

#689 ENGINEERING AND DESIGN TECHNOLOGY III

GRADES: 10 - 12

LEVEL: 1

CREDITS: 5

PREREQUISITE: 688 ENGINEERING & DESIGN TECH II

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

Eleventh Edition

Tenth Edition

Ninth Edition

Modern Carpentry Goodheart-Wilcox Wagner

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 and Engineering and Design Technology II. The students will design and produce a set of house plans of their choice following the generally accepted rules of construction on 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. Continue to use drafting tools and the techniques involved to produce a set of working house plans on the computer. This will allow them to consider another rewarding careers in Architectural 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 Architectural Drawing.
5. Identify and use construct a set of house plans to include: Foundation plan, First/second floor framing plan, Electrical plans, Front and Right side views.

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 Architectural/Structural Dimensioning	1.0	Weeks
E. Architectural/Structural Sketches	2.5	Weeks
F. Architectural/Structural Drawings (CAD)	9.0	Weeks
G. Construction of a two-story house	5.0	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>Modern Carpentry</u>	Chapter 25
<u>Web sites relating to Engineering</u>	
<u>Web sites relating to Architecture</u>	
<u>Web sites relating to House supplies/fixtures</u>	
<u>Web sites relating to Furniture</u>	

2. USE AND CARE OF EQUIPMENT

<u>Mechanical Drawing</u>	Chapter 3
<u>Modern Carpentry</u>	Chapter 1, 2, 3

3. SKETCHING AND LETTERING

<u>Mechanical Drawing</u>	Chapter 2
<u>Modern Carpentry</u>	Chapter 5

4. RULES OF DIMENSIONING

<u>Modern Carpentry</u>	Chapter 5 – 8
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5. DEVELOPING A SET OF PLANS

<u>Modern Carpentry</u>	Chapter 5 – 9, 16
<u>AutoCAD and its Applications</u>	Handouts

6. READING A SET OF PLANS

<u>How to read plans</u>	Handouts
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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 sketches/drawings produced on the drafting board and the computer.
5. Construction of a building.