



Design & Development Engineering using CATIA V5

Course Curriculum (Duration: 100 Hrs.)

Chapter 1: Vehicle Familiarization

- Introduction to basic terms in design/Mechanical engineering
- Introduction to Different systems in Automobile
- Introduction to Automobile Layout and its naming convention
- Introduction to Automobile body structure
- Body In White (BIW)

Chapter 2: Materials used in Automobile

- Introduction to materials
- Application of sheet metal and plastic materials in Vehicle
- Physical and chemical properties of material
- Guidelines for Material selection

Chapter 3: Introduction to Body Design

- Design guidelines used for Body design
- Materials used for Body Design
- Nomenclature of Automobile body
- Modelling of Automobile body components with CATIA V5
- Material selection criterion for component design
- Defects in Body parts

Chapter 4: Introduction to Plastic Design

- Design guidelines used for plastic part design
- Modelling of Plastic components with CATIA V5
- Defects in plastic components

Chapter 5: Design of Vehicle Body sections

- Master Sections
- Introduction to sections used in Body
- Structural strength of different body sections
- Parameters consider while designing sections of BIW

Chapter 6: CAE Analysis and Tests required for Automobile

- Introduction to CAE analysis.
- Introduction to different test performed on automobiles

Chapter 7: Introduction to Manufacturing process

- Manufacturing process of sheet metal parts
- Manufacturing operations of Plastic parts
- Introduction to hot stamping
- Introduction to Hydroforming
- Introduction to Tailor welded blanks

Chapter 8: Welding processes

- Introduction to Spot Welding and its parameters
- Arc Welding
- Plug Welding
- Brazing

Chapter 9: DFM and DFMEA

- Introduction to Design for manufacturing
- Design failure mode effective analysis
- DFM with Design Software's
- Design constraint

Chapter 10: Geometrical dimensioning and tolerances

- Types of Tolerances and its symbols
- Application of Tolerance
- Hole basis and shaft basis systems
- Basic terms used in Tolerancing

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