SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE MARIE, ON

COURSE OUTLINE

Course Title: Applied CAD II

Code No.: CAD222　　　　　　　　**Semester:** Fall

Program: Civil Engineering Technician/Technologist

Author: Barry Sparrow

Date: September 98
Previous Outline Date: August 96
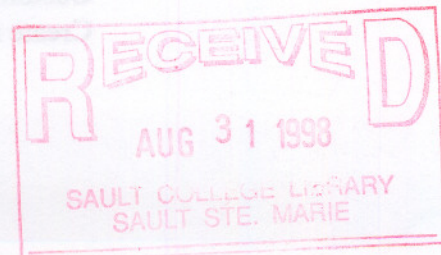
Approved:　_K. DeRosario_　　　_Aug. 26/98_
　　　　　　　　　　Dean　　　　　　　　　　　**Date**

Total Credits: 3　　　　　　**Prerequisite(s): None**
Length of Course: 15 Weeks　　　　**Total Credit Hours: 45**

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I. COURSE DESCRIPTION:

This course is intended to expand on the basic skills developed from other introductory formal CAD courses. Students should have prerequisite CAD-120 or equal industrial experience. The student will learn how to use advanced AUTOCAD features such as customization of menus and tablets, macros, integrate basic LISP programs, digitizing, understand the principle of 3-D modelling wire frames, surfaces and solids.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course the student will demonstrate the ability to:

1) Demonstrate familiarity with Windows and the AutoCAD R14 drawing editor

    Potential Elements of the Performance:
    Setup and configure AutoCAD
    Setup user folders with Windows Explorer
    Use Wordpad and Notepad to create text files

2) Utilize LISP programs in AutoCAD

    Potential Elements of the Performance:

    Understand LISP in the context of AutoCAD
    Utilize LISP programs in AutoCAD
    Analyze existing LISP routines
    Integrate LISP routines
    Load routines into AutoCAD

3) Customize AUTOCAD Menus

    Potential Elements of the Performance:
    Identify menu codes
    Create screen menus
    Write menu macros

4) Customize the drawing tablet

    Potential Elements of the Performance :
    Configure the digitizing tablet
    Digitize drawings
    Customize tablet menus
    Create tablet symbols

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5)   Customize Toolbars

    Potential Elements of the Performance :
        Create macros and assign them to toolbar buttons
        Create and edit toolbar buttons
        Assemble toolbars

6)   Manipulating the Coordinate System

    Potential Elements of the Performance :
        Set viewports
        Describe the UCS and WCS systems
        Manipulate the UCS

7)   Create and View 3D Wire Frame Models

    Potential Elements of the Performance :
        Describe the XYZ coordinate system
        Assign and change elevation and thickness
        Draw lines using XYZ coordinates
        Edit objects in 3D space

8)   Draw and Plot in Model Space and Paper Space

    Potential Elements of the Performance :
        Recognize paper space and model space
        Plot to different scales in paper space
        Use the Vplayer command to control layers in paper space
        Use the Mview command to create floating viewports
        Apply notes and scaled dimensions in paper space
        Plot 3D-drawings

9)   Create Models Using Surfaces and Meshes

    Potential Elements of the Performance :
        Make a 3D Mesh
        Create models using Rulesurf
        Create models using Tabsurf
        Create models using Revsurf
        Create models using Edgesurf
        Apply shading to surfaced models
        Use the 3Dface command
        Understand and apply edge visibility

10)   Create Models Using Solids

Potential Elements of the Performance :
   Create solids using solids library
   Edit solids using union, subtract and intersection
   Create regions and use extrude to create solids
   Edit objects using the align command

10)   Utilize rendering tools in AutoCAD

Potential Elements of the Performance :
   Use the hide command
   Hide lines in floating viewports
   View models using the shade command
   Apply the render command
   Customize the rendering feature
   Apply materials to rendered models
   Save and export a rendered image
   Create paraline and perspective views using the Dview command

10)   Create Custom Slide Shows

Potential Elements of the Performance :
   Write script files
   Construct slides using mslide
   View slides using vslide

III.   TOPICS:

1. Review Windows Operating System
2. Review AutoCAD setup preferences
3. The User and World Coordinate Systems
4. Using Paper Space and Model Space
5. Creating Wire Frame Models
6. Creating Surface Models
7. Creating Solid Models
8. Customizing Menus
9. Digitizing Drawings Using the Tablet
10. Customizing Toolbars
11. Using LISP programs
12. Viewing and Rendering 3D Models
13. Creating Slides and Slideshows
14. Advanced CAD editing commands

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IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

TEXT
<u>AutoCAD and its Applications - Advanced</u> - Latest Edition
David A. Madsen
Terence M. Shumaker
Prentice Hall

Two 3.5" diskettes (to be used only for course work)

The student will be expected to supply various materials throughout the duration of the course such as plotting media and diskettes.

V. EVALUATION PROCESS/GRADING SYSTEM

The final course grade will be determined as follows:

Assignments	70%
Tests (2-3)	20%
Attendance	10%
TOTAL	**100%**

A letter grade will be assigned based on the total score:

A+	90 - 100%
A	80 - 89%
B	70 - 79%
C	55 - 69%
R	below 55%

Due dates will be specified for all assignments. Material which is submitted late without adequate reason will receive a 'C' (55) grade.

Assignments which are more than seven calendar days late will be given a grade of 0 (zero), and will not be accepted.

Attendance at all tests is mandatory. If a student must miss a test due to illness or family emergency, he/she must contact the instructor before the scheduled time of the test so that alternate arrangements can be made. It is the student's responsibility to have medical proof of illness, etc. if it is so requested.

VI.   SPECIAL NOTES:

Special Needs:
If you are a student with special needs (eg. physical limitations, visual impairments, hearing impairments, learning disabilities), you are encouraged to discuss required accommodations with the instructor and/or contact the Special Needs Office, Room E1204, Ext. 493, 717, 491 so that support services can be arranged for you.

Retention of Course Outlines:
It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other post-secondary institutions.

Other:
Your instructor reserves the right to modify the course outline as deemed necessary to meet the needs of students
Substitute course information is available at the Registrar's Office.

VII.   PRIOR LEARNING ASSESSMENT

Students who wish to apply for advanced credit in the course should consult the instructor.