



IFS ACADEMY
Training For The Future!!

In Association
with

ADVENT

**IFS Academy Certified Career Program in
BIW Fixture Design using CATIA V5 (Sandwich Course)
(In Association with ADVENT ToolTech Pvt. Ltd.)
(Duration: 4 Months)
(With 100% Placement Assistance)**

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 will be trained on CATIA Software on the modules like Sketcher, Part Modeling, Assembly, Drafting / Detailing, Surfacing and Sheetmetal. As it's a Sandwich Course, after finishing CATIA Training, Student undergoes 3 Months extensive industrial training on BIW Fixture Design on industrial live projects and hands on experience in manufacturing the Fixtures.

Students are expected to work on 2D detailing and 3D design of Fixtures on industrial projects. They will also get exposure of the entire manufacturing / machine setup in the industry.

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-ADVENT Certificate of Completion for the BIW Fixture Design Career Program Course.

Section I: Computer Aided Design using CATIA V5 (80 Hrs. / 1 Month full time)

- Introduction to CATIA
- Profile Creation
- Basic Features
- Additional Part Features
- Dress-up Features
- Reusing Data
- Finalizing Design Intent
- Design Complex Parts



- Analyze and Annotate Parts
- Sharing Information
- Assembly Design
- Contextual Design
- Complex Assembly Design
- Drafting
- Introduction to Surface Design
- Creating Wireframe Geometry
- Shape Design Common Tools
- Creating Surfaces
- Performing Operations on the Geometry
- Completing the Geometry in Part Design
- Modifying the Geometry
- Using Tools
- Getting Started with Generative Sheetmetal Design
- Sheetmetal Walls
- Bends and Unfolded Mode
- Flanges
- Sheetmetal Features
- Transformations and Duplication
- Mapping & Output
- Exercise and Workshops

Section II: BIW Fixture Design (3 Months full time. Mon to Sat: 8 Hrs / Day at ADVENT)

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: 2D DETAILING OF FIXTURE

- Introduction to 2D detailing of fixtures
- Different terms & nomenclature used in drafting
- GD&T used for different parts.
- Creation of 2D drawings for different customers
- Preparing Flame Cut
- Creation of Bill of Materials(BOM)
- Standard part drawings
- Standard parts & brought out items creation.

Chapter 3: Live Projects on 2D Detailing of Fixtures

- Detailing of Unit GA
- Adding Grid lines
- Section id Details
- Creating Balloons on GA
- Label Info & Revision Notes
- Detailing of Support Mylar
- Adding Material
- Detailing of Clamp Mylar
- Detailing of Blade/Dolly Plate
- Detailing of Fabricated Riser
- Detailing of Base Structure

Chapter 4: Concept of 3D Design of Fixture

- Panel Build
- Location & Clamp Plan
- Weld Spot distribution & Weld gun Study
- Introduction to 3D design Parts & Nomenclature
- Introduction to Clamp Unit, Pin Unit, Base
- Part Modeling & Assembly
- Design & Drafting of Base.
- Creation of Hole Chart
- Design & Detailing Of Material Handling Equipment's (Trolley,Tackles,Bins)



Chapter 5: Live Projects on 3D Design of Fixtures

- Design of Clamp Unit
- Clamp Cylinder Load Calculations
- Design of Pin Unit
- Design of Pin On Clamp Unit
- Creation Pivot Point For Pin on Clamp Unit
- Designing Mylar at Carline Position
- Adding Hardware's
- Design of Slide Unit
- Rail selection Method
- Methodology for Geo Welding Fixture Design
- Design of Trunnion used for Stud Welding
- Design Methodology for Geo Grippers and Material Handling Grippers

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