



IFS ACADEMY

Training For The Future!!



IFS Academy Certified Career Program in Electrical Wiring Harness Design using CATIA V5 / NX CAD

(For Electrical and E&TC Engineers)

with 100% Placement Assistance

Course Curriculum (4 Months)

Chapter 1: Sketcher

- Reference elements point, line and plane
- Profile
- Lines
- Circles
- Rectangular
- Sketch tools
- Visualization
- Operations
- Constraints

Chapter 2: Part Design

- Dress-up features
- Sketch-based features
- Transformations features
- Body define
- Assemble
- Pad
- Pocket
- Fillet
- Chamfer

Chapter 3: Assembly

- Types of Assembly
- Top down Assembly
- Bottom up Assembly
- Move
- Product structure tools
- Constraints





Chapter 4: Defining Electrical Components

- Define Connector
- Define Clip
- Define Grommet
- Electrical Connection Points
- Electrical Device Definition

Chapter 5: Electrical Wire Routing

- Wire bundle routing
- Bundle diameter calculation
- Wire size calculation
- Catalogue Creation for protection

Chapter 6: Electrical Harness Flattening

- Harness flatten parameters
- Extract
- Flatten

Chapter 7: Drafting (2D Manufacturing Drawings)

- Views
- Annotations
- Geometry Manipulations
- Drawing
- Geometry Creation
- Dimensioning
- Text properties

Chapter 8: Reverse Engineering

- Continuity test
- Address sheet
- BOM
- 2D drawings
- Splice chart
- Check sheet for drawings checking

Chapter 9: Vehicle Electrical (Theory)

- Battery
- Starter Motor
- Alternator
- Air Bag
- EMS ECU
- Wiring Harness





- Internal Lamps
- External Lamps
- CDL System
- Music System
- Switches
- Instrument Cluster
- Wash and Wipe system
- Power Window
- Introduction to Electric Vehicle

Chapter 10: Wiring Harness Design Guidelines

- Introduction
- Prior to wiring harness design
- Wiring Harness Topology
- Routing Considerations
- Protection of Wiring Harness
- Fuse Selections
- Voltage Drop
- Selection of wire
- Selection of connectors
- Grounding strategy
- Preparation of wiring harness drawings
- Verification on harness drawing level
- DFMEA of wiring harness design
- Verification/Validation on vehicle
- Failures in the field

Chapter 11: Types of Wiring Harness

- Engine compartment
- Cabin compartment
- Floor
- Roof
- Tail
- Door
- Documentation

Chapter 12: Reverse Engineering with Circuit Schematics

- Circuit Schematics Two wheeler and Three wheeler
- Continuity test (Beep test)
- 2d manufacturing drawings with all documents





Chapter 13: Live Project (for interested Students only)

- Related to Automotive field
- DFMEA about same project

Chapter 14: Design Process

- Forward engineering (Design)
- Reverse engineering (Design)
- Responsibilities of Design department

Chapter 15: Electric Vehicles Components Selection

- Motor selection
- Motor controller selection
- Battery selection
- DC-DC Converter Selection
- Testing of all electric components

Chapter 16: Seminar on Electric Vehicle

- Indian Petrol Engine and Diesel Engine Vehicle overview
- Differences between IC Engine and Electric vehicle
- Electricity consumption after electric vehicle conversion

Note:

- Students are requested to select any one Software between CATIA V5 / NX CAD
- After completion of training, each student gets Dassault Systemes / SIEMENS PLM Software Authorised Certificate of Completion along with IFS Academy Certificate of Completion.

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