

CATIA

INTRODUCTION OF DESIGN CONCEPT AND PROCEDURE

- Detailed Concept Of CAD
- Need & Importance Of CAD
- Overview about Actual Designing In Industries
- Fundamentals of Design And Its Implementation
- Methods
- All Characteristics Of CATIA To User Friendly
- Atmosphere
- Superiority Of CATIA With Its Use And
- Demand In Industries

TAKING THE CATIA TOUR

- Introduction to Catia V5 Version.
- System Requirements
- Starting CATIA In Windows
- The Workspace Concept
- Workspaces In CATIA
- Adjusting The CATIA Interface
- Creating And Managing Workspace
- Graphic User Interface Of CATIA
- Menu And Toolbars
- Starting New Drawing
- Finding Tools
- Selecting/Moving Objects With Mouse
- The Object/Action And Action/Object Approaches Working With Planes
- Graphic Properties Toolbar
- Changing The Graphic Properties
- Changing The Interface From 3d Modeling To 2d Sketching And Vice-Versa
- Uses & Description about Specification Tree, Navigation Compass.
- View Toolbar as a Common Toolbar for the entire Interface.
- Documentation Management

SKETCHER

- Introduction Of Drafting And Its Concept
- Entering/Exiting The Sketcher Workbench
- Coordinate Systems
- Profile Creation Tools For Creating 2D Sketch
- Modifying The Sketch Created (If Error Is There)
- Open Profiles And Its Limitations
- Tools For Changing Visualization And Orientation Of Sketch
- Uses Of Constrains Tools For Making Fully Constrained Sketch Operation



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- Tools For Reducing Work And Easy Drawings.
- Creating Basic Sketch
- Positioned Sketching Commands Such As Lines, Circle Etc Pre-Defined Profiles
- User-Defined Profiles
- Setting Units
- Construction Geometry
- Constraining The Sketch
- Difference Between Dimensional Constraints And Geometrical Constraints
- Geometry & Constraints Management (Geometric And Dimensional)
- Explanation Of Fully Constrained Sketches
- Sketcher Re-Limitations
- Trim Options
- Quick Trim Options
- Mirroring An Object
- Placing/Making An Object In A Symmetrical Position
- Translation, Rotation And Scaling An Object
- Offset And Offset Propagation Modes
- Projecting A 3D Element
- Isolating Projecting Elements
- Sketch Analysis Window And Sketch Analysis
- Quick Geometry Diagnosis

BASIC FEATURES OF PART DESIGNING

- Concept Of 3D And Part Design Terminology
- Selecting Sketch To Convert It Into Volumetric Design
- Concept Of Volumetric Designing With Respect To Industries
- Creating Base Features
- Selecting A Base Feature And Modifying Them
- Creating Volume In Linear Direction (Pad)
- Creating A Cavity In Volume In Linear Direction (Pocket)
- Limitations Of Pad And Pocket Command
- Restrictions For Pad/Pocket Profile Sketches
- Creating Multi-Pads/Pockets
- Creation Of Axis At Required Place
- Dimensioning An Axis For Appropriate Work
- Creation Of Volume In Circular Shape (Shaft)
- Removal Of Volume In Circular Shape (Groove) Restrictions Of Revolved Features
- Creation/Removal Of Volume On Pre-Defined Path (Rib/Slot)
- Creation Of Hole Using Positioning Sketch
- Hole Creation Using Pre-Defined References
- Introduction To Stiffeners
- Creating A New Volume Using Two Different Sketches (Solid Combine)



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- Volume Creation Using Multiple Sketches With Multiple Options
- Creating Cavity Using Multiple Sketches

DRESS-UP FEATURES OF PART DESIGNING

- Creating Curves Edges Using The Multiple References & Limitations(Fillet)
- Chamfering Body/Edges Using Available References Shell Creation In A Body.
- Advance Shell Creation In A Body With Different Dimensions Of Different Sides
- Adding Thickness To An Already Created Side/Volume Removal Of Extra Faces In A Body
- Replacing The Face In A Body To Another Body
- Creating Thread And Taps In Cylindrical Body

DUPLICATING FEATURES OF PART DESIGNING

- Mirroring Single/Multiple Feature With Respect To Plane
- Explode Mirrored Object/Objects For Further Use Patterns And Its Importance
- Use Of Standard Pattern Styles (Rectangular Pattern, Circular Pattern)
- Creating A New Pattern On User Defined Instances
- Need Of Exploding The Pattern For Editing And Additional Usage
- Keeping The Specifications To Create A Defined Pattern
- Translating An Object/Body From Its Original Position
- Rotate An Object/Body From Its Position With Respect To Axis
- Placing The Body/Object In A Symmetrical Position With Respect To Plane
- Change The Scale Of The Body By Selecting Different Faces Or With Axis System
- Importance Of Axis To Axis System And Its Use In Geometry

EDITING FEATURES OF PART DESIGNING

- Investigating The Model
- Concept Of Parent-Child Relationships
- Redefining Parameters Of Previously Created Features
- Changing The Order Of Any Feature In A Specification Tree
- Hiding And Un-Hiding The Sketches/Features/Body Deactivating/Activating Of
- Features As Per Requirements
- Use Of Defining Any Feature In Work Object
- Resolving The Failures Of The Features/BodOffset Constraint

ASSEMBLY MODELING & PRODUCT MODELING

- What Is An Assembly
- Defining A New Assembly Document
- Assigning Properties To The Product
- Tools Used For Creating Product Structure
- Use Of Compass In Assembly
- Importing Existing Components In A New Assembly Snapping Components
- Editing A Previously Created Part/Product In Assembly Features
- Exploding A Constrained Assembly
- Reordering Product Structure
- Reusing A Component (Copy/Paste)



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- Components Catalogue
- Degree Of Freedom In The Assembly
- Constraint Creation
- Analyzing Created Constraints
- Assembly Features
- Making Pattern Of Any Object
- Using Existing Assemblies To Create A Product Structure
- Use An Object With Respect To Pattern
- Scenes
- Saving An Assembly Document
- Opening/Loading an Assembly

DRAFTING

- Introduction Of Drafting
- Need & Importance Of Drafting
- Starting The Drafting Workbench
- Defining The Sheet & Sizes Adjusting Of Drawing Sheet According To Object/Assembly
- Types Of Projection
- Using Predefined Drafting Styles
- Scaling The Drafted View
- Introduction Taking Projection Of Front View On Sheet
- Generating Different Views Such As Top View Etc
- Difference Between Primary And Secondary View
- Modifying An Existing View
- Generative Dimensions Balloon Generation For Drafting Of Assembly
- Show/Hide Hidden Lines, Centre Line, Axis Line, Thread Etc
- Modifying An Existing View
- Creating Dimensions
- Converting Files For Transferring
- Converting Into IGES, STEP, PARASOLID Etc.
- Convert Into Jpeg, Mpeg, Tiff, Pdf File

WIREFRAME & SURFACE DESIGN

- Introduction To Surface Design
- Importance Of Surface
- Process Of Surface Designing
- Entering The Workbench
- Generative Surface Design Process
- Difference Between Open Bodies & Connected Bodies
- 3D Wireframe Geometry
- Points & Its Role
- Creating Multiple Points On A Curve
- Lines In Free Body



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- Line & Axis Lines
- Creating Line & Axis Line In Free Space
- Creating Polylines
- Role Of Planes In Space
- Creating New Plane With New References
- Creating A Set Of Planes In An Order
- Creating Free Body Curve
- Connecting Different Curves
- Analyzing The Sketches And Repairing/Editing Surface Geometry
- Creating Surface Using Multiple Sections
- Creating A Blend Surface
- Creating A Swept Surface
- Manipulating The Swept Surface With Reference Surface Option
- Creating A Swept Surface With Guide Curve

SHEETMETAL DESIGN

- Introduction To Sheet metal Design
- Generative Sheet metal Design
- Entering The Sheetmetal Workbench
- Process Of Sheetmetal Designing
- Sheetmetal Parameters & Its Importance
- Sheetmetal Wall
- Types Of Walls
- Profile Based Wall
- Extruded Wall
- Creating A Multi-Connected Profile Walls
- Additional Types Of Walls
- Tangent Walls
- Creation Of Walls On The Edge
- What Is Bend
- Bending A Flat Sheet
- Folding & Unfolding Of The Faces
- Creating Relief On The Corner
- Flange & Its Types
- Features Of Sheetmetal
- Creating Holes In Sheet
- Ø Stamp & Its Role In Industry
- Standard Stamps
- Opening Faces Of Stamp
- Translating Created Sheet With Parameters
- Rotating Sheetmetal Parts
- Pattern And Its Types



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- Mirroring The Features
- Unfolded View



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