change	Ex.	5-3

IV.   REQUIRED RESOURCES / TEXTS / MATERIALS :
1. **Foundations of Technical Mathematics, Canadian edition**, by Calter, Rogers.   2.
2. Calculator: (Recommended) SHARP Calculator EL-531. *The use of some kinds of calculators may be restricted during tests.*

V.   EVALUATION PROCESS/GRADING SYSTEM:
Test One :   Topic 1   (20%)
Test Two: Topics 2, 3   (30%)
Test Three: Topics 4   (30%)
Test Four: Topics 5, 6   (20%)
Final grade will be a weighted average of these three tests

The following semester grades will be assigned to students:

Grade	Definition	Grade Point Equivalent
A+	90 – 100%	4.00
A	80 – 89%	
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 – 59%	1.00
F (Fail)	49% and below	0.00

CR (Credit)	Credit for diploma requirements has been awarded.
S	Satisfactory achievement in field /clinical placement or non-graded subject area.
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR	Grade not reported to Registrar's office.
W	Student has withdrawn from the course without academic penalty.

VI.   SPECIAL NOTES:

Special Needs:
If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Special Needs office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

Retention of Course Outlines:
It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

Communication:
The College considers **WebCT/LMS** as the primary channel of communication for each course. Regularly checking this software platform is critical as it will keep you directly connected with faculty and current course information. Success in this course may be directly related to your willingness to take advantage of the **Learning Management System** communication tool.

Plagiarism:
Students should refer to the definition of "academic dishonesty" in *Student Code of Conduct*. Students who engage in academic dishonesty will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Course Outline Amendments:
The professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

VII.   PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

VIII. DIRECT CREDIT TRANSFERS:

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide a transcript and course outline related to the course in question.