

Autodesk AutoCAD 2D and 3D

Target Audience

This course is designed for architects, engineers, designers, and professionals in various industries who want to gain comprehensive knowledge of Autodesk AutoCAD, covering both 2D drafting and 3D modeling techniques for creating detailed designs and visualizations.

Course Objective

The objective of this course is to equip participants with the skills to create, edit, and annotate precise 2D drawings and develop 3D models, enabling them to visualize and present designs effectively while adhering to industry standards.

Course Outcome

- Learn to navigate the AutoCAD interface and create accurate 2D drawings using essential drafting tools.
- Develop skills in layer management, annotations, and dimensioning to produce organized and communicative 2D designs.
- Gain proficiency in creating and editing 3D models using tools such as extrude, revolve, and sweep.
- Understand how to render and visualize 3D models, as well as generate 2D views from 3D designs for technical documentation.

Course Outline: The course comprises **40-hours** of theory and labs and is divided into **16** different chapters. Each chapter will be followed by hands-on lab exercises to reinforce learning and gauge understanding of the topics covered.

Chapter 1. Getting Started with AutoCAD

- Starting the Software
- Creating a Drawing File
- Opening an Existing Drawing File
- Viewing your Drawing
- User Interface (2D and 3D Display)
- Setting up the Workspace (2D or 3D) and setting up the Limits
- Setting up the Units
- Mouse Controls
- Selection Methods
- Working with Commands
- Understanding Coordinate System
- Saving Your Work

Chapter 2. Basic Drawing and Editing Commands

- Drawing Lines (Vertical, Horizontal and Inclined Line)
- Drawing Rectangles
- Drawing Circles
- Erasing Objects
- Undo and Redo Actions

Chapter 3. Drawing Precision in AutoCAD

- Using Running Object Snaps
- Using Object Snap Overrides
- Object Snap Tracking

Chapter 4. Advanced Object Types

- Drawing Arcs
- Drawing and Editing Polylines
- Drawing Polygons
- Drawing Ellipses
- Drawing Splines
- Drawing Construction lines, Rays, Points, and Multiple Points
- Applying Hatches, Gradient Hatches and Editing Hatches

Chapter 5. Making Changes in Your Drawing

- Selecting Objects for Editing
- Moving Objects
- Copying Objects
- Rotating Objects
- Scaling Objects

Mirroring Objects
Editing with Grips

Chapter 6. Advance Editing Commands

Trimming and Extending Objects
Stretching Objects
Creating Fillets and Chamfers
Offsetting Objects
Creating Arrays of Objects
Using Explode Command
Using Join Command
Using Align Command
Using Break and Break at point Command
Using Overkill Command
Using Divide, Measure, and Wipe-out Command
Using Region and Boundary Command

Chapter 7. Analyzing Model and Object Properties

Working with Object Properties
Measuring Objects

Chapter 8. Organizing Your Drawing with Layers

What are Layers?
Layer States
Creating New Layers
Changing an object 's Layer
Using Match Layer and Layer Walk tools
Using Layer Isolate, UnIsolate, and Merge tools
Using Layer Translator

Chapter 9. Working with Blocks

What are Blocks
Creating Blocks
Inserting Blocks
Editing Blocks
Adding Blocks to Tool Palettes
Inserting Blocks using the Tool Palettes
Working with Dynamic Blocks
Inserting Blocks using the Design Center

Chapter 10. Working with Text Annotations

- Adding Single line text
- Adding Multiline text
- Formatting Multiline text
- Adding Notes with leaders to your drawing
- Creating Tables

Chapter 11. Adding Dimensions

- Dimensioning concepts
- Adding Linear Dimensions
- Adding Radial and Angular Dimensions
- Editing Dimensions
- Using Measure tool to find dimension of an object
- Using Dimjogline and Break line tool

Chapter 12. Working with Templates and Layout

- Why use Templates
- Creating some new drawings with Template
- Working in Layout
- Creating Layouts
- Creating Layout Viewports
- Advance Viewport options
- Creating and using named views
- Layer overrides in viewports

Chapter 13. Parametric Drawing

- Working with Constraints
- Geometric Constraints
- Dimensional Constraints

Chapter 14. External References

- Attaching External references
- Modifying External references
- Xref specific Information

Chapter 15. Printing Your Drawing

- Printing Concepts
- Printing Layouts
- Print and Plot Settings

Chapter 16. AutoCAD 3D

How to setup AutoCAD for 3D

3D AutoCAD drawing

AutoCAD Extrude

AutoCAD Revolve

AutoCAD Loft

AutoCAD Sweep

AutoCAD Presspull

Offset & Blend

Taper Face & Slice

Subtraction of objects in AutoCAD

3D Intersection in AutoCAD

How to unite 3D objects in AutoCAD

Shell in AutoCAD