SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

Sault College

COURSE OUTLINE

COURSE TITLE: ACE Business Core Mathematics

CODE NO. : MTH 94   **SEMESTER:** n/a

PROGRAM: Academic Upgrading

AUTHOR: Doug Cressman

DATE: May, 2006   **PREVIOUS OUTLINE DATED:** n/a

APPROVED:

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                        DEAN   **DATE**

TOTAL CREDITS:

PREREQUISITE(S): LBS 5 Mathematics or permission of Instructor

HOURS/WEEK: 5

ACE Business Core Math   MTH 94

I.   COURSE DESCRIPTION: This is a preparatory course for the ACE
        Business Mathematics. Topics include surface area and volume, basic
        geometry, proportional reasoning, linear (including piecewise linear) and
        quadratic functions. It is offered by Academic Upgrading faculty in a self-
        directed format. It is therefore possible but not assumed that the outcomes
        will be achieved within one semester.

II.   LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

        1.   Solve problems related to surface area and volume
              Potential Elements of the Performance:
                  •   Use formulas to find the area of simple and composite figures
                      and solids such as squares, rectangles, triangles,
                      parallelograms, trapezoids and circles
                  •   Use formulas to find the surface area and volume of prisms,
                      cylinders, cones, spheres and regular pyramids
                  •   Solve problems that involve surface areas and volumes of
                      composite solids
        2.   Apply geometric principles to problems involving angles, triangles,
              polygons, parallel lines and quadrilaterals.
              Potential Elements of the Performance:
                  •   Use basic geometric terminology
                  •   Use properties of angles, triangles, quadrilaterals and parallel
                      lines to solve geometric problems.
        3.   Use proportional reasoning to solve applied problems involving rates,
              ratio, percents, proportions, diagrams, tables and graphs.
              Potential Elements of the Performance:
                  •   Solve problems involving percent, ratio, rate and proportion
                  •   Solve proportional problems using diagrams, fractions, tables
                      and graphs
                  •   Solve problems derived from a variety of applications, using
                      proportional reasoning
        4.   Analyze linear functions both graphically and algebraically
              Potential Elements of the Performance:
                  •   Write, solve and verify linear equations in the form of either
                      direct or partial variation
                  •   Determine graphically a point of intersection of two relations
                  •   Solve a system of equations algebraically, using substitution or
                      elimination

5. Analyze situations that can be represented by piecewise linear graphs
    <u>Potential Elements of the Performance</u>:
    - Explain situations that would reasonably involve piecewise linear functions
    - Sketch a graph involving a piecewise linear function from a created table of values
    - Answer questions related to piecewise graphs by interpolation and extrapolation
6. Analyze quadratic functions and relationships
    <u>Potential Elements of the Performance</u>:
    - Compare linear and quadratic functions
    - Manipulate algebraic expressions that represent quadratic functions
    - Determine the relationships between the graphs and the equations of quadratic functions
    - Solve problems by interpreting the graphs of quadratic functions

III.   TOPICS:

1. Surface area and volume
2. Geometry
3. Proportional Reasoning
4. Linear Functions
5. Piecewise linear functions
6. Quadratic Functions

IV.   REQUIRED RESOURCES/TEXTS/MATERIALS:
<u>Foundations of Mathematics</u>, MFM1P-A Unit 3, Lessons 11-15. 2004, Independent Learning Centre. The Ontario Educational Communications Authority
<u>Mathematics</u>, MFM2P-A, Unit 1: Lessons 1-5, Unit 3: Lessons 12-15 and Unit 4: Lessons 16-20. 2004, Independent Learning Centre, The Ontario Educational Communications Authority

V.   EVALUATION PROCESS/GRADING SYSTEM:
A unit test will be given following the completion of each unit. Each test must be passed by a mark of 66% or greater. The final mark will be based on the average of these four tests. ACE-level courses require an average of 66% or greater for a passing grade. The following semester grades will be assigned to students upon completion:

As modified from the post-secondary programs.

Grade	Definition
A+	90 – 100%
A	80 – 89%
B	70 - 79%
C	60 – 66%
F	65% and below
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.

Plagiarism:
Students should refer to the definition of "academic dishonesty" in *Student Rights and Responsibilities.* 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.

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 demonstrating proof of same and at the discretion of the professor.