
Course Title: Inventor Introduction

Course Code: INV-1

Duration: 5 Days

Courseware Description

Learn the fundamental principles of 3D parametric part design, assembly design, and creating production-ready part and assembly drawings using Autodesk® Inventor®. Hands-on exercises representing real-world, industry-specific design scenarios are included.

Objectives

Provide users with a thorough understanding of the principal 3D design, validation, and documentation processes necessary for developing products using Autodesk Inventor.

After completing this course, students will be able to:

- Capture design intent by using the proper techniques and recommended workflows for creating intelligent 3D parametric parts.
- Create, place, and constrain custom and standard components in an assembly.
- Simulate mechanisms, animate assembly designs, and check for interferences.
- Document designs using base, projected, section, detail, and isometric drawing views.
- Document assemblies using standard and exploded drawing views.
- Follow drafting standards while dimensioning and annotating drawing views with automated balloons and parts lists.

Who Should Attend

New Autodesk Inventor Users

Prerequisites

Some knowledge/experience with 2D CAD software is required. Working knowledge of the following:

- Drafting, design, or mechanical engineering principles.
- Microsoft® Windows® 7, Windows® Vista or Microsoft® Windows® XP.

Course Outline

Day 1

- **Working with Projects**

Definition of Inventor Project Files
Setting up and configuring Project Files
Inventor File Types

- **Working with Sketches**

Introduction to Sketching
Creating sketches
Constraining sketches
Dimensioning sketches
Editing sketches

- **Introduction to Part Modelling**

Feature Based Part Modelling
Parametric Solid Modelling Process
Part Modelling Techniques
Anatomy of a Parametric Part
Modifying Part Features
Tips and Tricks

- **Creating Sketched Features**

Introduction to Sketched Features
Working with Sketch Planes
Extruded and Revolved Features

- **Using Work Features**

Work planes
Work Axes
Work Points

- **Adding Placed Features**

Hole Features
Fillet Features
Chamfer Features
Shell Features
Pattern Features

Day 2

- **Assembly Modelling**

Introduction to Assembly Modelling
Placing components in assemblies
Creating components in assemblies
Constraining components
Assembly Features
Assembly Browser Tools
Interference checking
Moving components
Changing Colour/Finish Style
Assembly Section Views
Finding components in assemblies

- **Presentation Files**

Introduction to presentations
Creating Presentation Views
Creating tweaks and trails
Controlling Camera Views
Animating presentations

- **Adaptive Parts**

Introduction to Adaptivity
Defining adaptive parts & assemblies

Day 3

- **Manufacturing Documentation & Drawings**

Introduction to Part Drawings
Customising Templates – Borders & Title Blocks
Setting Drafting Standards
Drawing Resources
Understanding Drawing Views
Modifying Views and Sections
Annotating Drawing Views
Tips and Tricks for Creating Drawings

- **Advanced Modelling Techniques**

Loft
Sweep
Split
Derived Components
Embossing

Day 4

- **Working with Parameters and Linked Data**

Derived components
Equations and parameters
Linking parameters to external files
Multi-body Parts
Sketch blocks

- **Working with intelligent parts**

iParts
iAssemblies
iFeatures
iMates

- **Weldments**

Creating welded assemblies
Adding welds to assemblies and drawings

- **Sheet Metal Design**

Creating sheet metal parts
Creating flat patterns
Manipulating flat patterns
Documenting Sheet Metal Designs
Using solids to create complex sheet metal designs

Day 5

- **Surfacing**

Delete Face
Stitch Surface
Replace Face
Thicken/Offset
Embossing/Decalling
Surface Intersection
3D sketches

- **Design Accelerators**

Bolted Connections
Frame Generator

- **Managing Model Data**

Customising Styles
Pack and Go!

Using Design Assistant
Exchanging model data

- **Project based Top Down Design Exercise**

A live design exercise showing file management, top down modelling techniques, and library part management within the context of a real design exercise.