Autodesk AutoCAD Mechanical 2D & 3D

Target Audience

This course is intended for mechanical engineers, design engineers, draftspersons, CAD professionals, and technical students who want to develop structured, standards-based mechanical drafting skills using AutoCAD Mechanical. It is suitable for learners who work with 2D mechanical drawings, 3D modelling, assemblies, and documentation in manufacturing and mechanical design environments

Course Objective

- To build a strong foundation in AutoCAD Mechanical user interface and drawing setup
- To enable efficient management of object properties, layers, and structured drawing data
- To develop skills in creating and editing precise mechanical geometry
- To introduce mechanical part generators and standard component insertion
- To produce professional drawing sheets with annotations, dimensions, and documentation
- To apply mechanical design calculations within the CAD environment
- To leverage existing CAD data for reuse and documentation
- To understand configuration and standards management from a CAD administration perspective

Course Outcome

After completing this course, learners will be able to:

- Navigate and operate the AutoCAD Mechanical interface efficiently
- Set up mechanical drawings using standard practices
- Manage layers, properties, and structured drawing data
- Create and modify mechanical geometry using core and advanced tools
- Insert and manage standard mechanical components and generators

- Generate drawing sheets with proper views, annotations, and title blocks
- Apply dimensioning standards, hole charts, fits lists, and revision tracking
- Create and manage bills of materials, parts lists, and balloons
- Perform basic mechanical design calculations within AutoCAD Mechanical
- Reuse existing DWG and IGES data effectively
- Configure standards, annotations, and component properties for consistent outputs

Course Outline: The course comprises **40-hours** of theory and labs and is divided into **13** 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

- Interacting with the User Interface
- Common Drawing Setup

Chapter 2: Object Property and Layer Management
- Property Management
- Layer Control

Chapter 3: Organizing Drawing Geometry
- Drawing Creation Workflows and Organization
- Structuring Data in Drawings
- Reusing and Editing Structured Data

Chapter 4: Tools for Creating Key Geometry
- Core Design Tools
- Power Snaps
- Centerlines
- Construction Lines
- Designing with Lines
- Adding Standard Feature Data for Holes and Slots

Chapter 5: Tools for Manipulating Geometry
- Editing Tools
- Power Commands
- Associative Hide

Chapter 6: Mechanical Part Generators

- Standard Parts
- Chains and Belts
- Shaft Generator
- Standard Shaft Parts
- Springs

Chapter 7: Creating Drawing Sheets

- Model Space Views in Layouts
- Creating Drawing Sheets in Model Space
- Annotation Views When Using Structure
- Title Blocks and Drawing Borders

Chapter 8: Dimensioning and Annotating Drawings

- Annotation and Annotation Symbols
- Creating Dimensions
- Editing Dimensions
- Hole Charts and Fits Lists
- Revision Lists

Chapter 9: 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

Chapter 10: Bill of Materials, Parts Lists, and Balloons

- Part References