

DRFT109 Syllabus

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Prerequisites: None

Alternative learning opportunities including independent study and distance delivery experience exist by obtaining the permission of the instructor.

Students With Disabilities: Disability-related information is deemed medical information under Title V of the Rehabilitation Act of 1973 and is considered confidential. Students with disabilities, whether physical, learning or psychological, who believe that they may need accommodations in this class are encouraged to contact Disability Support Services as soon as possible to ensure that such accommodations are implemented in a timely fashion. Please contact DSS to verify your eligibility for any classroom accommodations and for academic assistance related to your disability by calling 657-2283. The DSS contact person at the College of Technology is in room A071 and available Monday-Friday, 9 a.m.-2 p.m. Tutoring services for students are available in the Academic Support Center, A035, Monday through Friday, 8 a.m.-5 p.m.

I COURSE DESCRIPTION

This course presents basic mechanical drafting principles and techniques in a lecture format. Topics covered include geometric figures, multi-view working drawings, auxiliary views, sectional drawings, and pictorial drawings. Correct application of CAD techniques and commands are also emphasized and integrated throughout the course to provide a solid foundation for future CAD classes. These CAD techniques include layer control, dimensioning techniques, file management, and the use of template drawings.

II TASK INVENTORY

- A. Identify startup to operate the CAD hardware
- B. Identify a setup drawing environment using the setting and mode commands (including layers and linetypes)

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- C. Identify standard scales and scaling techniques
- D. Identify the coordinate systems required for input
- E. Identify geometric figures and constructions using the draw, edit and osnap commands
- F. Identify display commands
- G. Identify machining and shop practices
- H. Identify ANSI Drafting Standards
- I. Identify the dimensioning commands and their settings
- J. Identify dimensioned multi-view and sectional drawings
- K. Identify working drawings including auxiliary views
- L. Identify dimensioned pictorial drawings
- M. Identify printing and reproduction equipment

I PERFORMANCE OBJECTIVES

Upon completion of this course, students will be able to do the following:

1. Given a typical CAD station, identify the equipment and startup procedures
2. Identify a drawing environment using the setting, mode, layer and linetype commands
3. Identify standard scales and scaling techniques in the preparation of drawings
4. Identify the coordinate systems
5. Identify geometric figures and constructions using the draw, edit and osnap commands
6. Identify the display commands
7. Identify machining and shop practices relevant to the creation of working drawings
8. Develop a working knowledge of ANSI Drafting Standards
9. Identify the dimensioning commands and their settings

10. Develop the ability to prepare dimensioned multi-view and sectional drawings to industry standards

11. Develop the ability to prepare working drawings including auxiliary views using standard projection methods

12. Develop the ability to create pictorial drawings

13. Identify printing and reproduction equipment

III B. CONTENT OUTLINE

1. Equipment

a. Hardware

b. Terms and definitions

c. Methods of input

2. Settings and modes practices

a. Defaults

b. Settings

c. Layers and linetypes

3. Scales

a. Standard scales

b. CAD scaling

4. Coordinate systems

a. Absolute (Cartesian)

b. Polar

c. Relative

5. Geometric Construction

a. Draw commands

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- b. Object snap commands
 - c. Edit commands
 - d. Selection sets
- 6. Display commands
 - a. Display commands
 - b. Transparent commands
 - c. Modelspace/Paperspace
- 7. Machining and shop practices
 - a. Equipment
 - b. Fasteners
 - c. Materials
 - d. Welding, forming and shop
 - e. Prototyping
- 8. ANSI Drafting Standards
 - a. Symbols
 - b. Tolerancing
 - c. Reference material
- 9. Dimensioning
 - a. Dimensioning commands
 - b. Dimensioning variables
- 10. Multi-view
 - a. Multi-view projection
 - b. Sections

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- c. Auxiliary Views
 - d. Dimensioning placement
11. Pictorial drawings
- a. Axonometric drawings
 - b. Oblique drawings
 - c. Schematic drawings
12. Printing and reproduction
- a. Printing equipment
 - b. Printing commands
 - c. Reproduction equipment

IV GRADING PROCEDURES

This course will be graded as follows:

33% assigned tasks

33% tests

33% written final test

The following grading standard will be used:

<u>Percentage</u>	<u>Letter Grade</u>	<u>Numerical</u>
95-100	A	4
85-94	B	3
75-84	C	2
65-74	D	1
0-64	F	0

Late tests or retakes = 66% of grade received

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Two week limit on late tests and retakes

The regular attendance of class is considered integral to the academic and technical skills development of students. It is the responsibility of the student to make arrangements with the instructor should extenuating circumstances apply.

V STUDENT REFERENCES

(Current textbook/supplies as directed by instructor at start of each semester – list on file in the bookstore)

Recommended Reference:

Library materials
Classroom materials
Industry Magazines

VI CONTACT HOURS & CREDITS

LECTURE	LAB	TOTAL HOURS	CREDITS
<u>60</u>	<u>0</u>	<u>60</u>	<u>4</u>

VII. ASSISTANCE

The primary source of assistance is, of course, the instructor. While my primary duties are in the classroom, I also participate in a variety of activities on campus and this often requires me to be in my office or outside of the program area during lab times. Students should not hesitate to bring questions into the office during lab time. If I am involved in counseling or a meeting of some sort, please be patient and be assured that I will address your question as soon as possible.

My priority of response to communication is 1) Email - Always up and functioning on my desktop. This is probably the quickest way to receive an answer. 2) Phone – It's Ok to leave messages but it is difficult to reach me by phone. 3) Written – Notes and reminders are ok, however, written messages are generally not given high priority and are often stacked in forgotten piles which are discarded at the end of each academic year.

Students should also utilize each other as a resource for classroom situations and study groups. This is how information is often shared on the job and often leads to an overall interpretation of information. Of course, this does not apply during testing!

VIII. METHODOLOGIES AND LEARNING STYLES

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The class will generally follow a process of guided exploration of a topic or software, assignment of a task or lab exercise that familiarizes the student with the topic and testing of the students' familiarity with the material.

New information will be distributed using the network. Testing and turning in assignments will also be done using the local area network.

I believe that students should be active participants in their learning. Students that participate in the lecture\demonstration components of the course should have little difficulty mastering the material. Many topics will be covered in this course and the student has a responsibility to explore the subject beyond what is covered in class. It is hoped that this methodology of exploration remains with the student beyond the end of the course and becomes a keystone of a technological curiosity.

IX. SAFETY

While the Drafting Lab areas may be low-risk areas by comparison, safety is always a prime concern. Electrical and lifting hazards are the most obvious concerns and situations should be treated accordingly. Any safety issue should be brought to the attention of the instructor immediately.

Material Safety Data Sheets (MSDS) are posted in the classrooms. All students shall conduct themselves in a safe manner. Students traveling into other labs must abide by posted restrictions including (but not limited to) safety glasses. Classrooms are equipped with first aid stations; a fire extinguisher is located in the hallway.

In case of alarm, students are required to evacuate the building per the evacuation chart located near the door of each classroom. Students should also be alert to situations of violence, extreme weather, etc.

X. STUDENT CONDUCT

Students must read and be familiar with the Code of Conduct as published in the Student Handbook, policies and procedures as outlined in campus publications, MSU-Billings and Drafting Program policies.

Students in this (or any) program of study should be especially aware of the severe consequences of plagiarism. Students that submit work that is not their own will be dealt with quickly and severely. It will be the recommendation of the faculty to remove such students from the University.

Students that have a concern regarding any inappropriate conduct should bring it to the attention of their instructor, advisor. Inappropriate conduct situations will be reviewed immediately.

XI. CELL PHONES AND CHILDREN IN THE CLASSROOM

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Given the disruptive potential posed by cell phones, students are asked to keep cell phones off during class lectures. Use of cell phones during laboratory exercises is permissible, but please be considerate of others around you.

Children, likewise, represent a disruptive element for the classroom. They also increase the risk of accidents occurring in the laboratory. For those reasons, children should not be brought to either the classroom or the laboratory.