

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:

No Textbook Required.

1 GB or larger USB storage device for drawing backup

IV. EVALUATION PROCESS/GRADING SYSTEM:

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

The following semester grades will be assigned to students:

Grade	<u>Definition</u>	<i>Grade Point Equivalent</i>
A+	90 – 100%	4.00
A	80 – 89%	3.00
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W	Student has withdrawn from the course without academic penalty.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, Essential Tools 1.1. CAD uses and benefits 1.2. Understand fundamental CAD concepts 1.3. AutoCAD user interface 1.4. AutoCAD command and data input methods 1.5. Command entry methods 1.6. Drawing and erasing lines and other entities 1.7. Saving drawings 1.8. Drawing activities	LMS	1
1,2	2. Drawing Aids and AutoCAD Objects 2.1. Create a New Drawing 2.2. Drawing units 2.3. Grid and Snap, Object snap 2.4. Model and Layout Space 2.5. Drawing Circle and Rectangle objects 2.6. ERASE command 2.7. Accessing 'Help' 2.8. Printing and plotting	Handout LMS	1,2
1,2	3. Drawing Display, Layers and Linetypes 3.1. Layers and linetypes 3.2. Assign colours and linetypes 3.3. LTSCALE 3.4. Editing commands Fillet and Chamfer 3.5. Zoom and Pan functions 3.6. Single line text 3.7. Move, Copy and Array commands 3.8. View resolution	LMS Handout	2,3
1,2	4. Templates, Copies and Arrays 4.1. Limits 4.2. Create a template drawing 4.3. Polar tracking 4.4. MOVE, COPY AND ARRAY commands 4.5. Center marks 4.6. Changing Plot settings	LMS Handout	3,4

1,2	5. Arcs and Polar Arrays 5.1. Use Polar Arrays 5.2. Create arcs using ARC command 5.3. Rotate command 5.4. Use polar tracking 5.5. Use the MIRROR command 5.6. Basic page setup	LMS	4,5
1,2	6. Object Snap (OSNAP) 6.1. Object snap override 6.2. Running object snap 6.3. Object snap tracking 6.4. OFFSET command (Distance and Through) 6.5. Use the TRIM and EXTEND commands 6.6. STRETCH command 6.7. Understand plot layouts	LMS	6
	7. Mid-term Test 7.1. Multiple Choice/True False Questions 7.2. Practical Drawing Exercise	LMS	7
1,2	8. Text 8.1. Advanced single line text, character codes 8.2. Use title blocks in layout space 8.3. Create and use and edit MTEXT 8.4. Use the spellcheck function 8.5. Create a text style using style manager 8.6. Modify object properties and use SCALE 8.7. Create tables and fields	LMS	8,9
1,2	9. Dimensions and Hatch 9.1. Create a dimension style 9.2. Apply linear and angular dimensions 9.3. Apply radial and diameter dimensions 9.4. Create a multi-leader style 9.5. Use the HATCH command 9.6. Understand 'scale' between Model and Layout space	LMS	9,10
1,2	10. Polylines 10.1. Polygons and Donuts 10.2. Using the FILL command	LMS	10,11

	<ul style="list-style-type: none"> 10.3. Drawing straight and arc polyline segments 10.4. Edit polyline objects with PEDIT 10.5. Draw splines and path arrays 10.6. Draw points and change point display (PDMODE) 10.7. Discuss constraint parameters 		
1,2	<p>11. Blocks, Attributes and External References</p> <ul style="list-style-type: none"> 11.1. Distinguish between groups and blocks 11.2. Create and insert blocks into a drawing 11.3. Create and edit dynamic blocks 11.4. Insert an external reference into a drawing 11.5. Access content from the AutoCAD design center 11.6. Define and extract attributes 	LMS	11,12
1,2	<p>12. Isometric Drawing and Editing Commands</p> <ul style="list-style-type: none"> 12.1. Use isometric snap 12.2. Draw on the isometric planes 12.3. Use the COPY and ELLIPSE and CHAMFER commands 12.4. Use the VIEW command to save and restore views 12.5. Align text with isometric planes 	LMS	12,13
1,2	<p>13. 3D Modeling</p> <ul style="list-style-type: none"> 13.1. Create a 3D wireframe model 13.2. Understand and apply an user coordinate system 13.3. Switch to and use the 3D basics workspace 13.4. Create solid boxes and wedges 13.5. Use Boolean operations to edit solids 13.6. Perform basic rendering operations 13.7. Use the 'Viewcube' 13.8. Create layouts with multiple views 	LMS	13,14
1,2	<p>14. Modeling Techniques</p> <ul style="list-style-type: none"> 14.1. Draw polysolids 14.2. Draw Cones, Pyramids and Toruses 14.3. Slice and section solid objects 14.4. Create mesh models 14.5. Create solids from 2D objects 14.6. Create a walk through a 3D landscape 14.7. Create paper and PDF plots 	LMS	14,15

15. Final Test

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15.1. Practical Drawing Exercise