

**Course Code** : HCCC09  
**Course Name** : CATIA  
**Duration** : 2 Months  
**Eligibility** : Diploma / BE / ME (MECH)/ Equivalent

## **Syllabus:**

### **MAIN SUBJECTS:**

- Introduction
- Sketcher
- Part modelling
- Assembly modelling
- Drafting (detailing)
- Wireframe and surface designing
- Sheet metal designing

### **INTRODUCTION:**

- Introduction to CAD
- Introduction to 3D modelling
- Introduction to CATIA
  - General user interface
  - Menu bars
  - Tool bars

### **GENERAL:**

- Pan
- Rotate
- Zoom in
- Zoom out
- Fit all in
- Normal view
- View control

### **SKETCHER:**

#### **PROFILE:**

- Line
- Circle
- Rectangle
- Oriented Rectangle
- Arc
- Ellipse

### **OPERATION:**

- Corner, Chamfer
- Trim, Extend
- Break
- Mirror
- Translate, Rotate
- Offset

## **CONSTRAINT:**

- Constraint
- Contact Constraint
- Fix Together
- Auto Constraint
- Animate Constraint
- Edit Multi- Constraint

## **SKETCH TOOL:**

- Grid
- Snap to point
- Construction element
- Dimensional constraints
- Geometrical constraints

## **PART MODELLING:**

### **SKETCH BASED FEATURES:**

- Pad, Multi- pad, Drafted Filleted Pad
- Pocket, Multi- Pocket, Drafted Filleted Pocket
- Shaft, Groove
- Hole
- Rib, Slot
- Solid Combine, Stiffener
- Multi-Section Solid, Removed Multi-Section Solid

### **DRESS UP FEATURES:**

- Edge Fillet, Variable Radius Fillet, Chordal Fillet
- Face-Face Fillet, Tri-tangent Fillet
- Chamfer
- Draft Angle
- Shell, Thickness
- Thickness
- Thread/Tap
- Remove Face, Replace Face

### **TRANSFORMATION FEATURES:**

- Translation
- Rotation
- Symmetry
- Mirror
- Rectangular Pattern
- Circular Pattern
- User Pattern
- Scaling

### **BOOLEAN OPERATIONS:**

- Add, Remove
- Intersect
- Union Trim, Remove Lump

## **ASSEMBLY MODELLING:**

### **PRODUCT STRUCTURE TOOLS:**

- Existing Component
- Replace Component

### **CONSTRAINTS**

- Coincident Constraint
- Contact Constraint
- Offset Constraint
- Angle Constraint
- Fix Component
- Fix Together
- Quick Constraint
- Change Constraint
- Reuse Pattern

### **MOVE:**

- Manipulation
- Explode
- CATALOG BROWSER
- UPDATE

### **MEASURE:**

- Measure Between
- Measure Item
- Measure Inertia

### **REFERENCE ELEMENTS:**

- Point
- Line
- Plane

## **WIREFRAME AND SURFACE DESIGN:**

### **SURFACES:**

- Extrude
- Revolve
- Sphere
- Cylinder
- Offset
- Sweep
- Fill
- Multi-sections surface
- Blend

### **OPERATIONS:**

- Join
- Healing
- Split
- Trim
- Translate

- Rotate
- Symmetry
- Boundary
- Extract
- Extrapolate

#### **WIREFRAME:**

- Point
- Line
- Circle
- Spline
- Plane
- Corner
- Projection
- Intersection

#### **GENERATIVE SHEET METAL DESIGN:**

##### **WALLS:**

- Sheet metal parameters
- Wall
- Wall on edge
- Extrusion
- Flange
- Hem
- Tear drop
- User flange

##### **BENDING:**

- Bend
- Conical bend
- Bend from flat
- Folding
- Unfolding

##### **CUTTING/STAMPING:**

- Cutout
- Hole
- Circular cutout
- Corner relief
- Corner
- Chamfer
- Stamping

##### **CONSTRAINT:**

- Constraint
- Defined constraint

##### **DRAFTING:**

##### **VIEWS:**

-  Front view

- Projection View
- Auxiliary View
- Isometric View
- Unfolded View
- Offset Section View
- Aligned Section View
- Offset Section Cut
- Aligned Section Cut
- Detail View
- Clipping View
- Broken View
- Breakout View
- Add 3D clipping

**DRAWING:**

- Sheets
- New View

**DIMENSIONING:**

- Dimensions
- Chained Dimensions
- Length/Distance Dimensions
- Angle Dimensions
- Radius Dimensions
- Diameter Dimensions
- Chamfer Dimensions
- Thread Dimensions
- Hole Dimension Table