

# CATIA



## e-Learning Course

[www.zetlantech.com](http://www.zetlantech.com)

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# ZETLAN TECHNOLOGIES

# COURSE MODULES

## Introduction to CATIA

- Overview of CAD/CAM/CAE and PLM
- Introduction to CATIA interface
- Workbenches and navigation
- File management and saving projects

## Sketcher Workbench

- Creating and modifying sketches
- Constraints (geometric & dimensional)
- Sketch tools (lines, circles, arcs, splines, etc.)
- Profile creation and modification

## Part Design Workbench

- Creating 3D solid models
- Basic features (Pad, Pocket, Shaft, Rib, Hole, Fillet, Chamfer)
- Advanced features (Boolean operations, Multi-section solid)

## Assembly Design Workbench

- Creating and managing assemblies
- Constraints in assemblies (coincidence, contact, angle)
- Exploded views and assembly visualization
- Editing and updating assemblies

## **5. Surface Design (Generative Shape Design - GSD)**

- *Wireframe & surface creation*
- *Advanced surface modeling techniques*
- *Operations (Join, Trim, Split, Fillet, Offset, Loft, Sweep)*
- *Hybrid modeling (solid + surface)*

## **6. Drafting (Drawing) Workbench**

- *Creating 2D drawings from 3D models*
- *Views (front, top, section, detail, isometric)*
- *Annotations, dimensions, GD&T (Geometric Dimensioning & Tolerancing)*
- *Title blocks and sheet formats*

## **7. Sheet Metal Design**

- *Creating sheet metal parts*
- *Bending, flanging, stamping, and punching features*
- *Sheet metal unfolding and flat patterns*
- *DXF export for manufacturing*

## **8. DMU (Digital Mockup) & Kinematics**

- *Assembly motion simulation*
- *Mechanism design and animation*
- *Clash detection and interference analysis*
- *Motion constraints and simulation*

## **9. Ergonomics & Human Modeling (Optional - Industry)**

- *Human model insertion*
- *Posture and reach analysis*
- *Visibility studies*

## **10. Generative Structural Analysis (FEA - Basic Intrductn)**

- *Introduction to finite element analysis*
- *Meshing and boundary conditions*
- *Static analysis and result interpretation*

## **11. CATIA Customization & Automation (Advanced Users)**

- *Macros & scripting in CATIA (VB, Python, CATScript)*
- *Creating templates and design automation*

## **12. Industry Applications & Projects**

- *Real-world projects (Aerospace, Automotive, Consumer Goods)*
- *Best practices in product design and manufacturing*