Autodesk Expert in Generative Design for Manufacturing

Target Audience

This course is intended for design and manufacturing professionals, engineering students, and CAD users who want to develop practical skills in generative design using Fusion 360. It is suitable for learners who are preparing for the Generative Design for Manufacturing certification and wish to understand model preparation, study setup, manufacturing methods, and post-processing workflows within a structured learning path.

Course Objectives

- To prepare models appropriately for generative design studies
- To set up generative design studies with correct constraints and regions
- To apply loads, constraints, and study objectives effectively
- To define suitable manufacturing methods for generative outcomes
- To review, compare, and select viable generative design results
- To refine generative designs for downstream CAD/CAM workflows
- To strengthen understanding through practice and challenge exercises

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Course Outcomes

Upon completion of this course, learners will be able to prepare geometry for generative design, configure generative studies, apply loads and constraints, define manufacturing methods, review and select design outcomes, post-process generative designs, and reinforce generative design skills through hands-on exercises aligned with certification objectives.

Course Outline: The course comprises **32-hours** of theory and labs and is divided into **7** different chapters. Each chapter will be followed by hands-on lab exercises to reinforce learning and gauge understanding of the topics covered.

Module 1: Model Preparation for Generative Design

- Using Edit Model tools
- Preparing geometry and features for a generative study

Module 2: Generative Design Study Setup

- Setting up the generative design space
- Define generative design conditions
- Determine generative design criteria
- Examine generative design materials
- Create a generative preview

Module 3: Loads, Constraints & Study Objectives

- Applying forces, loads, and constraints
- Defining objectives for manufacturability and performance
- Solve a generative study
- Explore generative study outcomes
- Create an editable generative design

Module 4: Manufacturing Method Definitions

- Specifying manufacturing methods (e.g., additive vs. subtractive)
- Aligning outcomes to real-world manufacturing requirements

Module 5: Reviewing Generative Outcomes

- Filtering and comparing design outcomes
- Selecting viable design variations

Module 6: Post-Processing of Generative Designs

- Using form and mesh tools to refine selected designs
- Preparing models for further CAD/CAM workflows

Module 7: Practice & Challenge Exercises

- Hands-on exercises aligned to certification objectives
- Reinforcement of core generative design skills