SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

SAULT COLLEGE

CICE COURSE OUTLINE

COURSE TITLE: Introduction to Computers and AutoCAD

CODE NO. : CAD100   **SEMESTER:** Winter
MODIFIED CODE: CAD0100

PROGRAM: Civil Engineering Technician
Construction Carpentry Techniques
Home Inspection Technician
AUTHOR: Barry Sparrow
MODIFIED BY: Paula Naylor, Learning Specialist CICE Program

DATE: Jan 2017   **PREVIOUS OUTLINE DATED:** 2016

APPROVED: "Martha Irwin"   Jan 2017

                               CHAIR   **DATE**

TOTAL CREDITS: Four

PREREQUISITE(S): None

HOURS/WEEK: Four

I.   COURSE DESCRIPTION:

This course is intended to introduce to the CICE 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. The CICE student will be graded on the assigned drawings that will be submitted in place of the chapter quizzes.

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:

1 GB or larger USB storage device for drawing backup

IV.   EVALUATION PROCESS/GRADING SYSTEM:

Assignments and Activities (4-6)		**60%**
Mid-term Test (modified)		**20%**
Final Test (modified)		**20%**
Total	**100%**	

Modified tests will be completed in the CICE Office with the learning specialist present.

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W   Student has withdrawn from the course without academic penalty.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. Late arrivers may not be granted admission to the room.

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.
•   The student shall write both the mid-term and final exams to be eligible to pass the course.

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.

VII.   COURSE OUTLINE ADDENDUM:

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

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   LMS
**   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   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   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   3,4

1,2   5.   Drawing Tools and Drafting Settings

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
        4,5**

1,2   6.   Manage Object Properties

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.   Mid-term Test

7.1.   Multiple Choice/True False Questions
**7.2.   Practical Drawing Exercise   LMS
        7**

1,2   8.   Basic Editing Techniques
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

1,2   9.   Advanced Editing Techniques

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   LMS**
      9

1,2   **10.**   **Drawing and Editing Complex Objects**

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   Chapter 9**
LMS

      10

1,2   **11.**   **Fills and Hatching**

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**

1,2   **12.**   **Adding Text, Mtext and Tables**

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

1,2   **13.**   **Dimensioning Drawings**

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   LMS   13,14

1,2   14.   Paper Space, Layouts and Plotting

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 plotsLMS   15

15.   Final Test

15.1. Practical Drawing Exercise LMS   16

Addendum:

Further modifications may be required as needed as the semester progresses based on individual student(s) abilities and must be discussed with and agreed upon by the instructor.

CICE Modifications:

Preparation and Participation

1. A Learning Specialist will attend class with the student(s) to assist with inclusion in the class and to take notes.
2. Students will receive support in and outside of the classroom (i.e. tutoring, assistance with homework and assignments, preparation for exams, tests and quizzes.)
3. Study notes will be geared to test content and style which will match with modified learning outcomes.
4. Although the Learning Specialist may not attend all classes with the student(s), support will always be available. When the Learning Specialist does attend classes he/she will remain as inconspicuous as possible.

A. Tests may be modified in the following ways:

1. Tests, which require essay answers, may be modified to short answers.
2. Short answer questions may be changed to multiple choice or the question may be simplified so the answer will reflect a basic understanding.
3. Tests, which use fill in the blank format, may be modified to include a few choices for each question, or a list of choices for all questions. This will allow the student to match or use visual clues.
4. Tests in the T/F or multiple choice format may be modified by rewording or clarifying statements into layman's or simplified terms. Multiple choice questions may have a reduced number of choices.

B. Tests will be written in CICE office with assistance from a Learning Specialist.

The Learning Specialist may:

1. Read the test question to the student.
2. Paraphrase the test question without revealing any key words or definitions.
3. Transcribe the student's verbal answer.
4. Test length may be reduced and time allowed to complete test may be increased.

C. Assignments may be modified in the following ways:

1. Assignments may be modified by reducing the amount of information required while maintaining general concepts.
2. Some assignments may be eliminated depending on the number of assignments required in the particular course.

The Learning Specialist may:

1. Use a question/answer format instead of essay/research format
2. Propose a reduction in the number of references required for an assignment
3. Assist with groups to ensure that student comprehends his/her role within the group
4. Require an extension on due dates due to the fact that some students may require additional time to process information
5. Formally summarize articles and assigned readings to isolate main points for the student
6. Use questioning techniques and paraphrasing to assist in student comprehension of an assignment

D. Evaluation:

Is reflective of modified learning outcomes.