

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



COURSE OUTLINE

COURSE TITLE: Introduction to Computers and AutoCAD

CODE NO. : CAD 100 **SEMESTER:** 2

PROGRAM: Civil Engineering Technician
Construction Carpentry Techniques

AUTHOR: Barry Sparrow

DATE: January 2013 **PREVIOUS OUTLINE DATED:** January 2012

APPROVED: *Corey Meunier*
CHAIR **DATE**

TOTAL CREDITS: 4

PREREQUISITE(S): none

HOURS/WEEK: 4

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For additional information, please contact Corey Meunier, Chair
School of Technology & Skilled Trades
(705) 759-2554, Ext. 2610

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 2012 – A Modern Perspective

Paul Richard and Jim Fitzgerald
Pearson/Prentice Hall
Autodesk Design Institute Press
ISBN 978-0-13-272517-7

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	100%

The following semester grades will be assigned to students:

Grade	<u>Definition</u>	<i>Grade Point Equivalent</i>
A+	90 – 100%	
A	80 – 89%	4.00
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W	Student has withdrawn from the course without academic penalty.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 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 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	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. Chapter 6 Quiz 7. Mid-term Test 7.1. Multiple Choice/True False Questions 7.2. Practical Drawing Exercise	Chapter 6 LMS LMS	6 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 8.8. Chapter 7 Quiz	Chapter 7 LMS	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 9.7. Chapter 8 Quiz	Chapter 8 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	Chapter 9 LMS	10

	<ul style="list-style-type: none"> 10.4. Edit polyline objects 10.5. Use the Explode command 10.6. Chapter 9 Quiz 		
1,2	11. Fills and Hatching <ul style="list-style-type: none"> 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 	Chapter 10 LMS	11
1,2	12. Adding Text, Mtext and Tables <ul style="list-style-type: none"> 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 	Chapter 11 Chapter 12 LMS	12
1,2	13. Dimensioning Drawings <ul style="list-style-type: none"> 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 	Chapter 13 LMS	13,14
1,2	14. Paper Space, Layouts and Plotting <ul style="list-style-type: none"> 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 	Chapter 14 Chapter 15 LMS	15
	15. Final Test <ul style="list-style-type: none"> 15.1. Practical Drawing Exercise 		16