

**IT-111
ENGINEERING DRAFTING
SYLLABUS**

Instructor: R. Edward Rode'

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Hours: Refer to Schedule

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Course Title: ENGINEERING DRAFTING

Course Number: Industrial Technology 111

Course Credit Hours: 3 hours

Course Description:The basic elements of drafting: selection and use of instruments, lettering, applied geometry, freehand sketching, orthographic projection, sectioning, dimensioning, isometric and oblique pictorial representation, and fastener symbols. Four hours of laboratory a week.

Course Text: Technical Graphics Communication, 9h Edition, by Bertolin, Wiebe, Miller, and Nasman; Irwin Publishing Co., Inc., Chicago. and Engineering Graphic with AutoCAD 2004, Bethume D. James; Pearson, Prentice Hall , Hew Jersey

Course Objectives:

1. To introduce the student to the fundamentals of engineering drawing.
2. To develop basic skills in the use of drawing instruments and drafting techniques.
3. To instill an attitude for neatness, orderliness, accuracy, speed, and legibility.
4. To introduce drafting terminology.

Basis for Assigning Grades

- A. Quality, quantity, and range of laboratory work completed: **60%±.**
- B. Mastery of content as measured by objective tests : **30%±.**
- C. Notebook, housekeeping, and attendance: **10%±.**

Course Requirements

- A. Each student will participate in a variety of drafting problems.
- B. Written quizzes and will be given periodically throughout the term with a final at the end of the course.
- C. STUDENT MUST PROVIDE A WAY TO STORE DRAWING OUTSIDE OF CLASS ,,,
3/1/2" DISKS OR FLASHDRIVES .

GRADING SCALE

A =	100-	93
B =	92 -	85
C =	84 -	77
D =	76 -	69
F =	68 -	0

NOTES:

- 1. Students will NOT automatically be dropped form class. Students who choose to drop must do so by the semester deadline!
October 19, 2007 is the last day to drop classes or resign form the University.**
- 2. If you are a qualified student with a disability seeking accommodations under the American with Disabilities Act, you are required to self-identify with the office of Student Life, Room 203, Student Union.**
- 3. Students behavior/ Classroom decorum: "Free discussion, inquiry, and expression is encourage in this classroom. Classroom behavior that interferes with either (a) the instructors ability to conduct the class or (b) the ability of students to benefit from the instruction is not acceptable. Examples may include routinely entering class late or departing early; use of beepers, cellular telephones, or other electronic devices; repeatedly talking in class without being recognized; talking while others are speaking; or arguing in a way that is perceived as "crossing the civility line". In the event of a situation where a student legitimately needs to carry a beeper / cellular telephone to class, prior notice and approval by the instructor is required."**

Course Outline (Major Topics):

- I. The Graphic Language and Design
 - A. Introduction
 - B. Historical review
 - C. Drafting standards

- II. Drafting Equipment and Supplies
 - A. Required equipment needed by student
 - B. Objectives in drafting
 - 1. Accuracy
 - 2. Speed
 - 3. Legibility
 - 4. Neatness
 - C. Demonstrate use of equipment
 - D. Demonstrate drafting techniques
 - E. Review alphabet of lines
 - F. Review terminology

- III. Lettering
 - A. Lettering style-single-stroke, gothic
 - B. Vertical and inclined lettering
 - C. Technique of lettering-spacing-strokes
 - D. Use of guide lines
 - E. Lettering devices and templates

- IV. Geometric Construction
 - A. Introduction
 - B. Points and lines
 - C. Angles
 - D. Triangles
 - E. Quadrilaterals
 - F. Polygons
 - G. Circles and arcs
 - H. Bisecting a line or an arc
 - I. Bisecting an angle
 - J. Transfer an angle
 - K. Parallel lines
 - L. Dividing a line into equal parts
 - M. Drawing triangles and angles
 - N. Drawing a square

 - O. Drawing a regular pentagon
 - P. Drawing a hexagon
 - Q. Drawing an octagon
 - R. Tangents
 - S. Ellipse templates

V. Sketching

- A. Introduction
- B. Sketching materials
- C. Types of sketches/projection
- D. Scale
- E. Technique of lines
- F. Drawing lines, circles, arcs, and ellipses
- G. Proportions
- H. Views of an object/projection rules refer to VI.
 - 1. Horizontal
 - 2. Frontal
 - 3. Profile
- I. Choice of views
- J. Alignment of views
- K. Use of hidden lines and center lines

VI. Multiview Projection

- A. Introduction
- B. Rules for multiview projection
- C. Three views/planes/fold lines/principle dimensions/"glass box"
- D. Arrangement of views
- E. Fillets, rounds, and runouts

VII. Dimensioning

- A. Introduction
- B. Lines used in dimensioning
- C. Placement of dimension and extension lines
- D. Arrowheads
- E. Leaders
- F. Fractional and decimal dimensions
- G. Dimension figures
- H. Direction of dimension figures
 - 1. Unidirectional system
 - 2. Aligned system
- I. Feet and inches
- J. Standard dimensioning practices and techniques
 - 1. Miscellaneous shapes
 - 2. Holes
 - 3. Curves
 - 4. Rounded-end shapes
 - 5. Threads
 - 6. Tapers

- 7. Chamfers
- 8. Shafts
- 9. Keyways
- 10. Knurls
- 11. Sheet metal bends

- K. Notes
- L. Standards
- M. Dimensioning for numerical control
- N. Do's and don'ts of dimensioning

VIII. Sectional Views

- A. Introduction
- B. Conventions and symbols
- C. Cutting plane
- D. Full sections
- E. Half sections
- F. Broken-out sections
- G. Revolved sections
- H. Removed sections
- I. Offset sections
- J. Ribs in section
- K. Aligned sections
- L. Partial views
- M. Conventional breaks

IX. Threads and Fasteners

- A. Introduction
- B. Terms
 1. Screw thread
 2. External thread
 3. Internal thread
 4. Major diameter
 5. Minor diameter
 6. Pitch
 7. Pitch diameter
 8. Lead
 9. Angle of thread
 10. Crest
 11. Root
 12. Side
 13. Axis of screw
 14. Depth of thread
 15. Form of thread
 16. Series of thread

C. Screw-Thread forms

1. American National thread
2. Unified thread
3. Square thread
4. Acme thread
5. Whitworth thread

- 6. Standard worm thread
- 7. Knuckle thread
- 8. Buttress thread
- D. Thread symbols/internal and external
 - 1. Schematic
 - 2. Simplified
 - 3. Detailed
- E. Thread notes
- F. Bolts, studs and screws
- G. Miscellaneous fasteners
- H. Keys
- I. Machine pins
- J. Rivets
- K. Springs