**CATIA Workbench Inventory**

CATIA contains 92 different workbenches. This is a list of brief descriptions explaining what each workbench is designed to do.

* **Infrastructure**
  + Product Structure
    - *For giving a representation of component structure*
  + Material Library
    - *Define materials properties to be used in other workbenches*
  + CATIA V4, V3, V2
    - *Open previous CATIA version’s files*
  + Catalog Editor
    - *Create and manage catalog components*
  + Photo Studio
    - *For creating images and simple animations of a product*
  + Immersive System Assistant
    - *Manage virtual reality systems*
  + Real Time Rendering
    - *For defining detailed material specifications on a component*
  + Product Data Filtering
    - *Creating a filtering mechanism (for an exchange process)*
  + Feature Dictionary Editor
    - *Administrator tool to manage workbenches*
* **Mechanical Design**
  + Part Design
    - *Generate 3D Models*
  + Assembly Design
    - *Assemble 3D Models*
  + Sketcher
    - *Create sketches that can then be used to create 3D models*
    - *Can be accessed form any applicable workbench*
  + Product Functional Tolerancing and Annotation
    - *Add tolerances and annotations for a product*
  + Weld Design
    - *Weld assemblies together*
  + Mold Tooling Design
    - *Designing injection molds*
  + Structure Design
    - *Create structural designs*
  + 2D Layout for 3D Design
    - *Combines the Part Design and Annotations workbenches*
  + Drafting
    - *Create drawings for a project*
  + Core & Cavity Design
    - *Analyze a mold*
  + Healing Assistant
    - *Analyze and fix problems with surfaces*
  + Functional Molded Part
    - *Create parts designed to be molded*
  + Sheet Metal Design
    - *Simplified version of generative sheet metal workbench design for sheet metal*
  + Sheet Metal Production
    - *Analyze sheet metal production*
  + Wireframe and Surface Design
    - *Simplified version of the generative shape design workbench*
  + Generative Sheetmetal Design
    - *Create sheet metal parts*
  + Functional Tolerancing & Annotation
    - *Annotation workbench for parts*
* **Shape**
  + FreeStyle
    - *Create and modify 3D splines and surfaces visually*
  + Sketch Tracer
    - *Import guide images to be used in other shape workbenches*
  + Imagine & Shape
    - *Manipulate surfaces and shapes like clay*
  + Digitized Shape Editor
    - *Modify shapes from a 3D scan*
  + Generative Shape Design
    - *Create surfaces and wireframes*
  + Quick Surface Reconstruction
    - *Create surfaces form 3D scans*
  + Shape Sculptor
    - *Manipulate and sculpt shapes*
* **Analysis & Simulation**
  + Advanced Meshing Tools
    - *Create meshes of parts for finite element analysis*
  + Generative Structure Analysis
    - *Finite element analysis*
* **AEC Plant**
  + Plant Layout
    - *Create a layout design for a plant*
* **Machining**
  + Lathe Machining
    - *Defining NC programs used for machining 3D cylindrical parts using 2-axis turning and drilling operations*
  + Prismatic Machining
    - *Managing NC programs using 2.5 axis machining technique*
  + Surface Machining
    - *Similar to the Advanced Machining workbench, but with only the surface machining features*
  + Advanced Machining
    - *Create 3, 4, and 5 axis machining operations*
  + NC Manufacturing Review
    - *Visualize NC machining operations*
  + STL Rapid Prototyping
    - *Build and manage STL files*
* **Digital Mockup**
  + DMU Navigator
    - *Modify and handle digital mockup*
  + DMU Space Analysis
    - *Take measurements form a product or part including length, area, moment of inertia, and collisions*
  + DMU Kinematics
    - *Simulate assembly movements*
  + DMU Fitting
    - *Simulate parts moving inside an assembly*
  + DMU 2D Viewer
    - *Digital mockup for 2D components*
  + DMU Fastening Review
    - *Annotate fasteners for the automotive industry*
  + DMU Composite Review
    - *Review a product with composite geometry*
  + DMU Optimizer
    - *Compute an optimized geometrical representation of data for mockup verification*
  + DMU Tolerancing Review
    - *Visualize and analyze dimensions and tolerances*
* **Equipment &System**
  + Electrical Cabling Discipline
    - Electrical Connectivity Diagrams
      * *Create cable diagrams*
    - Conduit Design
      * *Create, modify, analyze and manage physical designs of conduit systems*
    - Raceway Design
      * *Create, modify, analyze and manage physical designs of raceway systems*
    - Electrical Cableway Routing
      * *Rout, delete and modify cable routes*
    - Waveguide Diagrams
      * *Create, modify, analyze and document waveguide diagrams*
    - Waveguide Design
      * *Create, modify, analyze and manage physical designs of waveguide systems*
  + Electrical Harness Discipline
    - Electrical Assembly Design
      * *Assemble electrical objects*
    - Electrical Part Design
      * *Add electrical behavior at the part level*
    - Electrical Harness Assembly
      * *Create electrical harness assembly*
    - Electrical Harness Installation
      * *Design physical harnesses*
    - Electrical Wire Routing
      * *Manage the definition of electrical wires*
    - Electrical Harness Flattening
      * *Flatten 3D harnesses in order to create associated 2D drawings*
    - Electrical 3D Design Assembly
      * *Create electrical 3D design assemblies*
    - Electrical 3D Design Part
      * *Create electrical 3D design parts*
  + HVAC Discipline
    - HVAC Diagrams
      * *Create, modify, analyze and document HVAC diagrams*
    - HVAC Design
      * Create, modify, analyze and manage physical designs of hanger systems
  + Multi-Discipline
    - Equipment Arrangement
      * *Build and manage equipment*
    - Hanger Design
      * *Create, modify, analyze and manage physical designs of hanger systems*
  + *Preliminary Layout*
    - Systems Space Reservation
      * *Define a space reservation network*
    - System Routing
      * *Design system routing*
  + Piping Discipline
    - Piping and Instrumentation Diagrams
      * *Create, modify, analyze and document piping and instrumentation diagrams*
    - Piping Design
      * *Creating, modifying, analyzing and managing physical designs of piping systems*
  + Tubing Discipline
    - Tubing Diagrams
      * *Create, modify, analyze and document tubing diagrams*
    - Tubing Design
      * *Creating, modifying, analyzing and managing logical designs of tubing systems*
  + Structure Discipline
    - Structure Functional System Design
      * *Create systems (used in ship building)*
    - Structure Functional Object Design
      * *Creating objects (also used in ship building)*
    - Compartment and Access
      * *Create compartments and accesses for ships*
  + Circuit Board Design
    - *Design circuit boards from a mechanical perspective*
* **Digital Process for Manufacturing**
  + Process Tolerancing & Annotation
    - *Same as the Product Functional Tolerancing & Annotations workbench in Mechanical Design*
* **Machining Simulation**
  + NC Machine Tool Simulation
    - *Validate machine setup and tool paths on a digital representation of a physical NC machine*
  + NC Machine Tool Builder
    - *Build NC machines of the NC Machine Tool Simulation workbench*
* **Ergonomics Design & Analysis**
  + Human Measurements Editor
    - *Create detailed digital humans*
  + Human Activity Analysis
    - *Analyze how a human will interact in a working environment*
  + Human Builder
    - *Create, manipulate and analyze how manikins can interact with a product*
  + Human Posture Analysis
    - *Analyze all aspects of manikin posture*
* **Knowledgeware**
  + Knowledge Advisor
    - *Embed knowledge (corporate standards for instance) into a design*
  + Knowledge Expert
    - *Build up and share knowledge*
  + Product Engineering Optimizer
    - *Optimize a design structure*
  + Product Knowledge Template
    - *Capturing the design methodology defined interactivity*
  + Product Functional Design
    - *Describe the functional systems of a product to be designed and visualized*

**Works Cited**

"Webpages - Workbenches." *Home - SharePoint - Collaboration Workspaces*. Web. 17 June 2010. <https://espace.cern.ch/cad-service/services/webpages/workbenches.aspx>.