

Pro Engineering (Pro/E)



ZETLAN TECHNOLOGIES



e-Learning Course

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COURSE MODULES

Module 1: Introduction to Pro Engineering (PTC Creo)

- Overview of CAD, CAM, and CAE
- Introduction to PTC Creo (formerly Pro/ENGINEER)
- Software installation and interface navigation
- Understanding coordinate systems
- Basic commands and shortcuts

Module 2: Sketching & 2D Drawing

- Creating 2D sketches
- Constraints and dimensions
- Sketch-based features (extrude, revolve, sweep, loft)
- Editing and modifying sketches
- Best practices for parametric sketching

Module 3: 3D Modeling (Part Design)

- Introduction to 3D modeling concepts
- Feature-based modeling (extrude, revolve, loft, sweep)
- Fillets, chamfers, and draft features
- Patterns, mirroring, and feature duplication
- Creating complex geometries and multi-body parts

Module 4: Assembly Design

- Understanding assemblies in Creo
- Assembly constraints and relationships
- Bottom-up and top-down assembly approaches
- Motion and mechanism simulation
- Exploded views and assembly visualization

Module 5: Surface Modeling

- Introduction to surface modeling
- Creating and editing surfaces
- Boundary blends, sweeps, and lofts
- Converting surfaces to solids & Surface analysis and repairing

Module 6: Sheet Metal Design

- Introduction to sheet metal operations
- Creating flanges, bends, and reliefs
- Unfolding and flattening sheet metal parts
- Sheet metal design best practices
- Creating sheet metal drawings

Module 7: Drafting & Detailing

- Generating 2D drawings from 3D models
- Creating views (orthographic, section, detail, auxiliary)
- Dimensioning and tolerances (GD&T)
- Annotations, title blocks, and BOM (Bill of Materials)
- Printing and exporting drawings (PDF, DXF, DWG)

Module 8: Mechanism Design & Motion Simulation

- Introduction to motion simulation
- Applying constraints and motion drivers
- Simulating joints and linkages
- Running dynamic motion analysis
- Exporting motion animations

Module 9: Finite Element Analysis (FEA) & Simulation

- Introduction to FEA concepts
- Applying loads, constraints, and material properties
- Running static and dynamic stress analysis
- Thermal and fatigue analysis
- Interpreting simulation results

Module 10: Rendering & Visualization

- Applying materials and textures
- Creating realistic renders
- Light and environment settings
- Animation and walkthroughs
- Exporting high-quality images and videos

Module 11: Customization & Automation

- Introduction to Creo Parametric Relations
- Using equations and design tables
- Scripting with Creo Toolkit & API
- Basic automation with VBA and Python