

Introduction to CADD

½ Credit
1 Semester

TEXTBOOK: Basic Technical Drawing – Spencer/Drygdon – Glencoe Publishing Co.
c. 1980

PREREQUISITE: None

COURSE DESCRIPTION:

Introduction to Cadd is designed for those students, who need a basic drafting course, or some other drafting related course. The student will be provided with information concerning basic drafting skills and techniques (both manual and Cadd), which will allow him or her to draw in an orderly manner, to interpret the drawn ideas of others, and to express their own ideas in an understandable drafting manner. Work sheets and various drafting exercises will allow the student the opportunity to develop and refine their individual drafting techniques and skills. Throughout the course, the student will discover the relationship that the drafting industry has to their everyday life as well as the world of work. Identification and utilization of drafting terminology and equipments (both manual and Cadd) will be stressed throughout the course. Introduction to airbrush techniques will also be made through this course.

This course is open to freshmen, sophomores, juniors, and seniors.

This course meets for one period daily for one semester for one-half credit.

COURSE CONTENT:

- Freehand Sketching
- History of Drafting
- Geometry of Technical Drafting
- Technique and Application of Auto Cadd
- Single View Drawings (2D)
- Multiview Drawings Orthographics
- Pictorial Views
- Dimensioning
- Developments and Intersections
- Rendering – Airbrush Techniques

COURSE FORMAT:

Course material is presented through classroom lecturing, handouts, and overhead presentations. Lectures may include textbook chapters, handouts, videos, and Power Points.

COURSE EXPECTATIONS:

Students will be expected to complete all assigned drawings.

GRADES:

Grades will be assessed for each unit of study – homework assignments, weekly unit tests, and comprehensive drawings will be recorded.

COURSE OBJECTIVES:

THE STUDENT WILL BE ABLE TO:

- I. Understand technical systems and their application.
 - Draw a freehand sketch and apply the principle of proportions
 - Identify and utilize the alphabet of lines
 - Design a prototype sheet for A and B-size paper
 - Correctly layout and center a single view drawing
 - Correctly layout and center an orthographic drawing
 - Correctly layout and center an isometric drawing
 - Correctly scale the size of the drawing to fit the drawing space
 - Create technical drawing lines with varying degrees of line weight with the .3, .5, and .7 pencil set
 - Be able to create any angle of 15 degree increments with the two (45/90 and 30/60) triangles
 - Understand and apply the principles of geometric constructions
 - Demonstrate the theory of precedence of lines
 - Through orthographic projection, demonstrate the theory of change of plane lines and the development of hidden lines on the planes
 - Apply airbrush techniques to render required drawings
 - Regulate air pressure through the regulator to create varying degrees of air patterns applied to rendered drawings

- II. Be able to analyze and solve technical problems.
 - Calculate the size for a three view orthographic drawing
 - Calculate the exact starting point for the “Y” axis on an isometric drawing
 - Diagnose the change of plane lines from one view to another in an orthographic drawing
 - Diagnose the change of plane lines from one view to another in an orthographic drawing
 - Locate all tangent points and swing points on a drawing
 - Distinguish between true length and foreshortened lines on a drawing
 - Correctly select the front view and project the other views from it using orthographic projection

- III. Become familiar with a variety of technical and related occupations
 - Become aware of career opportunities related to drafting
 - Become aware of high school and college education requirements for engineering and architecture offered at MHS
 - Become aware of career opportunities related to engineering through job shadowing offered at MHS

- IV. Be able to demonstrate cooperative work skills
 - Work with other drafting students to develop required drawings
 - Share ideas and brainstorm as a group to solve complicated drafting Problems related to engineering CADD
 - Share materials and equipment to create a drawing

- V. Investigate and explore emerging technologies and technical occupations
 - Explore CADD software utilized to create drawings
 - Become aware of the apprenticeship program and complete an application for acceptance into the program
 - Prepare for a job interview
 - Develop a resume
 - Compile a portfolio of completed drawings
 - Investigate the CAREERS software in the counseling office and explore possible engineering careers

- VI. Be able to operate equipment and materials in a proper, safe, and considerate manner.
 - Create technical drawings using a scale, triangles, templates, a compass, erasing shield, technical pencils, and a brush
 - Align and adjust a parallel ruled straight edge to create technical drawings
 - Clean and take care of your computer station
 - Clean and take care of your assigned desk and drawer at the desk
 - Correctly turn on the Windows menu, utilize the available software through passwords, file and save drawing files, and correctly shut down Windows
 - Correctly load the plotter and plot a CADD drawing
 - Correctly load the printer and print a CADD drawing
 - Open an airbrush station and be able to regulate the pressure to create different textures of spray
 - Take care of and clean up the airbrush station