

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY  
SAULT STE. MARIE, ON.

COURSE OUTLINE

COURSE TITLE: Introduction to Autocad  
COURSE CODE: CAD 120  
PROGRAM: CIVIL Engineering Technology  
SEMESTER: 2  
AUTHOR: Dan Grand  
DATE: January 1997  
PREVIOUSLY DATED: September 1996

*MP* 7-JAN-97

APPROVED: *[Signature]*  
DEAN

Jan. 8/97  
DATE

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**INTRODUCTION TO AUTOCAD**  
COURSE NAME

**CAD 120**  
CODE NO.

TOTAL CREDITS: 3

PREREQUISITES: NONE

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**I. PHILOSOPHY / GOALS**

This course will introduce the student to the fundamentals of computer assisted drafting using Autocad. Practical exercises will help the student develop a basic knowledge of Autocad. The student will understand the fundamental concepts of computer applications related to drafting and engineering drawing.

**II. STUDENT PERFORMANCE OBJECTIVES (OUTCOMES)**

Upon successful completion of this course, the student will be able to:

1. Introduction to Cad
  - . Identify computer equipment
  - . Use computer lab methods and procedures
  - . Use drawing planning procedures and system management
  - . Know and follow the rules of hygiene in computer labs
2. Starting Autocad
  - . Define MS-DOS/Windows
  - . Start the Autocad program and getting HELP
  - . Use the screen layout and menu structure
  - . Identify and operate input devices
  - . Format a floppy disk
3. Drawing Set-up
  - . Use the main menu
  - . Begin a new drawing
  - . Set limits and units



4. Drawing and Drawing Aids
  - . Set grid and snap
  - . Use ortho command
  - . Access drawings aids through settings menu
  - . Use the line and dline command
  - . Establish a prototype drawing
5. Saving Work
  - . Use the save, end and quit commands
  - . Use the cancel command
  - . Use the status command
6. Drawing and Erasing Lines
  - . Define absolute, relative and polar coordinates
  - . Utilize ortho mode and turn on coordinate display
  - . Distinguish and use line, mline and pline commands
  - . Use the erase, fill and redraw commands
7. Drawing Basic Shapes
  - . Identify dragmode
  - . Draw arcs and circles
  - . Use the @ symbol function
  - . Use the polygon and multiple commands
8. Basic Editing Commands
  - . Use the move and copy, and multiple copy commands
  - . Use the mirror command
  - . Use the chamfer and fillet commands
  - . Use the break, extend, trim and change commands
  - . Use the scale, stretch, rotate and align commands
9. Drawing Tools
  - . Use the OSNAP commands
  - . Use the override function
  - . Using offset and other drawing tools
10. Automatic Editing using Grips
  - . Use the GRIP command
  - . Use the ARRAY command
11. Display Options
  - . Create VIEWS
  - . Use zoom all, extents and previous
  - . Use the zoom dynamic command
  - . Transparent use of commands



12. Text Options
  - . Distinguish and use DTEXT and QTEXT
  - . Use style and underscore commands
  - . Use special symbols and pull down menus to create and edit text
  
13. Layer Design
  - . Understand and use the layer command
  - . Assign layer names, line types and colour by layer
  - . Turn layers on and off
  - . Use the freeze/thaw commands
  
14. Dimensioning
  - . Place horizontal and vertical dimension on a drawing
  - . Use the continuous dimensioning function
  - . Use the base and leader line functions
  - . Manipulate various dimensioning features.
  - . Utilize tolerance dimensioning.
  - . Use radius, angular and rotated dimensioning.
  - . Manipulate text position, extension and dimension lines.
  
15. Graphic Pattern
  - . Use the Hatch and Solid commands
  - . Know how to set hatch patterns
  
16. Blocks and Attributes
  - . Know how to use BLOCK and WBLOCK commands
  - . Define ATTRIBUTES
  - . Setup XREF drawings
  
17. Printing and Plotting
  - . Plot to a printer
  - . Plot to plotting devices

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**III. TOPICS TO BE COVERED**

1. Introduction to Cad
2. Starting Autocad
3. Drawing Set-up
4. Drawing and Drawing Aids
5. Saving Work
6. Drawing and Erasing Lines
7. Drawing Basic Shapes
8. Basic Editing Commands
9. Drawing Tools
10. Automatic Editing using Grips
11. Display Options
12. Text Options
13. Layer Design
14. Dimensioning
15. Graphic Pattern
16. Blocks and Attributes
17. Printing and Plotting

**IV. LEARNING ACTIVITIES/REQUIRED RESOURCES**

**1 INTRODUCTION**

Learning Activities:

Attend lecture and practical demonstration  
Take notes

Resources:

Chapter #1, overheads, handout  
Practical demonstration , assignment #1



**IV. LEARNING ACTIVITIES/REQUIRED RESOURCES( continued)**

**2 STARTING AUTOCAD**

Learning Activities:

Attend lecture and practical demonstration  
Take notes  
Complete practical exercises

Resources:

Chapter #2, overheads, 2 floppy disks (preferably 3.5")  
Practical demonstration, assignment #1

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**3 DRAWING SET-UP**

Learning Activities:

Attend lecture and practical demonstration  
Take notes  
Complete practical exercises

Resources:

Chapter # 3 , overheads  
Practical demonstration, assignment #2

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**4 DRAWING AND DRAWING AIDS**

Learning Activities:

Attend lecture and practical demonstration  
Take notes  
Complete practical exercises

Resources:

Chapter #4 , overheads  
Practical demonstration, assignment #2

**IV. LEARNING ACTIVITIES/REQUIRED RESOURCES (continued)**

**5 SAVING DRAWINGS**

Learning Activities:

- Attend lecture and practical demonstration
- Take notes
- Complete practical exercises

Resources:

- Chapter #5, overheads
- Practical demonstration, assignment #3

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**6 DRAWING AND ERASING LINES**

Learning Activities:

- Attend lecture and practical demonstration
- Take notes
- Complete practical exercises

Resources:

- Chapter #6, 7 and 18 overheads
- Practical demonstration, assignment #3 and #4

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**7 DRAWING BASIC SHAPES**

Learning Activities:

- Attend lecture and practical demonstration
- Take notes
- Complete practical exercises

Resources:

- Chapter #8 , overheads
  - Practical demonstration, assignment #5
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**IV. LEARNING ACTIVITIES/REQUIRED RESOURCES (continued)**

**8 BASIC EDITING COMMANDS**

Learning Activities:

- Attend lecture and practical demonstration
- Take notes
- Complete practical exercises

Resources:

- Chapter # 13, overheads
- Practical demonstration, assignment #7

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**9 OBJECT SNAP AND GEOMETRIC CONSTRUCTION**

Learning Activities:

- Attend lecture and practical demonstration
- Take notes
- Complete practical exercises

Resources:

- Chapter #9, overheads
- Practical demonstration, assignment #6

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**10 AUTOMATIC EDITING**

Learning Activities:

- Attend lecture and practical demonstration
- Take notes
- Complete practical exercises

Resources:

- Chapter #14 and #15
  - Practical demonstration, assignment #8
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**IV. LEARNING ACTIVITIES/REQUIRED RESOURCES (continued)**

**11 DISPLAY OPTIONS**

Learning Activities:

- Attend lecture and practical demonstration
- Take notes
- Complete practical exercises

Resources:

- Chapter 10
- Practical demonstration, assignment #8

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**12 TEXT**

Learning Activities:

- Attend lecture and practical demonstration
- Take notes
- Complete practical exercises

Resources:

- Chapter #11, overheads
- Practical Demonstration, assignment #9

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**13 LAYERS**

Learning Activities:

- Attend lecture and practical demonstration
- Take notes
- Complete practical exercises

Resources:

- Chapter #16, chapter #19, overheads
- Practical demonstration, assignment #10

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**16 BLOCKS AND ATTRIBUTES**

Learning Activities:

- Attend lecture and practical demonstration

**IV. LEARNING ACTIVITIES/REQUIRED RESOURCES (continued)**

**14 DIMENSIONING**

Learning Activities:

- Attend lecture and practical demonstration
- Take notes
- Complete practical exercises

Resources:

- Chapter #20 and 21, overheads
- Practical demonstration, assignment #11

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**15 GRAPHIC PATTERNS**

Learning Activities:

- Attend lecture and practical demonstration
- Take notes
- Complete practical exercises

Resources:

- Chapter #24, overheads
- Practical demonstration, handout

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**16 BLOCKS AND ATTRIBUTES**

Learning Activities:

- Attend lecture and practical demonstration
- Take notes
- Complete practical exercises

Resources:

- Chapter #25
- Practical demo and handout



**IV. LEARNING ACTIVITIES/REQUIRED RESOURCES (continued)**

**17 PRINTING AND PLOTTING**

Learning Activities:

- Attend lecture and practical demonstration
- Take notes
- Complete practical exercises

Resources:

- Chapter #12
- Plotting demonstration

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**V. METHOD OF EVALUATION**

Students will be assigned a final grade based on successful completion of assignments, quizzes and tests.

Assignments	(6-10)	25%
Quizzes	(6- 8)	25%
Tests	(2-3)	40%
Attendance		10%
<b>TOTAL</b>		<b>100%</b>

Attendance is mandatory for successful completion.

A final grade will be assigned as follows:

A+	90-100%
A	80-89%
B	70-79%
C	55-69%
R	Repeat
X	A rewrite will only be granted under special circumstances and then only if the combined course grade is not below 45% and attendance was above 80%. In the case of a rewrite due to an X grade the test will cover the entire course material and the highest grade obtainable is a "C".

**VI. RESOURCE MATERIALS**

Required text:

Terence M. Shumaker , David A. Madsen, Autocad and its Applications Basics Release 13 for Windows The Goodheart-Wilcox Company Inc. (available in Campus Shop)

The student should also have two new 3.5" high density floppy disks, for saving work and submitting assignments.

**VII. ADDITIONAL RESOURCES AND MATERIALS**

In addition to the recommended course text, there are numerous books available in the library related to Autocad and more generally to CAD

**VIII. SPECIAL NEEDS**

Students with special needs are encouraged to discuss required accommodations in confidence with the instructor.

The instructor reserves the right to modify the course and course outline as deemed necessary to meet the needs of the students.

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## CAD ROOM RULES AND GUIDELINES

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1. Autocad should be properly exited, or terminated before shutting off power.
2. The computer must be shut off using the power bar switch.
3. Place the input device in the proper location when finished.
4. The digitizer or plotter should not be moved to other locations.
5. **ABSOLUTELY NO BEVERAGES OR FOOD ARE ALLOWED IN THE CAD ROOM!**
6. Do not create any subdirectories.
7. **DO NOT APPLY FORCE WHEN INSERTING DISKETTE INTO THE A: DRIVE.**
8. Call your instructor or monitor if the Virus alarm shows on your system.
9. Use the subdirectory C:\WINCAD or C:\DOSCAD for temporary placement of files.
10. Do not attempt to install software on the computers.
11. Report any ERROR conditions on the provided forms

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