

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



**COURSE OUTLINE**

**Course Title: Engineering Graphics (Drafting and Design)**

**Code No.: ARC111**

**Semester: Fall**

**Program: Civil/Construction**

**Author: Barry Sparrow**

**Date: September 98**

**Previous Outline Date: September 95**

**Approved:**

*K. DeRosario*  
**Dean**

*Aug. 19/98*  
**Date**

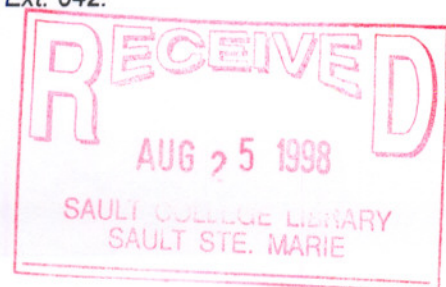
**Total Credits: 6**

**Prerequisite(s): None**

**Length of Course: 15 Weeks**

**Total Credit Hours: 96**

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For additional information, please contact Kitty DeRosario, Dean, School of Trades  
& Technology Studies, (705) 759-2554, Ext. 642.



**I. COURSE DESCRIPTION:**

This course provides the student with an introduction to the fundamentals of engineering graphics, drafting, design, sketching, graphic communication and drawing interpretation.

**II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**

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

- 1) Demonstrate correct use of drafting equipment.

**Potential Elements of the Performance:**

- Identify and manipulate commonly used drafting equipment
- Recognize different scale types and applications
- Use scales to measure drawings and prepare drawings

- 2) Develop freehand techniques and prepare freehand sketches

**Potential Elements of the Performance:**

- Develop sketching techniques for lines and curves
- Prepare freehand sketches of objects and object views
- Use set squares to draft views of objects
- Develop hand lettering techniques and apply lettering to drawings

- 3) Understand and use appropriate line type and line weight in drawing

**Potential Elements of the Performance:**

- Understand the vocabulary of line types and line weights
- Prepare sketches using appropriate line style and weight
- Understand and apply the use of line weight and colour in computer aided drafting

- 4) Recognize and draw standard orthographic, pictorial and auxiliary views

**Potential Elements of the Performance :**

- Identify and draw standard orthographic views of objects
- Identify and sketch isometric and oblique views of objects
- Construct primary and secondary auxiliary views of objects



- 5) Build a cardboard scale model

**Potential Elements of the Performance :**

- Build a scale model of an object using card weight paper
- Build a cardboard scale contour model given a contour map or drawing

- 6) Apply standard dimensioning techniques

**Potential Elements of the Performance :**

- Recognize and apply different dimension styles
- Identify the components of dimensions
- Use appropriate techniques of dimensioning for SI and imperial units
- Translate between drawings of different scales
- Convert from imperial to SI scales

- 7) Collect, review and prepare field measurements and notes

**Potential Elements of the Performance :**

- Examine methods and techniques of collecting field information
- Collect field information for an existing condition
- Prepare sketches based on collected information

- 8) Examine and interpret working drawings from different disciplines

**Potential Elements of the Performance :**

- Identify drawings prepared by different engineering and related disciplines
- Discuss the organization of information in working drawings
- Locate specific information in working drawings

- 9) Understand the application of computer graphics to engineering drawing

**Potential Elements of the Performance :**

- Review the X,Y,Z coordinate system
- Identify the absolute and user coordinate systems in CAD
- Identify and use the standard line weight/line colour methods in CAD
- Discuss the use of layers and line types in CAD
- Create a line drawing using coordinate input techniques

**III. TOPICS:**

1. Drafting Equipment
2. Use of Drafting Equip
3. Hand Lettering
4. Freehand Sketching

5. Object views and Representation
6. Drawing Primary and Secondary Auxiliary Views
7. Drawing Scales
8. Dimensioning Practices
9. Drawing Interpretation
10. Model Construction
11. Field Measurement and Documentation
12. Coordinate Systems for CAD
13. CAD Line and Layering Standards
14. Basic CAD Drawing Commands
15. Scales and Plotting in CAD

#### IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

##### TEXT

Civil Drafting Technology - Latest Edition

David A. Madsen

Terence M. Shumaker

Prentice Hall

Civil/Construction drafting equipment kit

Two 3.5" diskettes

The student will be expected to supply various materials throughout the duration of the course including blank 8.5 X 11 paper, grid paper, tracing paper, cardboard, etc.

#### V. EVALUATION PROCESS/GRADING SYSTEM

The final course grade will be determined as follows:

Assignments	70%
Tests (2-3)	20%
Attendance	10%
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<b>TOTAL</b>	<b>100%</b>

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.

