Creo Schematics & Cabling Training

Target Audience

This course is designed for electrical engineers, CAD designers, and product development professionals who want to master **electrical schematics and cabling workflows** using Creo. It is ideal for learners working in automotive, aerospace, industrial equipment, and heavy machinery industries where complex wiring diagrams, cable harnesses, and manufacturing documentation are essential.

Course Outcomes

By the end of this course, participants will be able to:

- Understand Creo Routed Systems and their applications in industry.
- Create and manage schematic projects with symbol libraries, connectors, and attributes.
- Develop wiring diagrams with proper signal management, splices, and validation.
- Integrate logical references between ECAD and MCAD workflows.
- Design cabling assemblies with manual and automatic routing techniques.
- Build and optimize cable harnesses with constraints, coverings, and validation.
- Flatten harnesses and generate manufacturing documentation including BOMs and reports.
- Execute end-to-end industry projects from schematics to manufacturing deliverables.

Course Objectives

- Provide a structured foundation in Creo Schematics and Cabling workflows.
- Train learners in schematic creation, wiring diagram development, and logical references.
- Develop proficiency in cabling design, harness creation, and flattening techniques.
- Enable learners to integrate ECAD–MCAD workflows for complete product development.
- Teach best practices for harness validation, optimization, and documentation.

- Reinforce learning through an industry project simulating real-world applications.

Course Outline

The course comprises **24 hours** of theory and labs and is divided into **8 different chapters**. Each chapter will be followed by hands-on lab exercises to reinforce learning and gauge understanding of the topics covered.

Table of Contents

Module 1: Introduction to Creo Routed Systems

- Overview of Creo Routed Systems
- Introduction to Creo Schematics and Creo Cabling
- ECAD–MCAD Design Workflow
- Schematics vs. Cabling vs. Cable Harness Design
- Routed Systems Architecture
- Applications in Automotive, Aerospace, Industrial Equipment, and Heavy Machinery
- Design Workflow from Schematic to Manufacturing

Module 2: Creo Schematics Fundamentals

- Creo Schematics User Interface
- Project Creation and Configuration
- Symbol Libraries and Catalogs
- Creating and Modifying Schematic Symbols
- Wire, Cable, and Connector Libraries
- Device Tags and Component Attributes
- Pin Definitions and Connector Management
- Net Labels, Cross References, and Annotation
- Project Validation and Reports

Module 3: Wiring Diagram Development

- Creating Single-Line and Multi-Line Schematics
- Developing Wiring Diagrams

- Wire and Cable Definition
- Connector Pin Assignment
- Signal and Circuit Management
- Wire Numbering and Identification
- Splices and Junctions
- Design Validation and Error Checking
- Report Generation
- Exporting Logical Design Data

Module 4: Logical References and ECAD–MCAD Integration

- Introduction to Logical References
- Creating and Managing Logical References
- Data Exchange Between Creo Schematics and Creo Parametric
- Importing Logical Data into Creo Parametric
- Synchronizing Schematic and 3D Models
- Managing Design Changes and Updates

Module 5: Creo Cabling Fundamentals

- Cabling Design Environment
- Electromechanical Assembly Preparation
- Connector Placement and Orientation
- Coordinate Systems and Routing References
- Route Network Creation
- Cable and Wire Parameters
- Manual Cable Routing
- Automatic Cable Routing
- Cable Bundle Creation and Management

Module 6: Cable Harness Design

- Cable Harness Design Workflow
- Bundle and Branch Management

- Routing Constraints and Bend Radius Control
- Protective Coverings and Cable Protection
- Harness Assembly Creation
- Editing and Modifying Harnesses
- Harness Validation and Design Optimization
- Managing Complex Cable Assemblies

Module 7: Harness Flattening and Manufacturing Documentation

- Harness Flattening Techniques
- Creating Nailboard Representations
- Manufacturing Views
- Connector and Wire Tables
- Wire Length Calculation
- Bill of Materials (BOM) Generation
- Harness Reports
- Manufacturing Drawings and Documentation

Module 8: End-to-End Industry Project

- Create an Electrical Schematic
- Develop a Complete Wiring Diagram
- Generate and Export Logical References
- Import the Design into Creo Parametric
- Create Route Networks and Perform 3D Cable Routing
- Design and Validate a Complete Cable Harness
- Generate Flattened Harness Drawings
- Produce Manufacturing Documentation and Bill of Materials