

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



Sault College

COURSE OUTLINE

COURSE TITLE: Applied CAD II

CODE NO. : CAD 222

SEMESTER: 3

PROGRAM: Civil/Construction Technician

AUTHOR: B. Sparrow

DATE: May 07

PREVIOUS OUTLINE DATED: Aug 06

APPROVED:

DEAN

DATE

TOTAL CREDITS: 3

PREREQUISITE(S): CAD 120

HOURS/WEEK: 3

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*For additional information, please contact C. Kirkwood, Dean
School of Technology, Skilled Trades & Natural Resources*

(705) 759-2554, Ext. 2688

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 use advanced AUTOCAD features such as customization of menus, write macros, utilize advanced features and understand the principles of 3D modeling, 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 Autocad 2004 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. Draw and Plot in Model Space and Paper Space

Potential Elements of the Performance:

- Recognize paper space and model space
- Plot different scales in paper space
- Use VPLAYER command to control layers in paper space
- Use MVIEW command to create floating Viewports
- Apply notes and scaled dimensions in paper space
- Plot 3-D drawings

3. Customize Autocad Toolbars

Potential Elements of the Performance:

- Identify macro codes
- Create and edit Toolbars
- Write and assign macros
- Assemble toolbars

4. Utilize Fields and Attributes in AutoCAD

Potential Elements of the Performance:

- Understand the application of fields and attributes
- Create and assign fields to geometry
- Assign attributes to blocks
- Extract attributes to tables
- Customize the display of fields
- Edit attributes

5. Manipulate the Coordinate System

Potential Elements of the Performance:

- Set Viewports
- Describe UCS and WCS system
- Manipulate UCS

6. Create and View 3-D 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 3-D space

7. Create Models using Surfaces and Meshes

Potential Elements of the Performance:

- Make a 3-D Mesh
- Create models using Rulesurf
- Create models using Tabsurf
- Create models using Edgesurf
- Apply shading to surface models
- Use the 3Dface command
- Understand and apply the edge visibility

8. Create Models using Solids

Potential Elements of the Performance:

- Create solids using the solids library
- Edit solids using Union, Subtract, and Intersection
- Create Regions and use Extrude to create solids
- Edit objects using the Align command
- Assembly a 3D model from parts using XREFS
- Use a solids and inquiry commands to prepare a volume

estimate

9. 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 a render command
- Customize the rendering feature
- Apply materials to rendered models
- Save and export a rendered image
- Create parallel and perspective views using the Dview command

10. Create custom Slides

Potential Elements of the Performance:

- Write script files
- Construct slides using Mslide
- View slides using Vslide

III. TOPICS:

1. Review Windows operating system and AutoCad 2004
2. Review AutoCad setup preferences
3. Using Paper space and Model space
4. Customizing Toolbars
5. Using Fields and Attributes
6. The User and World Coordinate systems
7. Creating Wire Frame Models
8. Creating Surface Models
9. Creating Solid models
10. Viewing and Rendering 3-D Models
11. Creating Slides and Slideshows
12. Advanced editing commands

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

No text is required. Students will work with online resources and tutorials. Material may be posted to the LMS system to supplement the material.

V. EVALUATION PROCESS/GRADING SYSTEM:

You will be assigned a final grade on successful completion of laboratories assignments, and tests, weighted as follows:

Laboratories/Assignments	50%
Two tests of equal weight	<u>50%</u>
TOTAL	100%

Late submittals receive a maximum grade of 60%. However, laboratories or assignments handed in later than one week will receive a grade of 0.

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.	

VI. SPECIAL NOTES:

Special Needs:

If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Special Needs office. Visit Room E1101 or call Extension 703 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 postsecondary institutions.

Communication:

The College considers **WebCT/LMS** as the primary channel of communication for each course. Regularly checking this software platform is critical as it will keep you directly connected with faculty and current course information. Success in this course may be directly related to your willingness to take advantage of the **Learning Management System** communication tool.

Plagiarism:

Students should refer to the definition of “academic dishonesty” in *Student Code of Conduct*. Students who engage in academic dishonesty will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Course Outline Amendments:

The professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

If a student is unable to write a test on the date assigned, the following procedure is required:

- The student shall provide the Professor with advance notice preferably in writing of his/her need to miss the test.
- The student may be required to document the absence at the discretion of the Professor.
- All decisions regarding whether tests shall be re-scheduled will be at the discretion of the Professor.
- The student is responsible to make arrangements, immediately upon return to the College with his/her course Professor related to make-up of the missed test prior to the next scheduled class for the course in question.
- In the event of an emergency on the day of the test, the student may require documentation to support the absence and must telephone the College to identify the absence. The college has a 24 hour electronic voice mail system (759-2554)

Students are expected to familiarize themselves with the Sault College *Student Code of Conduct*, available through the Sault College web pages. This applies to matters of behaviour, use of electronic devices, attendance and academic responsibility. Students are expected to conduct themselves in a respectful and professional manner at all times.

VII. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

VIII. DIRECT CREDIT TRANSFERS:

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide a transcript and course outline related to the course in question.