

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 paraline 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% | 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. | |

VI. SPECIAL NOTES: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.

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.

Prior Learning Assessment:

Students who wish to apply for advance credit transfer (advanced standing) should obtain an Application for Advance Credit from the program coordinator (or the course coordinator regarding a general education transfer request) or academic assistant. Students will be required to provide an unofficial transcript and course outline related to the course in question. Please refer to the Student Academic Calendar of Events for the deadline date by which application must be made for advance standing.

Credit for prior learning will also be given upon successful completion of a challenge exam or portfolio.

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

Disability Services:

If you are a student with a disability (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Disability Services office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

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*. A professor/instructor may assign a sanction as defined below, or make recommendations to the Academic Chair for disposition of the matter. The professor/instructor may (i) issue a verbal reprimand, (ii) make an assignment of a lower grade with explanation, (iii) require additional academic assignments and issue a lower grade upon completion to the maximum grade “C”, (iv) make an automatic assignment of a failing grade, (v) recommend to the Chair dismissal from the course with the assignment of a failing grade. 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.

Student Portal:

The Sault College portal allows you to view all your student information in one place. **mysaultcollege** gives you personalized access to online resources seven days a week from your home or school computer. Single log-in access allows you to see your personal and financial information, timetable, grades, records of achievement, unofficial transcript, and outstanding obligations, in addition to announcements, news, academic calendar of events, class cancellations, your learning management system (LMS), and much more. Go to <https://my.saultcollege.ca>.

Electronic Devices in the Classroom:

Students who wish to use electronic devices in the classroom will seek permission of the faculty member before proceeding to record instruction. With the exception of issues related to accommodations of disability, the decision to approve or refuse the request is the responsibility of the faculty member. Recorded classroom instruction will be used only for personal use and will not be used for any other purpose. Recorded classroom instruction will be destroyed at the end of the course. To ensure this, the student is required to return all copies of recorded material to the faculty member by the last day of class in the semester. Where the use of an electronic device has been approved, the student agrees that materials recorded are for his/her use only, are not for distribution, and are the sole property of the College.

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.

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 shall be required to document the absence at the discretion of the Professor. (e.g., note from doctor or lawyer)
- All decisions regarding whether tests shall be re-scheduled will be at the discretion of the Professor.
- The student shall make arrangements with the Professor, immediately upon return to the College, for the make-up of the missed test prior to the next scheduled class.
- 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 conduct themselves in a respectful and professional manner at all times.