3D CAD Drafting Techniques Training Course

Professional Development Training Course Outline

Category	Architectural Engineering	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

3D CAD Drafting Techniques is designed to equip learners with advanced skills in 3D modeling, parametric design, digital prototyping, and engineering drafting standards. With industries rapidly adopting Industry 4.0, smart manufacturing, and digital twin technology, mastering modern CAD tools has become essential for engineers, architects, and product designers. This course focuses on hands-on learning using leading software platforms, enabling participants to create high-precision models, assemblies, and technical drawings that meet global standards.

Participants will gain in-depth knowledge of solid modeling, surface modeling, rendering, simulation, and CAD automation, preparing them for real-world engineering challenges. The program integrates practical case studies, real-time projects, and workflow optimization techniques, ensuring learners develop job-ready skills. Whether you aim to enhance your career in mechanical design, product development, or architectural drafting, this course provides a strong foundation in cutting-edge CAD technologies and design innovation.

Programme Curriculum

3D CAD Drafting Techniques Training Course

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Course Duration

5 days

Course Objectives

1. Master 3D CAD Modeling & Parametric Design Techniques
2. Develop expertise in Solid Modeling and Surface Modeling Tools
3. Learn Engineering Drawing Standards (ISO, ANSI, GD&T)
4. Understand Assembly Design & Motion Simulation
5. Apply Design for Manufacturing (DFM) & Design for Assembly (DFA)
6. Create Photorealistic Rendering & Visualization
7. Implement CAD Automation & Generative Design Concepts
8. Gain skills in Finite Element Analysis (FEA) Basics
9. Optimize workflows using Cloud-Based CAD & Collaboration Tools
10. Explore Digital Twin & Smart Product Design
11. Enhance Product Lifecycle Management (PLM) Integration
12. Develop Reverse Engineering & 3D Scanning Applications
13. Build industry-ready portfolios with Real-Time CAD Projects

Target Audience

1. Mechanical Engineering Students
2. Civil & Architectural Designers
3. Product Designers & Industrial Designers
4. Manufacturing & Production Engineers
5. CAD Technicians & Draftsmen
6. Automotive & Aerospace Professionals
7. Entrepreneurs in Product Development
8. Professionals transitioning into **Digital Design & Smart Manufacturing**

Course Modules

Module 1: Introduction to 3D CAD & Interface

- Overview of CAD Software & Industry Applications
- User Interface Navigation & Customization
- File Management & CAD Formats
- **Case Study:** Sketching Basics & Constraints
- Introduction to Parametric Modeling

Module 2: Sketching & 3D Modeling

- 2D Sketch Creation Techniques
- Extrude, Revolve, Sweep, and Loft Features
- Feature-Based Modeling

- Parametric Constraints & Design Intent
- **Case Study:** Model Editing & Optimization

Module 3: Advanced Solid & Surface Modeling

- Complex Solid Modeling Techniques
- Surface Creation & Editing
- Freeform Modeling Tools
- Hybrid Modeling Methods
- **Case Study:** Geometry Repair & Validation

Module 4: Assembly Design & Motion Analysis

- Assembly Creation & Component Placement
- Mating & Constraints
- Interference Detection
- Motion Simulation Basics
- **Case Study:** Kinematic Analysis

Module 5: Engineering Drawings & GD&T

- Orthographic Projections & Section Views
- Dimensioning Standards
- Geometric Dimensioning & Tolerancing (GD&T)
- Bill of Materials (BOM) Creation
- **Case Study:** Drawing Annotation & Documentation

Module 6: Rendering & Visualization

- Material Application & Texturing
- Lighting & Scene Setup
- Photorealistic Rendering Techniques
- Animation Basics
- **Case Study:** Presentation & Visualization Skills

Module 7: Simulation & Analysis

- Introduction to Finite Element Analysis (FEA)
- Stress & Thermal Analysis Basics
- Load & Boundary Conditions
- Result Interpretation
- **Case Study:** Design Optimization

Module 8: CAD Automation & Industry Applications

- CAD Macros & Automation Tools
- Generative Design Concepts
- Cloud CAD & Collaboration
- Integration with PLM Systems
- **Case Study:** Industry Case Applications

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com