SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

SAULT COLLEGE

COURSE OUTLINE

COURSE TITLE: INTRODUCTION TO COMPUTERS AND AUTOCAD

CODE NO. : CAD100   **SEMESTER:** TWO

PROGRAM: CIVIL ENGINEERING TECHNICIAN
CONSTRUCTION CARPENTRY TECHNIQUES

AUTHOR: BARRY SPARROW

DATE:	JAN 2011	**PREVIOUS OUTLINE DATED:**	JAN 2010

APPROVED:

"Corey Meunier"
CHAIR   **DATE**

TOTAL CREDITS: 4

PREREQUISITE(S): N/A

HOURS/WEEK: 4

I.   COURSE DESCRIPTION:

This course is intended to introduce to the student to the use of AutoCAD software in the preparation, editing and plotting of engineering drawings. The student will also be able to setup CAD drawings using standards for layers, text, and line weight. The student will become familiar with basic drawing and editing procedures, as well as file management and organization.

II.   LEARNING OUTCOMES:

1.   Prepare and interpret detailed dimensional drawings using computer assisted drafting software.

2.   Demonstrate relevant mathematical, computer and technical problem solving skills as it relates to civil engineering/construction projects.

III.   REQUIRED RESOURCES/TEXTS/MATERIALS:

Introduction to AutoCAD 2010 – A Modern Perspective
Paul Richard and Jim Fitzgerald
Pearson/Prentice Hall
Autodesk Design Institute Press
ISBN 9780135071595

1 GB or similar size USB storage device for drawing backup

IV.   EVALUATION PROCESS/GRADING SYSTEM:

Assignments and Activities (4-6)	50%
Chapter Quizzes	10%
Mid-term Test	20%
Final Test	20%
Total	100%

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W   Student has withdrawn from the course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.

V.   SPECIAL NOTES:

Attendance:
Sault College is committed to student success. There is a direct
correlation between academic performance and class attendance;
therefore, for the benefit of all its constituents, all students are encouraged
to attend all of their scheduled learning and evaluation sessions. This
implies arriving on time and remaining for the duration of the scheduled
session.

Assignments and Examination Policy:
If a student is unable to write a test or exam at the scheduled time the
following procedure shall apply:
- The student shall provide the professor with advance notice (in
  writing) of the need to miss the test
- The student shall provide documentation as to the reason for the
  absence and the make-up will be at the discretion of the professor.
- Upon return the student is responsible to make arrangements for
  the writing of the test. This arrangement shall be made prior to the
  next schedule class.
- In the event of an emergency, the student shall telephone the
  professor as soon as possible at 759-2554, to notify of the absence.
  If the professor is not available, the college has a 24 hour voice mail
  system.
- In the event of a test missed due to emergency, the student shall
  provide documentation from a professional such as doctor or
  lawyer.

*All late assignments (without documentation) will receive a maximum
grade of C (60%). Assignments more than one week late will receive a
grade of zero if no supporting documentation is provided.*

VI. TOPIC OUTLINE

Outcome	Topic and Content	Reading	Week
1,2	**1. Introduction to AutoCAD** **1.1.** CAD uses and benefits **1.2.** Understand fundamental CAD concepts **1.3.** Start AutoCAD **1.4.** AutoCAD user interface **1.5.** AutoCAD data input methods **1.6.** Display and manipulate multiple AutoCAD drawings simultaneously **1.7.** Maximize AutoCAD's online Help System **1.8.** Online Learning Resource **1.9.** Chapter 1 Quiz	LMS Chapter 1	1
1,2	**2. Getting Started with AutoCAD** **2.1.** Create a New Drawing/Templates **2.2.** Saving files/precautions **2.3.** Model and Layout Space **2.4.** Drawing basic AutoCAD objects **2.5.** Using Snaps, Ortho and Tracking tools **2.6.** Object Properties and Layers **2.7.** Adding elementary dimensions **2.8.** Plotting **2.9.** Chapter 2 Quiz	Chapter 2 Handout LMS	1,2
1,2	**3. Drawing Display** **3.1.** Use of Zoom and Pan commands **3.2.** Create and save named views **3.3.** Tiled (Model Space) viewports **3.4.** Redraw and Regenerate commands **3.5.** Toolbars and Palettes **3.6.** View resolution **3.7.** Chapter 3 Quiz	Chapter 3 LMS Handout	2,3
1,2	**4. Basic Drawing Commands** **4.1.** Setup a new drawing (limits, units) **4.2.** Create lines, circles and arcs **4.3.** Create ellipses and elliptical arcs **4.4.** Create points and adjust point display (pdmode) **4.5.** Use the Divide and Measure commands **4.6.** Chapter 4 Quiz	Chapter 4 LMS Handout	3,4

1,2	**5. Drawing Tools and Drafting Settings**	Chapter 5 LMS	4,5

5.1. Use Grid and Snap
5.2. Use Ortho Mode and Polar Tracking
5.3. Understand and use Object Snap
5.4. Use Object Snap tracking
5.5. Control Dynamic Input settings
5.6. Create Construction lines and Rays
5.7. Chapter 5 Quiz

1,2	**6. Manage Object Properties**	Chapter 6 LMS	6

6.1. Understand the use of layers in CAD
6.2. Create layers using Layer Manager
6.3. Load linetypes and assign to layers
6.4. Modify the properties of drawing entities
6.5. Use Design Centre to import layer structure
6.6. Create and use layer filters and groups
6.7. Chapter 6 Quiz

	7. Mid-term Test	LMS	7

7.1. Multiple Choice/True False Questions
7.2. Practical Drawing Exercise

1,2	**8. Basic Editing Techniques**	Chapter 7 LMS	8

8.1. Use the Erase command
8.2. Understand noun/verb and verb/noun editing
8.3. Use Window and Crossing for object selection
8.4. Use the Copy, Move and Mirror commands
8.5. Use the Rotate command
8.6. Modify objects using the Scale and Stretch commands
8.7. Edit objects using grips
8.8. Chapter 7 Quiz

1,2	**9. Advanced Editing Techniques**	Chapter 8 LMS	9

9.1. Create parallel copies using Offset
9.2. Create polar and rectangular Arrays
9.3. Use the Trim and Extend commands
9.4. Use the Fillet and Chamfer commands
9.5. Edit entities using Break and Join
9.6. Edit lines using the Lengthen command
9.7. Chapter 8 Quiz

1,2	**10. Drawing and Editing Complex Objects**	Chapter 9 LMS	10

10.1. Draw Polylines and Polyline arcs
10.2. Create Rectangles and Polygons
10.3. Draw Donuts and Revision Clouds
10.4. Edit polyline objects
10.5. Use the Explode command
10.6. Chapter 9 Quiz

1,2	**11. Fills and Hatching**	Chapter 10 LMS	11

    11.1. Create a Hatch boundary
    11.2. Select and create Hatch objects
    11.3. Edit and match existing Hatch patterns
    11.4. Create solid and gradient fills
    11.5. Chapter 10 Quiz

1,2	**12. Adding Text, Mtext and Tables**	Chapter 11 Chapter 12 LMS	12

    12.1. Create text styles
    12.2. Create and edit Multiline text (Mtext)
    12.3. Create and edit Single line text (Dtext)
    12.4. Insert text Fields
    12.5. Find and replace text in a CAD drawing
    12.6. Use AutoCAD spell check for a drawing
    12.7. Create simple AutoCAD tables
    12.8. Insert formulas into a table
    12.9. Link spreadsheets and text from MS Office to AutoCAD
    12.10. Chapter 11 and 12 Quiz

1,2	**13. Dimensioning Drawings**	Chapter 13 LMS	13,14

    13.1. Create dimension styles
    13.2. Apply different dimension types to drawings
    13.3. Understand dimension associativity
    13.4. Update and match Dimension styles
    13.5. Create and apply Leaders to drawings
    13.6. Use Design Centre to import Dimension styles
    13.7. Chapter 13 Quiz

1,2	**14. Paper Space, Layouts and Plotting**	Chapter 14 Chapter 15 LMS	15

    14.1. Understand the use of Paper Space
    14.2. Use the Page Setup Manager
    14.3. Create Layout Viewports and set Scale
    14.4. Lock Viewport display
    14.5. Control Viewport layer visibility
    14.6. Plot drawings from Layout (Paper) Space
    14.7. Edit and control line weights using plot color table
    14.8. Create paper and PDF plots
    14.9. Chapter 14 and 15 Quiz

	15. Final Test		16

    15.1. Practical Drawing Exercise

VII. COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the portal form part of this course outline.