

# Sault College of Applied Arts and Technology

Sault Ste Marie, ON



## Course Outline

Course Title: Drafting  
Course Code: DRF1150  
Program: Motive Power Techniques - Heavy Equipment Diesel  
Author: Dennis Clement-Socchia  
Date: Dec. 2002 Previous Outline Dated: Jan. 1994

Approved \_\_\_\_\_  
DEAN DATE

Total Credits: 2  
Prerequisite(s): n/a  
Hours/Week: 2

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**Pat Gibbons, Dean**  
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I. **COURSE DESCRIPTION:** This curriculum that has been designed to

provide students with a basic understanding of the concepts and practices relevant to field of Drafting, Freehand Sketching and Blueprint Reading. The terminal objective is to develop the ability to both read and convey technical information by means of blueprints, sketches and schematic diagrams.

## II. LEARNING OUTCOMES AND ELEMENTS OF PERFORMANCE

Upon successful completion of this course, the student will have been given the ability to:

### 1. ***Demonstrate a reasonable working knowledge of the concepts related to the development and use of Isometric Drawings.***

#### Potential Elements of Performance:

- identify base line and angle of (object) rotation
- identify 'Cabinet' and 'Cavalier' drawings
- identify the purpose and contents of an isometric drawing develop basic isometric sketches
- identify the purpose and contents of a 'Title Block'
- understand the need for clear printing and lettering
- practice and develop clear printing and lettering skills
- create and use 'Title Blocks'
- read and interpret information displayed on isometric drawings for:
  - basic mechanical components
  - basic piping / hydraulic diagrams
- develop an isometric sketch of a mechanical component c/w Dimensions, Title Block and Notes

### 2. ***Demonstrate a reasonable working knowledge of Basic Drafting Lines and their Uses.***

#### Potential Elements of Performance:

- identify the following system of lines and describe their how each is represented on a drawing
  - object line
  - projection line
  - dimension line
  - extension lines
  - cutting plane line
  - section lines
  - center lines
  - leader lines
- incorporate the use of the above lines in both isometric and orthographic sketches

***Theory Quiz / Test # 1 is recommended at this point.***

### 2. ***Demonstrate a reasonable working knowledge of the concepts related to the development and use of Orthographic Drawings.***

Potential Elements of Performance:

- describe the purpose and function of orthographic projection
- describe how the 'Front View' of an object is identified
- describe how the 'Right Side' and 'Left Side' views of an object are developed
- identify the six principle views in orthographic projection
- describe how the 'Top, Bottom and Back' views are developed
- understand and apply standard 'Dimensioning' rules
- understand and apply the concept of drawing to 'Scale'
- identify the size of an object based upon standard rules for dimensioning and drawing scale.
- recognize the existence and use of 1<sup>st</sup> angle projection in orthographic drawings
- recognize the existence and meaning behind the use of I.S.O. symbol for 1<sup>st</sup> angle projection
- develop 3<sup>rd</sup> angle orthographic sketches of simple mechanical objects
- develop a 3<sup>rd</sup> angle orthographic sketch of a mechanical component c/w Dimensions, Title Block and Notes

**4. *Demonstrate a reasonable working knowledge of the concepts related to the development and use of Section and Auxiliary views.***

Potential Elements of Performance:

- describe the purpose and function of section views
- identify how the location of a section view is identified and then referenced on a drawing
- identify how a section view is developed
- identify threaded components in section views
- develop section views of mechanical parts
- describe the purpose and function of auxiliary views
- identify how the location of an auxiliary view is identified and then referenced on a drawing
- identify how an auxiliary view is developed
- develop auxiliary views of mechanical parts
- develop an orthographic sketch of a mechanical component that includes a section and an auxiliary view c/w Dimensions, Title Block and Notes

***Theory Quiz / Test # 2 is recommended at this point.***

**5. *Demonstrate a reasonable working knowledge of Standard Welding Symbols.***

Potential Elements of Performance:

- identify and draw the five basic joints
- identify and draw the three basic welds
- identify and draw the basic components of a standard welding symbol
- identify the arrow side and other side of the reference line
- identify the arrow side and other side of the joint
- know the difference between the terms 'weld symbol' and 'welding symbol'
- identify and understand the dimensions of a fillet weld in terms of its legs size, length and surface contour / finish
- identify and understand the dimensions of a groove weld in terms of its root opening, groove angle and surface contour / finish
- create and sketch various joint configurations c/w dimensioned welding symbols
- read and interpret information from drawings that contain basic welding symbols

***Theory Quiz / Test # 3 is recommended at this point.***

**III. TOPICS:**

1. Isometric Projection
2. Basic Drafting Lines and Uses
3. Orthographic Projection
4. Standard Dimensioning Practices
5. Section and Auxiliary Views
6. Standard Welding Symbols

**IV. REQUIRED STUDENT RESOURCES / TEXTS and MATERIALS:**

Basic Mathematics Set  
12 inch Clear Plastic Ruler (Metric & Imperial Scales)  
Drafting Eraser (white)  
H - Pencils (2 required)  
HB - Pencils (2 required)  
Masking Tape

**V. FINAL GRADE DETERMINATION:**

The final course grade will be determined means of the following list of weighted factors:

<b>Factor</b>		<b>Weight</b>
Sketching Assignments	=	50%
Quiz / Theory Tests	=	50%

The minimum passing grade for DRF1150 shall be 60%.

## VI. GRADING SYSTEM

The following semester grades will be assigned to students in postsecondary courses:		
<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
A+	94 – 100%	4.00
A	80 – 93%	3.75
B	70 – 79%	3.00
C	60 – 69%	2.00
R (Repeat)	59% or below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field placement or non-graded subject areas.	
U	Unsatisfactory achievement in field placement or non-graded subject areas.	
X	A temporary grade. This is used in limited situations with extenuating circumstances giving a student additional time to complete the requirements for a course (see <i>Policies &amp; Procedures Manual B Deferred Grades and Make-up</i> ).	
NR	Grade not reported to Registrar's office. This is used to facilitate transcript preparation when, for extenuating circumstances, it has not been possible for the faculty member to report grades.	

## VII. SPECIAL NEEDS

1. 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 instructor and/or the Special Needs office. Visit Room E1204 or call Extension 493, 717, or 491 so that support services can be arranged for you.

2. 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.

3. Plagiarism:

Students should refer to the definition of academic dishonesty@ in *Student Rights and Responsibilities*. 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.

4. 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.

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

**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.