

Course Syllabus for Exploratory Drafting

Course Title: Exploratory Mechanical Drafting

8/21/07

Instructor: Cary Haakenson

Textbook: Exploring Drafting

Prerequisite: None

Course Value: .25 unit – 1 Quarter

Purpose: The purpose of Exploratory Mechanical Drafting is to introduce students to the “language of industry” so that they can determine if their interests and abilities fit the needs of industry.

Course Outcomes: The students will:

1. use drawing instruments (T-square, triangles, compass, scale) to make drawings of various objects to help him/her understand the background of drafting and to learn basic drawing techniques.
2. follow directions.
3. read and create dimensioned drawings that are neat, clean precise, and accurate.
4. learn and employ the basic procedures, techniques, and skills of drafting.
5. create drawings on the computer using AutoCAD It.

Course Goals:

The goals of this course are to:

1. give students exposure to the field of drafting so they can determine whether they have an interest and/or special talents and abilities in this discipline.
2. expose students to the use of modern technology in drafting.
3. provide opportunities for students to use various math skills in real-life situations.
4. develop and practice Christ-centered work habits.

Related Careers: drafting, industrial design, tool design, technical illustrators, architectural drafting and design

School Outcomes:

- #2. Students will use critical thinking and problem solving skills in completing their drafting assignment.
- #4. The skills learned in this course will serve as a basis for meaningful experiences in further classes.
- #5. As students work through assigned projects they will discover and develop any

special interests, skill, and/or talents and abilities in the field of drafting which they may use in service to their Lord.

- #6. Students will enhance their technological literacy as they use computers to generate drawings.
- #7. Students will explore possible areas for career or hobby as they learn and use the various drafting skills and techniques in their drafting projects.

Department Outcomes:

A graduate of the WLHS Trade and Technology Department will be:

1. a problem solver who applies the problem-solving process to challenging situations.
3. a self-directed learner who recognizes the need to adapt to rapidly changing technologies, identifies trends in the work place and applies and/or evaluates the trends that apply to his/her job, identifies his/her personal interests and abilities, and develops his/her gifts.
5. a quality-minded, literate producer who applies mathematical and scientific principles to industrial applications, explores technologies, produces products by using current technology, and produces products with high quality standards.
6. an effective communicator who follows verbal and written directions, communicates clearly and precisely, and who reads technical literature effectively.

Department Outcomes:

This course supports all of the department outcomes.

Course Outline**Unit 1 - Introduction to Mechanical Drafting**

The students will:

- Learn the names and uses of the various drafting tools
- Learn proper line-drawing techniques
- Learn line types: object, hidden, center
- Understand the concept of line weight
- Review scale reading
- Draw their first plate

Number of days: 3-4

S.O.: 3, 4

D.O.: 3.3, 3.4, 5.1, 5.4, 6.1

W.S.S.: B1, B8, C2

Unit 2 Orthographic Drawings

The students will:

- Understand the concept of orthographic views
- Apply their knowledge of line types and weights in drawing plates
- Learn how to center a drawing on a plate
- Learn sketching techniques
- Draw plates with orthographic views

Number of days: 12-14

S.O.: 2, 3, 6

D.O.: 5.1, 5.4, 6.1, 6.2

W.S.S.: B8, C2

Unit 3 Introduction to Computer-Aided Design (CAD)

The students will:

- Learn the basic concepts of CAD technology
- Learn the operation of the basic AutoCAD tools
- Learn how to set up a drafting plate in AutoCAD
- Learn and apply dimensioning rules
- Draw plates using AutoCAD

Number of days: 6 weeks

S.O.: 2, 3, 4, 6

D.O.: 2.1, 3.2, 3.4, 4.4, 5.1, 5.2, 5.3, 5.4, 6.1, 6.2, 6.3

W.S.S.: A1, A3, B2, B5, B7, B8, C2

Unit 4 Introduction to Solid Works (CAD)

Students will:

- Learn the function and operation of Solid Works tools
- Learn how to set up a new plate
- Learn and apply drawing and dimensioning techniques and applications
- Complete 1-3 tutorials

Number of days: 3

S.O.: 2, 3, 4, 6

D.O.: 2.1, 3.2, 3.4, 4.4, 5.1, 5.2, 5.3, 5.4, 6.1, 6.2, 6.3

W.S.S.: A1, A3, B2, B5, B7, B8, C2

Instructional Strategies:

Lecture – 5%

Class Discussion – 5%

Demonstration – 10%

Lab – 80%

Performance Assessment

Quizzes and homework – 5%

Individual lab work – 95%

APPENDIX:

COURSE NAME: EXPLORATORY MECHANICAL DRAFTING
INSTRUCTOR: CARY HAAKENSEN

Unit 1 Introduction to Mechanical Drafting

- 3.3 Identify their own personal abilities and interests
- 3.4 Develop their gifts
- 5.1 Apply mathematical and scientific principles to industrial applications
- 5.4 Produce products with high quality standards
- 6.1 Follow verbal and written direction

Unit 2 Orthographic Drawings

- 5.1 Apply mathematical and scientific principles to industrial applications
- 5.4 Produce products with high quality standards
- 6.1 Follow verbal and written direction
- 6.2 Communicate clearly and precisely

Unit 3 Introduction to Computer-Aided Design (CAD)

- 2.1 Assist others in a common goal
- 3.2 Identify and evaluate trends in the work place
- 3.4 Develop their gifts
- 4.4 Recognize and practice effective work habits
- 5.1 Apply mathematical and scientific principles to industrial applications
- 5.2 Explore technologies
- 5.3 Produce products by using current technology
- 5.4 Produce products with high quality standards
- 6.1 Follow verbal and written direction
- 6.2 Communicate clearly and precisely
- 6.3 Read technical literature and/or drawings effectively

WISCONSIN STATE STANDARDS

Unit 1

- B1 Identify and explain the ways technological systems have evolved and will continue to evolve to satisfy human needs and desires
- B8 Select and apply appropriate processes to transform information into its most useful format
- C2 Measure, collect, and analyze data in order to solve a technological problem

Unit 2

- B8 Select and apply appropriate processes to transform information into its most useful format
- C2 Measure, collect, and analyze data in order to solve a technological problem

Unit 3

- A1 Contrast the increasing complexities of technology with its ease of use
- A3 Explain why decisions regarding the use of technology are dependent on the situation, application, or perception of the group using it
- B2 Demonstrate how systems are planned, organized, designed, built, and controlled
- B5 Assess the impact new and improved products and services have had on the quality of life; explain how the development of new tools, materials and processes is necessary to maintain and improve high productivity and quality
- B7 Explain how new and higher quality products require new and higher quality materials and processing techniques
- B8 Select and apply appropriate processes to transform information into its most useful format
- C2 Measure, collect, and analyze data in order to solve a technological problem