

ENGINEERING EDUCATION SERVICES

AUTOCAD 2D & 3D Professional

Course Length: 4 Weeks

AutoCAD is a single software application with multipurpose functionality that enable you to create, modify, and work with a 2D drawing.

The AutoCAD 3D Drawing and Modeling course introduces users, who are proficient with the 2D commands in the software, to the concepts and methods of 3D modeling. The course provides a thorough grounding in the fundamentals of 3D and explores the main features of the advanced 3D Modeling workspace in the AutoCAD software.

Topics Covered

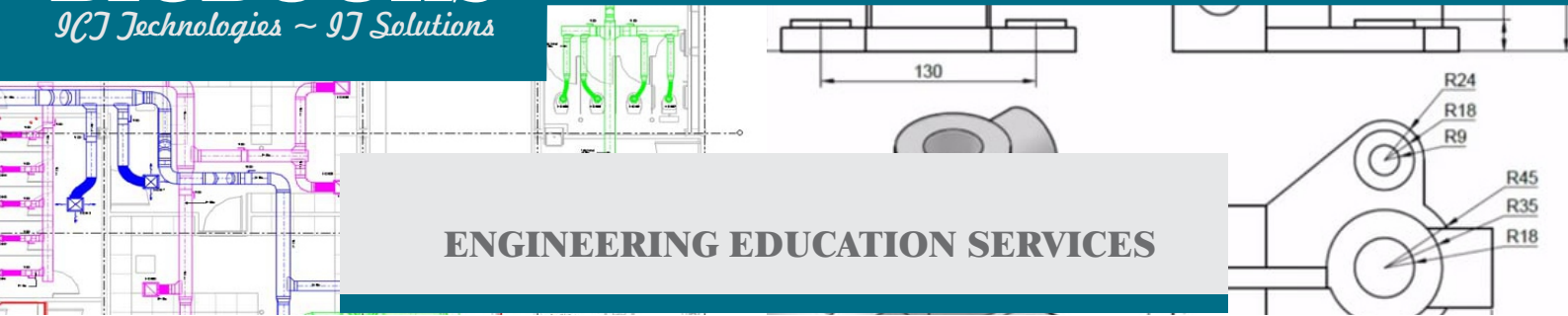
- Understanding the AutoCAD workspace and user interface
- Using basic drawing, editing, and viewing tools
- Organizing drawing objects on layers
- Using reusable symbols (blocks)
- Preparing a layout to be plotted
- Adding text, hatching, and dimensions
- 3D viewing techniques
- Working with simple and composite solids
- Creating complex solids and surfaces and Modifying objects in 3D space
- Creating sections, camera perspectives, and animations
- Setting up a rendering with materials and lights
- Set up a drawing for 3D Prints

Prerequisites

- A good experienced working knowledge of basic design/drafting procedures and terminology.

Course description shown for Autodesk AutoCAD, 2017, 2018, 2020 respectively. Topics, curriculum, and/or prerequisites may change depending on software version.





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Training Course Contents

Chapter 1:

- 1.1 Starting the Software
- 1.2 User Interface
- 1.3 Working with Commands
- 1.4 Cartesian Workspace
- 1.5 Opening an Existing Drawing File
- 1.6 Viewing Your Drawing
- 1.7 Saving Your Work

Chapter 2: Basic Drawing and Editing Commands

- 2.1 Drawing Lines, Erasing Objects, Drawing Rectangles, Drawing Circles
- 2.2 Drawing Vertical and Horizontal Lines
- 2.3 Create a Simple Drawing
- 2.4 Create Simple Shapes
- 2.5 Drawing Precision in AutoCAD (Ortho mode, Osnap, Dynamic input etc.)
- 2.6 Selecting Objects for Editing

Chapter 3:

- 3.1 Moving Objects, Copying Objects, Rotating Objects, Scaling Objects
- 3.2 Mirroring Objects, Offsetting Objects, Editing with Grips etc.
- 3.3 Organizing Your Drawing with Layers

Chapter 4:

- 4.1 Analyzing Model and Object Properties
- 4.2 Trimming and Extending Objects, Creating Fillets and Chamfers
- 4.3 Creating Arrays of Objects
- 4.4 What are Blocks?
- 4.5 Dimensioning, Text, Hatching
- 4.6 Creating Layout
- 4.7 Printing your drawings

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3D Course Outline

Chapter 1: 3D Foundations

- 1.1 Introduction to the 3D Modeling Workspace
- 1.2 Basic 3D Viewing Tools
- 1.3 3D Navigation Tools
- 1.4 Introduction to the User Coordinate System (UCS)

Chapter 2:

- 2.1 Working with Solid Primitives
- 2.2 Solid Primitive Types
- 2.3 Working with Composite Solids
- 2.4 Working with Mesh Models

Chapter 3:

- 3.1 UCS Overview
- 3.2 Working with Cameras, Sections, Showmotion View.
- 3.3 Creating Multiple Viewports

Chapter 4: Creating Solids & Surfaces from 2D Objects

- 4.1 Complex 3D Geometry
- 4.2 Extruded Solids and Surfaces
- 4.3 Swept Solids and Surfaces
- 4.4 Revolved Solids and Surfaces
- 4.5 Lofted Solids and Surfaces
- 4.6 NURBS Surfaces

Chapter 5: Modifying in 3D Space

- 5.1 3D Gizmo Tools
- 5.2 Aligning Objects in 3D Space
- 5.3 3D Modify Commands

Chapter 6: Advanced Solid Editing

- 6.1 Editing Components of Solids
- 6.2 Editing Faces of Solids, Creating a Shell, Interference Checking
- 6.3 Fillets and Chamfers on Solids

Chapter 7: Visualization

- 7.1 Creating Visual Styles, Working with Material, Specifying Light Sources
- 7.2 Rendering Concepts

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