# CERTIFICATE PROGRAM

# CRASHWORTHINESS DESIGN AUTOMOTIVE BODY STRUCTURE

## PROGRAM OBJECTIVE

Product Domain Knowledge of Designing a Sheet Metal Panel /BIW Structure by following Design Methodology, Aspects and Principles those influence from concept design to launch for manufacturing of Tailgate Panel, Fenders or Roof Panels.

## PREREQUESTIVE

Mechanical / Production or Automotive Engineering Graduate

<2 Year Experienced Professional

Basic working knowledge on any CAD & FEA Software Tool.

## FEA LAB SESSIONS

Recorded Lab Sessions are provided based on learning methodology of Ansys FEA tool to **analyse & support the BIW Structure Design for the Durability, Crash & Safety.**

## LEARNING OUTCOME

Design Principles, Rules and Methodology that involved to design an Sheet Metal Part considering customer specs, proposed raw materials, mfg. feasibility, Meet Regulations & Functional Requirements.

## PROJECT LEARNING

During the Program, apart from classes, assignment are provided on how to design a Sheet metal panel using CAD & FEA software tool and analyse the product design performance, durability & Safety.

## PROGRAM MODULE

100% online interactive session
Collaborative Skill-set gain with CAD & FEA practices.
Courses are in-line to actual Automotive Tier-1 /OEM Work Methodology.
Recorded lecture are provided as reference.

## TRAINER PROFILE

M.Tech Automotive Engineering - BITS Pilani WILP.

25 Years experienced professional in Automotive Industry & Technical Trainer.

Injection Tooling, CAD/CAM, Automotive Product Design, Engineering, Development and Validation.

## CREDENTIAL

Recognition with **Certificate of Completion** will be facilitated at the end of the program. **Certificate of Internship Completion** are provided after successful completion of Internship Live Project.

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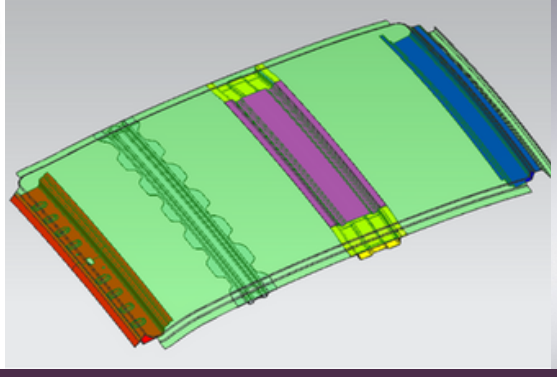
## INTRODUCTION TO SHEET METAL DESIGN

**MODULE-1**
3 DAYS SESSION

CONTENT:

- Automotive Design Basics
- BIW Design Elements
- Concept Product
- VAVE Process
- Class A Surface Development
- Basic Design Thinking



## AUTOMOTIVE BODY STRUCTURE DESIGN

**MODULE-2**
1 WEEK SESSION

CONTENT:

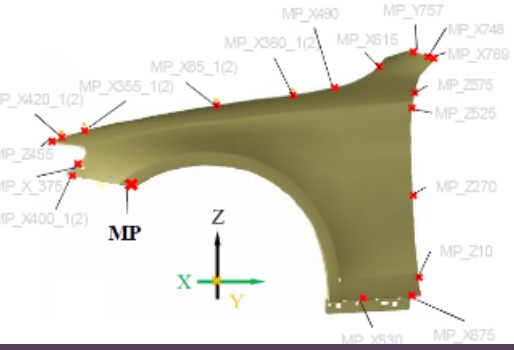
- Packaging & Feasibility Study
- CAS Homologation Check
- Master Sectioning & 3D Design
- Product Design Best Practises
- DFMEA Workshop
- DFA & DFM Methodology

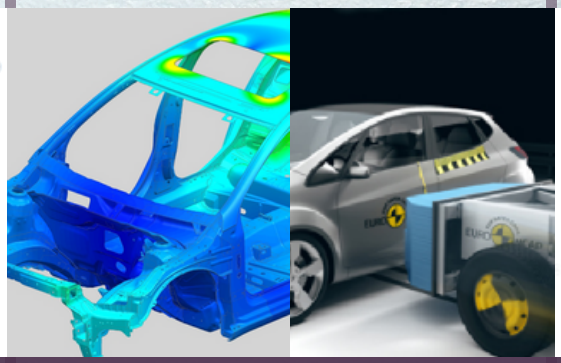
## AUTOMOTIVE MATERIAL

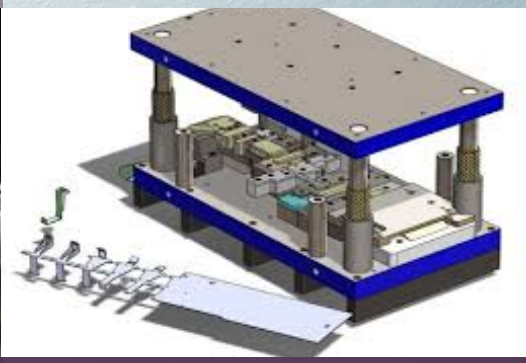
**MODULE-3**
3 DAYS SESSION

CONTENT:

- Introduction to Material
- Material Selection Method
- Material Validation Test
- Lightweighting Material
- Future Material trend on Electric Vehicle





## DIMENSIONAL MANAGEMENT

**MODULE-4**
1 WEEK SESSION

CONTENT:

- GD&T Concepts
- GD&T on Product Design
- Product Qualification
- Stack-up Analysis Method
- Product Gap & Flush Study

## FEA ANALYSIS & REGULATIONS

**MODULE-5**
3 DAYS SESSION

CONTENT:

- FEA Lab Practise Session
- Design Validation Plan
- Automotive Regulations
- Mandatory Test Regulation
- EV Crash & Safety Aspects

## PRESS TOOL DESIGN & CHECKING GAUGE

**MODULE-6**
2 DAYS SESSION

CONTENT:

- Press Tool Design Concept
- Formability Analysis
- Checking Gauge Concepts
- Checking Gauge Design
- Part Inspection Methodology

**Duration**: 3.5 Weeks / Daily 1.5 Hours Online & Classroom Interactive Training + Project / Internship

**Project:** Post completion of the course, an project on **Electric Vehicle BIW Structure Design for Safety & Lightweighting** will be provided to gain Domain Expertise and Skill-set.