

Course Title: **MECHANICAL DRAFTING 3**

8/07

Credit: ½ Unit – 1 Semester

Instructor: L. Westphal

Prerequisite: Successful completion of Mechanical Drafting 2

Text: BASIC TECHNICAL DRAWING, SPENCER/DYGDON

Course Purpose:

The purpose of this course is to develop knowledge, understanding, and application of the mechanical drawing conventions that are related to the fields of engineering, design, and manufacturing. The students should develop the skills and abilities required to make such drawings primarily with the computer (CAD). Students will use both 2-D (AutoCAD-LT) and 3-D (Solidworks) software. Students considering careers in Mechanical Drafting and Design, Engineering, Tool & Die, CNC Machining, Cabinetmaking, etc. will benefit from this course.

Course Outcomes:

The student will:

1. Determine if he/she has the skills and interests to pursue a career related to the drafting field.
2. Develop the ability to competently make various types of drawings required by industry using sketching and the computer.
3. Recognize that accuracy, technique, speed and neatness are important to being successful in a drafting environment.
4. Learn to analyze and think critically by moving from the abstract to the concrete in the drawing process.
5. Learn the basic types of drawings that various industries use – auxiliaries, developments, pictorials, sections, revolutions and working drawings.

Course Goals:

The student will:

1. Learn to recognize that God's gifts of time and talent are to be appreciated and utilized.
2. Learn more about himself/herself as to his/her ability to think and see abstractly and problem solve.
3. Value his/her math classes as they relate to the field of drafting.

COURSE OUTLINE:

Unit 1 Auxiliary Views

* Describe the purpose of an auxiliary view

* Demonstrate understanding by drawing various auxiliary views - complete and partial

TEXT: Pg.213-230

Number of days: 17-19

S.O. - 2, 4, 6

D.O. – 3.3, 3.4, 5.1, 5.2, 5.3, 5.4, 6.1, 6.2, 6.3

W.S.S. - A1, B8, C2, C9

Unit 2 Sections

* Define a sectional view and describe the difference between it, a revolution, and an auxiliary view

* Demonstrate understanding by drawing various sectional views

TEXT: Pg. 193-205

Number of days: 7-9

S.O. - 2, 4, 6

D.O. - 1, 3.3, 3.4, 5.1, 5.2, 5.3, 5.4, 6.1, 6.2, 6.3

W.S.S. - A1, B8, C2, C9

Unit 3 Revolutions

* Define a revolution and describe the difference between it and an auxiliary view

* Describe the purpose of revolutions in drafting

* Demonstrate understanding by drawing various revolutions

TEXT: Pg. 231-236

Number of days: 13-14

S.O. - 2, 4, 6

D.O. - 3.3, 3.4, 5.1, 5.2, 5.3, 5.4, 6.1, 6.2, 6.3

W.S.S. - A1, B8, C2, C9

Unit 4 Working Drawings

* Demonstrate the ability to apply all of the principles previously learned by completing the assigned drawings

TEXT: Pg. 267-306

Number of days: 12-15

S.O. - 6, 7

D.O. - 2.4, 5.1, 5.3, 5.4, 6.2

W.S.S. - A1, B8, C2, C9

Unit 5: Pictorial Perspectives

* Define a pictorial drawing

* Differentiate between oblique and isometric drawings

* Review 3-D software using tutorials

* Draw various oblique and isometric pictorials using 2-D and 3-D software

TEXT: Pg. 307-335

Number of days: 16-18

S.O. - 2, 4, 6

D.O. - 3.3, 3.4, 5.1, 5.2, 5.3, 5.4, 6.1, 6.2, 6.3

W.S.S. - B1, B2, B8, C9

Unit 6: Career Exploration

*Learn about the opportunities for careers in mechanical drafting and related fields.

*Evaluate God-given talents related to career opportunities.

TEXT: None

Number of days: 1

S.O. - 5

D.O. - 3.3

W.S.S. - None

INSTRUCTIONAL STRATEGIES:

Lecture and demonstration: 10%
Class discussion: 5%
Individual classroom lab work: 85%

GRADING:

Quarter grades:
Tests: 20%
Drawings: 80%

Final grade:
Quarter 1 - 40%
Quarter 2 - 40%
Final Exam: 20%

APPENDIX:

COURSE: MECHANICAL DRAFTING 3
INSTRUCTOR: LEE WESTPHAL

Unit One: Auxiliary Views

- 3.3 Identify their own personal abilities and interests
- 3.4 Develop their gifts
- 5.1 Apply mathematical and scientific principles to industrial applications
- 5.2 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

Unit Two: Sections

- 3.3 Identify their own personal abilities and interests
- 3.4 Develop their gifts
- 5.1 Apply mathematical and scientific principles to industrial applications
- 5.2 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

Unit Three: Revolutions

- 3.3 Identify their own personal abilities and interests
- 3.4 Develop their gifts
- 5.1 Apply mathematical and scientific principles to industrial applications
- 5.2 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

Unit Four: Working Drawings

- 3.3 Identify their own personal abilities and interests
- 3.4 Develop their gifts
- 5.1 Apply mathematical and scientific principles to industrial applications
- 5.2 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

Unit Five: Pictorial Perspectives

- 3.3 Identify their own personal abilities and interests
- 3.4 Develop their gifts
- 5.1 Apply mathematical and scientific principles to industrial applications
- 5.2 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

Unit Six: Career Exploration

3.3 Identify their own personal abilities and interests

WISCONSIN STATE STANDARDS

Unit 1 Auxiliary Views

- A1 Contrast the increasing complexities of technology with its ease of use
- 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
- C9 Apply basic engineering concepts in the design and creation of solutions to various problems or opportunities

Unit 2 Sections

- A1 Contrast the increasing complexities of technology with its ease of use
- 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
- C9 Apply basic engineering concepts in the design and creation of solutions to various problems or opportunities

Unit 3 Revolutions

- A1 Contrast the increasing complexities of technology with its ease of use
- 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
- C9 Apply basic engineering concepts in the design and creation of solutions to various problems or opportunities

Unit 4 Working Drawings

- A1 Contrast the increasing complexities of technology with its ease of use
- 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
- C9 Apply basic engineering concepts in the design and creation of solutions to various problems or opportunities

Unit 5 Pictorial Perspectives

- B1 Identify and explain the ways technological systems have evolved and will continue to evolve to satisfy human needs and desires
- B2 Demonstrate how systems are planned, organized, designed, built, and controlled
- B8 Select and apply appropriate processes to transform information into its most useful format
- C9 Apply basic engineering concepts in the design and creation of solutions to various problems or opportunities

Unit 6 Career Exploration

W.S.S. - None