
LESSON 1- INTRODUCTION TO CATIA V5

The CATIA Acronym.
A Brief History of CATIA
CATIA V5 Configuration.
CATIA V5 Application Tools.
CATIA V5 Workbenches.
CATIA V5 Documents.
Running CATIA V5 on Windows.
Contextual Menus.
Drag and Drop.

LESSON 2- NAVIGATING THE CATIA V5 ENVIRONMENT

CATIA V5 Standard Screen Layout. (The Start Menu)
The Current Active CATIA V5 Document.
The Standard Windows Toolbar.
The Specification Tree.
The Compass.
The Select Tool and Toolbar.
The Current Workbench.
Window Maximize and Minimize.
Plane Representation (xy, yz and xz).
The Current Workbench Tools and Toolbars.
Axis Orientation.
The Tools Toolbar.
The Product Knowledge Template Toolbar.
The Analysis Toolbar.
The View Toolbar.
The CATIA V5 Standard Toolbar.
The Prompt Zone.
The Knowledge Toolbar.
The Apply Material Tool.
The Measure Tool.
The Power Input Mode.
The Double Chevron Symbols.

LESSON 3- Sketcher Workbench

Sketcher Workbench Toolbars.
Steps to Creating a Simple Part Using the Sketcher Workbench.
Start CATIA V5.
Select the Sketcher Workbench.
Specify a Working Plane.
Entering the Sketcher Workbench.
Customizing the Grid.
Creating Geometry Using the Profile Tools.
The Starting Point.
Creating Lines.
Deleting the Broken Line.
Completing and Modifying Profile Using tools.
Anchoring the Profile Using the Anchor Tool.
Constraining the Profile.
Modifying the Constraints.
Over Constraining the Profile ...Not a Good Thing.
Exiting the Sketcher Workbench.
Extruding the Newly Created Profile Using the Pad Tool.

LESSON 4- Part Design Workbench

Part Design Workbench Toolbars.
Steps to Extruding a Profile Using the Part Design Workbench.
Select the Part Design Workbench.
Extruding the Sketcher Profile Using the Pad Tool
Creating a Fillet.
Creating a Chamfer.
Creating Holes.
Creating a Pattern of Holes.
Modifying the Width of the Base Leg.
Translating the "L Shaped Extrusion".
Rotating the "L Shaped Extrusion".
Creating a Symmetrical "L Shaped Extrusion".
Mirroring the "L Shaped Extrusion".
Scaling the "T Shaped Extrusion".
Applying Constraints in the Part Design Workbench
Applying Material to the "T Shaped Extrusion"
Managing the Specification Tree.

Customizing the Specification Tree.
Reviewing the Design Process Using the Specification Tree.

LESON 5- Drafting Workbench.

Introduction to Creating Sheets and Views.
Drafting Workbench Toolbars.
Steps to Creating Sheets and Views Using the Drafting Workbench.
Select the Part Design Workbench.
Select the Drafting Workbench.
The Drafting Workbench Layout.
Customizing the Default Values.
Creating a New Sheet.
Creating a New View.
Modifying an Existing View.
Creating a Detail View.
Creating a Section View.
Creating an Auxiliary View.
Creating a Clipped View.
Organizing Your Drawing.
Saving Your Newly Created Drawing.
Printing the Newly Created Sheets.

LESSON 6- Drafting Workbench

Introduction to Creating Text and Dimensions.
Drafting Workbench Toolbars.
Adding Text and Dimensions to Drawings Using the Drafting Workbench.
The Drafting Workbench Layout.
Customizing the Default Values.
Creating and Modifying Text .
Creating and Modifying Leaders.
Creating and Modifying Dimensions .
Creating a Diameter Dimension.
Creating an Angle Dimension.
Generating Dimensions.
Crating a Border/Title Block Using the Geometry Creation Toolbar
Inserting Bill of Materials into the Title Block

LESSON 7- Complex and Multiple Sketch Parts.

Tools Used For Complex and Multiple Sketch Parts.
Steps to Creating Complex and Multiple Sketch Parts.
Creating the “Swivel” Using Multiple Sketches.
Creating the “Top U-Joint” .
Modifying the “Bottom U-Joint” .
Creating the “Bottom U-Joint” Using Boolean Geometry.

LESSON 8- Assembly Design Workbench.

Creating an Assembly.
Assembly Design Workbench Toolbars.
Steps to Creating an Assembly.
Entering the Assembly Design Workbench.
Inserting Components into the Assembly Design Workbench.
Moving Components in the Assembly Design Workbench Using the Compass.
Assembling Existing Components.
Modifying a Component in the Assembly Design Workbench.
Creating a Bill of Material Analyzing/Modifying Assembly Constraints.
Clash Detection.
Measuring Tools.
Assembly Dependencies.
Mechanical Structure.
Adding Annotation.
Saving a Specific View.
Exploding the Assembly.

LESSON 9- Generative Shape Design Workbench.

Generative Shape Design Workbench Toolbars.
Steps to Creating a Simple Wireframe Part.
Select the Generative Shape Design Workbench.
Creating a Local Axis System.
Creating Points.
Creating Lines Using the Point-Point Method.
Creating Planes.
Creating Corners.
Using the Split Tool.
Adding an Elliptical Wireframe Using the Sketcher Workbench.

Applying a Surface to the Wireframe Using the Fill Tool.
Creating a Fillet Between Two Surfaces.
Creating the Elliptical Cutout Using the Split Tool.
Creating Surface Thickness Using the Thick Surface Tool.
Creating a Helix.

LESSON 10- Generative Shape Design Workbench.

Creating Surface Geometry Using the Sweep Tool.
Generative Shape Design Workbench Toolbars.
Steps to Creating a Part Surface Using the Sweep Tool.
Select the Generative Shape Design Workbench.
Creating the Profile in the Sketcher Workbench.
Creating the Guided Curve in the Sketcher Workbench.
Joining the Guided Curve Entities Using the Join Tool.
Creating a Surface Using the Sweep Tool Creating the Trimmed Profile for the Top Flange.
Using the Sketcher Workbench.

LESSON 11- DMU Navigator.

DMU Navigator Workbench Toolbars.
Navigating the Assembly Using the DMU Navigator.
Entering the DMU Navigator Workbench.
Inserting Objects into the DMU Navigator Workbench.
Navigating through the Assembly Using the Fly Mode.
Creating an Annotated View.
Creating 3D Text.
Creating a Scene.
Recording and Replaying a Fly Thru.

LESSON 12- Real Time Rendering.

Real Time Rendering Workbench Toolbars.
Bringing the Assembly into the Rendering Workbench.
Entering the Rendering Workbench.
Loading the Documents into the Real Time Rendering Workbench.
Defining a Light.
Adding Images to the Walls.
Create a Camera and a Shooting.
Animating the Rendering.

LESSON 13- Parametric Design.

Toolbars Used in this Lesson.
The Constraints Toolbar.
The Knowledge Toolbar.
Geometrical Constraints Symbols and Definitions.
Dimensional Constraints and Definitions.
Develop a Plan of Attack.
Execute the Plan.
Create the Base Feature.
Create the Secondary Feature.
Creating the Dress Up Features .
Putting the Plan to the Test.

LESSON 14- Knowledgeware.

Toolbars Used in this Lesson.
The Problem.
The Solution.
The Knowledgeware Solution.
Determine the Requirements.
Creating the Extrusion Profile Sketch.
Constraining the Extrusion Profile Sketch.
Modifying the Constraint Names.
Create the Profile Sketch of the Joggle.
Constraining the Joggle Profile Sketch.
Modifying the Constraint Names.
Creating the Solid of the Joggled Extrusion.
Creating an Extrusion Table.
Importing the Extrusion Table.
Applying the Extrusion Table to the Joggled Extrusion.
Editing the Extrusion Table.

LESSON 15- Generative Structural Analysis.

Toolbars Used in this Lesson.
Apply Material and Apply View Properties.
Starting the Generative Structural Analysis Workbench.

Links Manager.
Finite Element Model.
Applying Advanced Restraints.
Applying a Force.
Compute Solution.
Visualizing the Displacement.
Visualizing the Von Mises Stress.
Animating Views.
Amplitude Modulation & Image Layout.
Cut Plane Analysis
Smooth Virtual Part Mechanical restraints
Knowledge Advisor
Insert a Buckling Case
Insert Frequency Case

LESSON 16- DMU Kinematics.

Workbench Tools and Toolbars.
Steps to Simulating an Assembly Using the DMU Kinematics Workbench.
Preparing the Assembly.
Creating the Mounting.
Assembling the U-Joint into the Mounting.
Moving an Assembly into the DMU Kinematics Workbench.
Automatic Joint Creation.
Manual Joint Creation.
Mechanism Analysis.
Adding a Command.
Editing a Simulation.
Playing a Simulation.
Compiling the Simulation.
Replaying the Simulation.
Distance and Band Analysis.
Clash Analysis.
Edit Analysis .
Swept Volume .
Trace Analysis .