



AUTODESK/AUTOCAD TRAINING

Autodesk Generative Design

Master Autodesk Generative Design to rapidly explore innovative product solutions and optimize designs for performance and efficiency.

DURATION

Flexible

LEVEL

Intermediate

FORMAT

Instructor-Led

- Globally Recognized Certification

- Expert-Led Hands-On Training

- Flexible Scheduling

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COURSE OVERVIEW

This intermediate-level course on Autodesk Generative Design equips participants with cutting-edge skills to revolutionize product development and engineering. Leveraging the power of artificial intelligence, machine learning, and cloud computing, generative design allows engineers and designers to rapidly explore thousands of optimal design solutions based on specified performance criteria, manufacturing constraints, and material properties. You will delve into core Autodesk technologies, primarily within Fusion 360, learning to define complex design problems, set up sophisticated study parameters, and interpret the vast array of generated outcomes. The course will also touch upon integration with other relevant Autodesk products for a comprehensive workflow. Participants will gain proficiency in creating lighter, stronger, and more efficient components, significantly reducing material waste and production costs. The course emphasizes practical application, guiding you through real-world scenarios where generative design can solve complex engineering challenges, accelerate innovation, and deliver superior product performance. By mastering these techniques, you will be prepared to drive innovation within your organization and stay at the forefront of advanced manufacturing and product design.

Level	Intermediate
Vendor	Autodesk/AutoCAD

COURSE CURRICULUM

01 Module 1: Introduction to Generative Design Principles

- What is Generative Design? Definition and core concepts
- Benefits and applications across various industries (e.g., automotive, aerospace, consumer goods)
- Generative Design vs. Traditional Design and Topology Optimization
- Overview of Autodesk Generative Design tools and interfaces (e.g., Fusion 360 Generative Design workspace)
- The complete Generative Design workflow: from problem definition to manufacturing

02 Module 2: Defining Generative Design Studies

- Setting up the design space: Preserve and Obstacle Geometries
- Applying loads, constraints, and boundary conditions accurately
- Defining manufacturing methods (e.g., additive manufacturing, 2-axis, 3-axis, 5-axis milling, casting)
- Specifying performance objectives (e.g., minimize mass, maximize stiffness, minimize stress)
- Material selection and understanding material properties within generative studies

03 Module 3: Exploring and Analyzing Generated Solutions

- Generating outcomes using cloud computing resources
- Navigating, filtering, and sorting generative design results
- Understanding performance metrics and trade-offs between different solutions
- Visualizing stress, displacement, and factor of safety in generated models
- Comparing various design solutions based on predefined criteria and manufacturability

04 Module 4: Refining and Implementing Generative Designs

- Exporting and post-processing generated geometry (e.g., smooth mesh conversion)
- Preparing generative designs for CAD model reconstruction and detailing
- Validation through integrated simulation and Finite Element Analysis (FEA)
- Considerations for manufacturing, assembly, and post-production processes
- Case studies of successful real-world generative design implementations

Module 5: Advanced Generative Design Techniques & Optimization

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- Multi-objective optimization strategies and their application
 - Scripting and automation for complex generative design studies
 - Integration with other CAD/CAE software workflows for a holistic design process
 - Advanced material considerations: composites, custom materials, and their impact
 - Future trends in generative design, AI in engineering, and adaptive design

CAREER PATHWAYS

Graduates of this program are prepared for the following roles:

- > **Generative Design Engineer (Automotive/Aerospace)**
- > **Additive Manufacturing Optimization Specialist**
- > **Product Innovation & Advanced R&D Designer**

FREQUENTLY ASKED QUESTIONS

Q: What prior software experience is recommended before enrolling in the Autodesk Generative Design course?

While not strictly mandatory, participants will greatly benefit from prior experience with 3D CAD software, particularly Autodesk Fusion 360 or Autodesk Inventor. A basic understanding of mechanical design principles, engineering mechanics, and materials science will also be advantageous for grasping the concepts quickly and effectively applying generative design principles to real-world problems.

Q: How does mastering Autodesk Generative Design enhance my ability to innovate and solve complex engineering problems?

This course empowers you to rapidly explore a vast design space, identifying optimal solutions that traditional design methods might overlook. You'll learn to specify precise performance criteria and manufacturing constraints, allowing the software to intelligently generate designs for lightweighting, improved strength, or significant material reduction. This leads to faster iteration, higher-performing products, and the ability to tackle previously intractable design challenges with unprecedented efficiency and creativity, pushing the boundaries of product innovation.

Q: Can the skills learned in this course be applied to specific manufacturing processes like additive manufacturing or CNC machining?

Absolutely. A core component of this course is understanding how to define specific manufacturing constraints within generative design studies. You will gain hands-on experience in optimizing designs specifically for various manufacturing methods, including additive manufacturing (3D printing), 2.5-axis, 3-axis, and 5-axis CNC machining, as well as casting processes. This ensures that the generated designs are not only functionally superior but also manufacturable using relevant industry techniques, bridging the gap between design and production.

ABOUT COMPUTER PRIDE

**computerpride*****East Africa's Premier IT Training Center***

With over 15 years of excellence, Computer Pride delivers globally recognized certification programs from leading technology vendors. Located on Kenyatta Avenue in Nairobi's CBD, our state-of-the-art facilities and expert instructors have empowered thousands of professionals across East Africa.

15+

Years of Excellence

10,000+

Professionals Trained

50+

Vendor Certifications

READY TO ENROL?

Take the next step in your technology career.

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