



**IFS ACADEMY**

Training For The Future!!



## **BIW Fixture Design using CATIA V5**

**(Duration: 80 Hrs.)**

### **Course Curriculum**

#### **Overview:**

This course is designed for fresh Diploma / B.E. Mechanical Engineers and CAD Working Professionals who wish to start their career in BIW Fixture Design using CATIA Software.

Students are expected to work on 2D detailing and 3D design of Fixtures on industrial projects. At the end of the course, we will be conducting a technical as well as Project oriented Tool Test.

At the end of the course, each participant shall get Dassault Systemes Authorised Certificate of Attendance for CATIA training and IFS Academy Certificate of Completion for the BIW Fixture Design Course.

**Prerequisites:** Before the course begins it is expected that Students are well trained on on CATIA Software on the modules like Sketcher, Part Modeling, Assembly, Drafting / Detailing, Surfacing and Sheet metal. If the students are not trained on CATIA Software then they are requested to enroll for CATIA Mechanical Designer course separately before they begin this course.

#### **Chapter 1: Introduction to BIW**

- What is BIW?
- What are jigs & fixtures?
- Types of Fixtures
- Importance of fixtures in Automotive
- 3-2-1 Principle
- Concept of carline
- BIW part details
- Machining processes used in Fixtures
- Nomenclature used in BIW

#### **Chapter 2: Guidelines for Fixture Design**

- Materials used and their Hardness
- Design of Clamp & Rest Mylar
- Design of Locating Pin & Diamond Pin
- Design of Riser



### **Chapter 3: Fixture Components**

- Mylar, Locating Pin, Riser and L Bracket
- Leveling Assembly For Fixture
- Weldment Base for Fixture
- Rough Guide

### **Chapter 4: Calculation for Pneumatic Cylinder & Diamond Pin**

- Design / selection of Pneumatic Cylinder
- Types of Locating Pin
- Diamond Pin Vs Round Pin

### **Chapter 5: Manufacturing Drawing with GD&T and Flame Cut DWG**

- Drafting standards for various OEM's
- Carline using Macros
- Introduction to NAAMS Global Standard
- Preparation of BoM

### **Chapter 6: Pneumatic Circuit and its Components**

- Flow control valves, Solenoid valve, Tube Fittings and Cylinder
- Preparation of Pneumatic circuit

### **Chapter 7: Preparation of Clamp / Pin / Rest Unit**

- Clamp unit using Tunkers Cylinder & SMC Cylinder
- Pin unit using SHIM consideration
- Pin on Clamp unit

### **Chapter 8: Weld Study**

- Weld study using Welding Gun
- Types of Welding Guns

### **Chapter 9: Introduction to Process Plan / Time Sheet / Spot Plan**

### **Chapter 10: Live Industrial Projects**

- 2D Detailing of Fixture
- Live Projects on 3D Design of Fixture
- Concept of 3D Design of Fixture
- Live Projects on 3D Design of Fixture