

CADT 104M – CAD Graphics I (Course Description)

This course is an introduction to the components utilized in Computer Aided Design (CAD) technology. The primary focus will be on learning the fundamental capabilities of the current CAD program and how it applies to mechanical design principles and applications. Concentrated efforts will be made to stress learning 2-D CAD commands and the importance of accuracy and clarity towards basic drawing solutions.

CADT 104M – CAD Graphics I (AutoCAD 8 week course outcomes)

- I. Introduction to 2-D AutoCAD
 - a. File management
 - b. Starting & Exiting AutoCAD
 - c. The AutoCAD Interface (window display menus and icons)
 - d. Model Space versus Layout Space (paper space)
 - e. Accessing tool
 - f. Accessing tools
 - g. Getting Help
- II. Introduction to Drawing and Editing
 - a. Responding to prompts
 - b. Introduction to drawing
 - c. Introduction to drawing aids (Object Snaps & AutoTracking)
 - d. Introduction to editing
 - e. Object selection
 - f. View Tools (Navigator Bar, Zooming, Panning, Introduction to the Steering Wheel and View Cub, Regenerating the Screen, Tiled Viewports)
 - g. Basic object tools
 - i. Drawing Points
 - ii. Drawing lines
 - iii. Drawing Circles
 - iv. Drawing Arcs
 - v. Hex
 - vi. Drawing Ellipses
 - vii. Drawing Polylines
 - viii. Drawing regular polylines
 - ix. Drawing rectangles
 - x. Splines
 - xi. Drawing donuts and filled circles
 - xii. Drawing true splines
- III. Construction Tools
 - a. Parallel Offsets
 - b. Construction Lines and Rays
 - c. Tangent, Tangent Radius (TTR)
- IV. Modifying Objects
 - a. Fillets
 - b. Chamfers
 - c. Breaks
 - d. Join
 - e. Trimming / Extending
 - f. Stretching / Lengthening

- g. Scaling
 - h. Exploding
- V. Arranging and Patterning Objects
 - a. Moving Objects
 - b. Rotating Objects
 - c. Aligning Objects
 - d. Copying Objects
 - e. Mirroring Objects
 - f. Reversing an objects Point Location
 - g. Arraying Objects
- VI. Obtaining Drawing Information
 - a. Taking Measurements
 - b. Listing Drawing Data
 - c. Reviewing Drawing Status
 - d. Checking the time
 - e. Using QuickCalc
- VII. Line Standards and Layers
 - a. Line standards
 - b. Introduction to layers
 - c. Layers Used in Drafting Fields
 - d. Creating and using layers
 - e. Reusing Drawing Content
- VIII. Drawings and Template
 - a. Beginning a new drawing
 - b. Saving and closing files (file formats/extensions)
 - c. Opening saved files
 - d. Managing multiple documents
 - e. Drawing properties
 - f. Basic drawing settings
 - g. Introduction to templates
 - h. Printing Verses Plotting
- IX. Geometric Construction Principles with CAD
 - a. Bisecting a Line
 - b. Bisecting an Angle
 - c. How to Draw an Arc or Circle through three given points
 - d. How to draw an OGEE Curve
 - e. How to draw an Involute of a circle
 - f. Handout Problems from the instructor
- X. Text Styles, Single and Multiline text
 - a. Text standards
 - b. Drawing scale and text height
 - c. Text Styles and Symbols
 - d. Multiline text