

#688 ENGINEERING AND DESIGN TECHNOLOGY II

GRADES: 10 - 12

LEVEL: 1

CREDITS: 5

PREREQUISITE: 684 ENGINEERING & DESIGN TECH I

**BASIC TEXT: Mechanical Drawing Glencoe-McGraw/Hill French Svensen Helsel
Urbanic**

Eleventh Edition

Tenth Edition

Ninth Edition

SUPPLEMENTAL READINGS: Handouts provided by instructor.

REQUIRED MATERIALS: All drafting equipment provided by instructor.

COURSE DESCRIPTION: This course designed to build on the skills learned in Engineering and Design Technology I. The students will explore the intricacies of the three view drawings on the board and the computer.

MISSION RELATED GOALS: Academic Excellence
 Intellectual Curiosity
 Respect for others
 Self-confidence
 Fosters communication
 Fosters problem-solving skills

STUDENT EXPECTATION FOR LEARNING ADDRESSED:

Communicate effectively The students will use the tools of a draftsman and the computer to communicate technical drawings.

Solving complex problems The students will use math skills as well as drafting tools to translate sketches into technical drawings.

Work with others toward a common goal. Students will work individually and in groups in a business/engineering, to produce sketches and technical drawings.

GENERAL PERFORMANCE OBJECTIVES: The student will be able to:

1. Learn continue to use drafting tools and the techniques involved to produce three-view drawings on the board as well as the computer, which will allow them to consider many rewarding careers in Engineering.
2. Understand and practice proper safety techniques in using drafting equipment.
3. Understand the importance of sketching and lettering.
4. Understand the dimensioning rules in Mechanical Drawing.
5. Identify and use the proper tools in drafting to produce a completed Three-view drawing.
6. Properly dimension a Three-view drawing.
7. Understand the geometry involved in producing Three-view drawings.
8. Use the computer and the AutoCAD LT program to produce technical drawings.

MASSACHUSETTS FRAMEWORKS STRANDS

There are no specific strands listed.

UNITS AND THEMES:

A. Careers and Opportunities in Drafting.	.5	Weeks
B. Use and Care of Equipment	.5	Weeks
C. Sketching and Lettering	.5	Weeks
D. Rules of Dimensioning	.5	Weeks
E. Three-view, Sectional & Drawings	7.0	Weeks
F. Geometry in Drafting	2.0	Weeks
G. AutoCAD LT (CAD)	8.0	Weeks

COURSE OUTLINE: This course is designed to allow the student to build on the experiences gained in Communication and Design Technology I. Math and Science

concepts are emphasized as the student use the computer and their own creativity to formulate designs and solve problems in Three-view drawings using AutoCAD 2000.

1. CAREERS AND OPPORTUNITIES IN DRAFTING

<u>Mechanical Drawing</u>	Chapter 1
<u>Exploring Drafting</u>	Chapters 1, 2
<u>Web sites relating to Engineering</u>	

2. USE AND CARE OF EQUIPMENT

<u>Mechanical Drawing</u>	Chapter 3
<u>Exploring Drafting</u>	Chapter 4

3. SKETCHING AND LETTERING

<u>Mechanical Drawing</u>	Chapter 2
<u>Exploring Drafting</u>	Chapter 3, 7

4. RULES OF DIMENSIONING

<u>Mechanical Drawing</u>	Chapter 6
<u>Exploring Drafting</u>	Chapter 5, 9

5. THREE-VIEW DRAWINGS

<u>Mechanical Drawing</u>	Chapter 5
<u>Exploring Drafting</u>	Chapter 6

SECTIONAL VIEW DRAWINGS	Chapter 9
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6. GEOMETRY IN DRAFTING

<u>Mechanical Drawing</u>	Chapter 4
<u>Exploring Drafting</u>	Chapter 8

7. AUTOCAD LT AN ITS USE

<u>AutoCAD LT Fundamentals and Applications</u>	Handouts
<u>AutoCAD and its Applications</u>	Handouts

USE OF TOOLS/TECHNOLOGY

1. Computer and software for AutoCAD LT
2. Use of the Internet to view various URL's relating to drafting topics and careers.

ASSESSMENT:

1. Teacher Observation of skills and safety techniques.
2. Projects on developing designs.
3. Written/Oral/Visual Pre and Post tests in various units.
4. Student drawings produced on the drafting board and the computer.