



**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 2013 – A Modern Perspective*

Paul Richard and Jim Fitzgerald  
Pearson/Prentice Hall  
Autodesk Design Institute Press  
ISBN 978-0-13-295475-4

1 GB or larger 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	<hr/> 100%

The following semester grades will be assigned to students:

<b>Grade</b>	<b><u>Definition</u></b>	<i>Grade Point Equivalent</i>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	
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W	Student has withdrawn from the course without academic penalty.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**

<b>Outcome</b>	<b>Topic and Content</b>	<b>Reading</b>	<b>Week</b>
1,2	<b>1. Introduction to AutoCAD</b>  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	<b>2. Getting Started with AutoCAD</b>  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	<b>3. Drawing Display</b>  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	<b>4. Basic Drawing Commands</b>  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	<b>5. Drawing Tools and Drafting Settings</b>  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	Chapter 5 LMS	4,5
1,2	<b>6. Manage Object Properties</b>  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	Chapter 6 LMS	6
	<b>7. Mid-term Test</b>  7.1. Multiple Choice/True False Questions 7.2. Practical Drawing Exercise	LMS	7
1,2	<b>8. Basic Editing Techniques</b> 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	Chapter 7 LMS	8
1,2	<b>9. Advanced Editing Techniques</b>  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	Chapter 8 LMS	9
1,2	<b>10. Drawing and Editing Complex Objects</b>  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

	<b>10.6.</b>	Chapter 9 Quiz		
1,2	<b>11.</b>	<b>Fills and Hatching</b>	Chapter 10 LMS	11
	<b>11.1.</b>	Create a Hatch boundary		
	<b>11.2.</b>	Select and create Hatch objects		
	<b>11.3.</b>	Edit and match existing Hatch patterns		
	<b>11.4.</b>	Create solid and gradient fills		
	<b>11.5.</b>	Chapter 10 Quiz		
1,2	<b>12.</b>	<b>Adding Text, Mtext and Tables</b>	Chapter 11 Chapter 12 LMS	12
	<b>12.1.</b>	Create text styles		
	<b>12.2.</b>	Create and edit Multiline text (Mtext)		
	<b>12.3.</b>	Create and edit Single line text (Dtext)		
	<b>12.4.</b>	Insert text Fields		
	<b>12.5.</b>	Find and replace text in a CAD drawing		
	<b>12.6.</b>	Use AutoCAD spell check for a drawing		
	<b>12.7.</b>	Create simple AutoCAD tables		
	<b>12.8.</b>	Insert formulas into a table		
	<b>12.9.</b>	Link spreadsheets and text from MS Office to AutoCAD		
	<b>12.10.</b>	Chapter 11 and 12 Quiz		
1,2	<b>13.</b>	<b>Dimensioning Drawings</b>	Chapter 13 LMS	13,14
	<b>13.1.</b>	Create dimension styles		
	<b>13.2.</b>	Apply different dimension types to drawings		
	<b>13.3.</b>	Understand dimension associativity		
	<b>13.4.</b>	Update and match Dimension styles		
	<b>13.5.</b>	Create and apply Leaders to drawings		
	<b>13.6.</b>	Use Design Centre to import Dimension styles		
	<b>13.7.</b>	Chapter 13 Quiz		
1,2	<b>14.</b>	<b>Paper Space, Layouts and Plotting</b>	Chapter 14 Chapter 15 LMS	15
	<b>14.1.</b>	Understand the use of Paper Space		
	<b>14.2.</b>	Use the Page Setup Manager		
	<b>14.3.</b>	Create Layout Viewports and set Scale		
	<b>14.4.</b>	Lock Viewport display		
	<b>14.5.</b>	Control Viewport layer visibility		
	<b>14.6.</b>	Plot drawings from Layout (Paper) Space		
	<b>14.7.</b>	Edit and control line weights using plot color table		
	<b>14.8.</b>	Create paper and PDF plots		
	<b>14.9.</b>	Chapter 14 and 15 Quiz		
	<b>15.</b>	<b>Final Test</b>		16
	<b>15.1.</b>	Practical Drawing Exercise		