Autodesk AutoCAD MEP

Target Audience

This course is designed for architects, engineers, designers, and professionals in the building services industry who aim to enhance their skills in creating precise mechanical, electrical, and plumbing (MEP) systems. It is also suitable for students and beginners aspiring to specialize in MEP design using AutoCAD.

Course Objective

The objective of the course is to equip participants with the knowledge and skills required to create, modify, and document MEP systems efficiently using AutoCAD MEP. It focuses on leveraging specialized tools for increased productivity and delivering high-quality MEP designs.

Course Outcome

- Develop proficiency in creating and managing mechanical, electrical, and plumbing systems using AutoCAD MEP.
- Understand and utilize tools and features for drafting, annotating, and modeling MEP systems.
- Gain expertise in collaboration, coordination, and sharing of MEP designs across projects.
- Enhance project efficiency by implementing workflows and best practices in AutoCAD MEP.

Course Outline: The course comprises **40-hours** of theory and labs and is divided into **9** different chapters. Each chapter will be followed by hands-on lab exercises to reinforce learning and gauge understanding of the topics covered.

Chapter 1: Introduction to AutoCAD MEP

Introduction

Getting Started with AutoCAD MEP

AutoCAD MEP Interface Components

- Start Tab
- Drawing Area
- Command Window
- ViewCube
- In-Canvas Viewport Controls
- Application Status Bar

Invoking Commands in AutoCAD MEP

- Command Prompt
- Ribbon
- Application Menu
- Tool Palettes
- Quick Access Toolbar
- Share Drawing
- Menu Bar
- Shortcut Menu

AutoCAD MEP Dialog Boxes

Starting a New Drawing

- Open a Drawing
- Use a Template
- Start from Scratch
- Use a Wizard

Saving Work

- Places List
- File Name
- Files of Type
- Save In
- Views

- Create New Folder
- Up One Level
- Tools Drop-Down List
- Auto Save
- Backup Files

Using the Drawing Recovery Manager to Recover Files

- EPD Backup Files

Closing a Drawing
Opening an Existing Drawing

- Using the Select File Dialog Box
- Using the Startup Dialog Box
- Using the Drag and Drop Method

Quitting AutoCAD MEP
Creating and Managing Workspaces

- Creating a New Workspace
- Modifying the Workspace Settings

AutoCAD MEP Help

- About AutoCAD MEP
- InfoCenter Bar

Chapter 2: Getting Started with AutoCAD MEP

Introduction
Workflow
Specifying the HVAC Parameters
Starting a Project
Linking System File to the Architectural Plan
Specifying Spaces and Zones
Calculating Loads
Project Browser
Creating a New Project File
Project Navigator

- Project Tab
- Constructs Tab
- Views Tab

- Sheets Tab

Styles Browser

- Object Type
- Drawing Source
- Drawing File
- Search Style
- Import Styles
- Add Objects
- Apply Style to Selection
- Gallery Options

Space

- Creating Spaces
- Editing Spaces

Zone

Workspaces

- HVAC
- Piping
- Electrical
- Plumbing
- Schematic
- Architecture
- Customize

Chapter 3: Working with Architecture Workspace

Introduction

Architecture Workspace

Creating Walls

- Wall
- Curtain Wall
- Curtain Wall Unit

Creating Doors

- Door
- Opening

- Door/Window Assembly

Creating Windows

- Window
- Corner Window

Creating Roofs and Slabs

- Roof Slab
- Roof
- Slab

Creating Stairs and Railings

- Stair
- Railing
- Stair Tower

Creating Grids, Beams, Columns, and Braces

- Enhanced Custom Grid
- Custom Grid Convert
- Column Grid
- Column
- Custom Column
- Beam
- Brace

Creating Primitives

- Box
- Pyramid
- Cylinder
- Right Triangle
- Isosceles Triangle
- Cone
- Dome
- Sphere
- Arch
- Gable
- Barrel Vault
- Drape

- Doric

Chapter 4: Creating an HVAC System

Introduction

Equipment

- Air Handler
- Air Terminal
- Fan
- Damper
- VAV Unit
- Equipment

Duct Line

- Sizing the Duct Line
- Routing the Duct Line
- Duct
- Flex Duct
- Duct Fitting
- Duct Custom Fitting
- Duct Transition Utility

Chapter 5: Creating Piping Systems

Introduction

Adding Equipment

- Heat Exchanger
- Pump
- Tank
- Valve
- Equipment

Creating Pipe Lines

- Pipe
- Parallel Pipes

Adding Pipe Fittings

- Pipe Fitting

- Pipe Custom Fitting

Creating a Custom Multi-View Part

Chapter 6: Creating Plumbing System

Introduction

Plumbing Workspace

- Filter
- Pump
- Shower
- Sink
- Water Closet and Urinal
- Equipment

Plumbing Line

- Properties Palette

Plumbing Fitting

- Properties Palette

Chapter 7: Creating Electrical System Layout

Introduction

Adding Equipment

- Generator
- Junction Box
- Switchboard
- Equipment

Panel

- Description
- Style
- Align to Objects
- Rotation
- Justification
- Preset Elevation
- Elevation
- System

- Create Circuits

Circuit Settings

- Name
- Rating
- Voltage Phase-to-Neutral
- Voltage Phase-to-Phase
- Phases
- Wires
- Main Type
- Main Size (Amps)
- Design Capacity (Amps)
- Panel Type
- Enclosure Type
- Mounting
- AIC Rating
- Fed From
- Notes

Device

- Description
- Style
- Layout Method
- Align to Objects
- Rotation
- Justification
- Preset Elevation
- Elevation
- System
- ID
- Insert Tag

Electrical Properties

- Cable Tray
- System
- Elevation

- Horizontal
- Vertical
- Width
- Height
- Use Rise/Run
- Use Routing

Cable Tray Fitting
Wire

- Description
- Style
- Segment
- Height
- Offset
- Radius
- Preset Elevation
- Elevation
- System

Show Circuits from Panels
Circuit

- Connected Circuits
- Connected Load
- Hot Size
- Neutral Size
- Ground Size

New Run
Conduit

- Routing Preference
- Nominal Size
- Specify Cut Length
- Cut Length
- Justify
- Horizontal Offset
- Vertical Offset
- Slope Format

- Slope
- Bend Angle
- Bend Radius
- Connection Details
- Preferences
- Style
- Parallel Conduits

Conduit Fitting

- Description
- System
- Part
- Current Size
- Nominal Diameter
- Other Dimensions Rollout
- Elevation
- Specify Rotation on Screen
- Rotation
- Connection Details

Circuit Manager

- Create New Circuit
- Create Multiple Circuits
- Delete Circuit
- Show Circuited Devices
- Circuit Report
- Cut Circuit
- Copy Circuit
- Paste Circuit
- Calculate Wires

Chapter 8: Representation and Schedules

Introduction

Creating Vertical Sections

- Enable Live Section

- Disable Live Section
- Toggle Body Display
- Reverse
- Generate Section

Creating Horizontal Sections
Creating a Section Line
Creating Elevation Line
Creating Hidden Line Projection
Slicing the Model
Refreshing Sections and Elevations in a Batch
Inserting Detail Components

- Edit Database
- Add Group
- Add Component
- Edit
- Delete

Creating Schedules

- Air Terminal Devices Schedule
- Fan Schedule
- VAV Fan Powered Box (Electric Heat) Schedule
- Space Engineering Schedule
- Duct Quantity Schedule
- Duct Fabrication Contract Schedule
- Table
- Pipe & Fitting Schedule
- Pipe Quantity
- Mechanical Pump Schedule
- Mechanical Tank Schedule
- Device Schedule
- Lighting Device Schedule
- Conduit & Fitting Schedule
- Electrical & Mechanical Equipment Schedule
- 3-Phase Branch Panel Schedule
- 1-Phase Branch Panel Schedule

- Distribution Board Schedule
- Switchboard Schedule
- Panel Schedule
- Plumbing Fixture Schedule
- Plumbing Fixture & Pipe Connection Schedule
- Water Heater (Gas) Schedule
- Door Schedule
- Door Schedule - Project Based
- Window Schedule
- Room Schedule
- Space Schedule - BOMA
- Space Inventory Schedule
- Wall Schedule
- Schedule Styles
- Table Editing

Chapter 9: Working with Schematics

Introduction
Schematic Workspace
Equipment
Schematic Symbol
Schematic Line
Schematic Line Styles
Schematic Representation of an Existing System