

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: TECHNICAL DRAWING II

Code No.: DRF 102-6

Program: Mechanical Engineering Technician/Technology

Semester: Two

Date: Jan 5. 1994

Author: Col. Rising  
6

New: \_\_\_\_\_ Revision: <sup>X</sup> \_\_\_\_\_

APPROVED: \_\_\_\_\_  
Chairperson

\_\_\_\_\_ Date

CALENDAR DESCRIPTION

DRAFTING II  
Course Name

DRF 102-6  
Course Number

**Philosophical Goals:**

This course will be a continuation of the first semester Technical Drawing course, DRF 101. It is intended to:

1. Provide the students with further knowledge and skills in the standard methods used in the drawing of mechanical parts and assemblies.
2. Emphasize the continued need for good quality drawings that are subject to only one interpretation, and provide descriptions that are complete in every way.
3. Encourage the students to think of working drawings as the only means of communication between an engineering office and a shop facility.
4. Improve the students ability to correctly interpret industrial working drawings.

**Method of Assessment (Grading Method):**

Tests and assignments will be marked according the following grading scales.

A+	=	90-100%
A	=	80-89%
B	=	70-79%
C	=	60-69%
I	=	<60%

Grading will be done based on quality of layout, drawings, sketches, general tidiness of presentation, time factor, attendance and attitude.

**Final Grade:**

The final mark will be based on the following:

Tests and Quizzes .....	70%
Assignments.....	20%
Attendance & Participation .....	10%

**Incomplete Final Grade:**

Based on the final grade and the students overall performance including attendance, attitude and contribution, a test or assignment may be allowed to upgrade an Incomplete final grade. If the revised grade is greater than 60%, a final "C" grade will be issued. If the revised grade is less than 60%, a final "R" grade will result.

## Course Content:

<u>TOPIC</u>	<u>Hours</u>	<u>TOPIC DESCRIPTION</u>
1.	6	<u>Review of Basic Engineering Drawing</u>
2.	12	<u>Screw Threads</u> a) Drawing of a Helix. b) Thread Nomenclature c) Standard Thread Profiles d) Thread Representation e) Selection Appropriate Thread f) Thread Specification (inch & metric)
3.	4	<u>Threaded Fasteners</u> a) Types of Fasteners b) Head Styles c) Material Property Grades d) Threaded Assembly Drawings e) Specification of Fasteners f) Locknuts - Prevailing Torque and Free Spinning Torque
4.	4	<u>Tolerancing</u> a) General Tolerance Notes b) Tolerance Accumulation in Chain and Datum Dimensioning c) Interchangeable, Fitted Assembly
5.	8	<u>Fits</u> a) Calculations to determine limit dimensions for mating parts, given the allowance and tolerances b) Standard Fits (inch system) c) Use of Standard Fit Tables (inch)
6.	9	<u>Dimensioning</u> a) Methods of Dimensioning Aligned Unidirectional b) Applications of dimensioning
7.	15	<u>Assembly Drawings</u> a) Sub Assembly Drawings b) Assembly Drawings c) Assembly Dimensioning d) Material Columns
8.	5	<u>Surface Finish Specification</u> a) Machining Symbols b) Definitions (Surface Texture Characteristics) c) Surface Texture Symbol d) Acceptance Locations of the Symbol on Detail drawings e) Manufacturing Process for Surface Roughness Ranges

TOPIC	Hours	TOPIC DESCRIPTION
9.	10	<u>Welded Assemblies</u> a) Types of Joints b) Weld Symbols c) Specification of Welding Process
10.	10	<u>Piping Drawing</u> a) Specification of pipe size and wall thickness b) Available standard Fittings c) Symbols for Pipe Fittings d) Single Line Drawings (Orthographic and Isometric) e) Indication of pipe runs not in the direction of the coordinate axes.
11.	4	<u>Standard Symbols and Abbreviations</u> a) Reference Sources b) Appropriate use
12.	15	<u>Sheet Metal Developments</u> a) Straight Line Development b) Radial Line Development c) Development of Transition pieces by triangulation d) Development Drawings for the intersection of two cylinders e) Layout of a pattern for a 4-piece turn

- Testing:
- a) Tests will be scheduled at intervals throughout the term.
  - b) There will be at least one week notice provided for each test.
  - c) Students who will be absent for a scheduled test MUST contact the instructor in ADVANCE. Students absent without prior notification AND a valid reason will be assigned a "ZERO" grade for the missed test.
  - d) If a student fails a test, an opportunity will be given to the student to write a make-up test at a time designated by the Instructor.
  - e) An 80% attendance record is required in order for a student to be eligible to write a make-up test.
  - f) The maximum that a student will be given for a make-up test will be a "C".

Assignments:

- a) Assignments will be required to be submitted at the BEGINNING of class on the due date. Assignments submitted late will be considered "NOT COMPLETED" and will be given a "ZERO" grade.
- b) The marking of assignments may be on a random basis.
- c) Grades for assignments will be reduced according to the degree of lateness.
- d) No assignment will be accepted if the due date is exceeded by more than 3 days.

Textbook(s):

Engineering Drawing and Design, 4th Ed., SI Metric - Jensen & Helsen

Reference Books:

"Mechanical Engineering Drawing Standards" C.S.A. B78.1  
"Mechanical Engineering Drawing Standards" C.S.A. B78.2  
"Machinery's Handbook"  
"Graphic Science"  
"Metals Handbook - Properties and Selection"  
American Society of Metals

A collection of Industrial Catalogs will be made available for student use.