Fusion 360 AI Powered Engineering Design Workflow with Autodesk Assistant

Target Audience

This course is designed for students, job seekers, and professionals who want to quickly gain industry-ready 3D design skills using Autodesk Fusion 360, enhanced with AI-powered workflows. It is ideal for individuals preparing for mechanical design, product design, and CAD roles, as well as candidates aiming to increase productivity using the same workforce. The course is also suitable for learners seeking hands-on, project-based training aligned with real-world industry applications.

Course Outcomes

- Understand the Autodesk Fusion 360 interface and cloud-based design workflow
- Navigate design environments and manage data using the Data Panel
- Create fully defined sketches using constraints and dimensions
- Apply parametric design principles to build intelligent and flexible models
- Develop 3D models using core and advanced modeling tools
- Utilize AI Assistant for design support, troubleshooting, and productivity
- Modify and optimize models using advanced tools and inspection features
- Create assemblies and simulate motion using joints and constraints
- Generate technical drawings and documentation for manufacturing
- Execute a complete product design workflow from concept to final output

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Course Objectives

- Develop strong foundational knowledge of Fusion 360 design workflows
- Build proficiency in sketching, modeling, assembly, and documentation
- Introduce AI-powered design assistance for improved productivity
- Enable learners to create parametric and reusable design models
- Train participants in real-world product design and engineering workflows
- Provide hands-on experience through guided exercises and final project

- Reinforce learning through AI-assisted design optimization techniques

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Course Outline

The course comprises **24-hours** of theory and labs and is divided into **8** different modules. Each module will be followed by hands-on lab exercises to reinforce learning and gauge understanding of the topics covered.

Table of Contents

Module 1. Getting Started with Fusion 360 and AI Assistant

- Introduction to Autodesk Fusion 360 interface
- Understanding cloud-based workflow and data management
- Navigating Data Panel projects versions and sharing
- Introduction to AI Assistant capabilities
- Using AI Assistant for command search and help
- View controls Orbit Zoom Pan ViewCube
- Setting units grid and workspace preferences

Module 2. Workspace Navigation and Design Environment

- Using Browser components visibility and organization
- Toolbar navigation workspaces tools and tabs
- Selection tools and filters
- Timeline navigation edit rollback feature tracking
- Display settings and visual styles
- Creating construction geometry planes axes points
- AI Assistant for navigation shortcuts and troubleshooting

Module 3. Sketching Fundamentals with AI Assistance

- Creating 2D sketches using sketch tools
- Sketch palette and visibility control

- Projecting geometry
- Editing tools Trim Extend Offset Mirror Fillet
- AI Assistant for sketch creation and correction
- Applying constraints auto and manual
- Fully defining sketches using AI suggestions

Module 4. Parametric Design and Intelligent Modeling

- Applying dimensions and constraints
- Creating parametric relationships
- Using user parameters and expressions
- AI Assistant for parameter suggestions
- Design intent and model control
- Editing and updating parametric designs
- Building flexible and reusable models

Module 5. 3D Modeling and AI Driven Feature Creation

- Creating 3D models Extrude Revolve Sweep Loft
- Primitive shapes and base features
- Feature operations Join Cut Intersect
- Hole and thread creation
- Pattern tools Rectangular Circular Path
- AI Assistant for feature recommendations
- Optimizing modeling workflow using AI

Module 6. Advanced Modeling Modify and Form Tools

- Modify tools Fillet Chamfer Shell Draft Combine
- Press Pull and direct editing
- Material and appearance assignment
- Inspect tools Measure Section Analysis

- Insert tools Canvas Decal
- Form modeling using Edit Form
- AI Assistant for model optimization and error fixing

Module 7. Assemblies Motion and AI Optimization

- Creating components and assemblies
- Managing subassemblies and versions
- Applying joints Rigid Revolute Slider
- Understanding degrees of freedom
- Driving joints and motion simulation
- Interference detection
- AI Assistant for assembly troubleshooting and joint suggestions

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Module 8. Drawings Documentation and Final Project

- Creating drawing sheets and layouts
- Placing views Base Projected Section Detail
- Adding dimensions and annotations
- Creating parts lists and documentation
- AI Assistant for drawing automation
- Final project complete product design workflow