



SOLIDWORKS Electrical Course Outline

SOLID  PERTS
by solidxperience

ENSURE YOUR SUCCESS IN 3D DESIGN WITH SOLIDWORKS

SOLIDWORKS ELECTRICAL TRAINING INDEX

SOLIDWORKS Electrical: Schematic – 2 Days (14h) 55

SOLIDWORKS Electrical: 3D – 1 Day (7h) 57

SOLIDWORKS Routing: Electrical – 1 Day (7h) 58

SOLIDWORKS PCB Essentials – 1 Day (7h) 59

Course Objectives: At the end of the course, the student will know the capabilities of the software and will be able to use the learned features.

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Instructor: SolidXperts trainers are Certified SolidWorks Instructors (CSWI) and authorized by Emplois Québec.

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SOLIDWORKS Electrical: Schematic – 2 Days (14h)

1. Project Templates

- SOLIDWORKS Electrical
- Stages in the Process
- Starting SOLIDWORKS Electrical
- What are Projects
- Project Templates
- Project Configurations
- How is a Project Structured?

2. Modifying Project Templates

- What are environments?
- Draw multiples wires

3. Drawing Types

- What are drawing types?
- Existing and Archived Projects
- Line Diagram Symbols
- Adding Cables
- Symbols Panel
- Schematic Symbols
- Symbol Properties

4. Symbols and Components

- What is a Component?
- Description Columns
- Symbol component association

5. Manufacturer's parts

- What are manufacturer's parts?
- Circuits and terminals
- Finding manufacturer parts
- Electrical Assemblies

6. Wires and Equipotentials

- Equipotentials and wires
- Wire style manager
- Replacing wire
- Equipotential numbering results
- Wire numbering results
- Using nodal indicators.

7. Cabling

- What is cabling?
- Cables
- Detailed cabling
- Terminal strip
- Pin to pin connections
- Copy and paste

8. Symbol Creation

- Symbols and standards
- Symbols manager
- Symbol properties
- Circuits, terminals, types
- Multiple attribute
- Splitting attribute data
- Add to library
- Copy, paste symbol

9. Macros

- What are Macros
- Creating and Adding Macros

➔ Continued...

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SOLIDWORKS Electrical: Schematic (continued...)

10. Cross Referencing

- What is cross Referencing?
- Cross Referencing List
- Cross Referencing State colors
- Cross Referencing Text coding
- Cross Referencing Types
- Cross Referencing Location List

11. Managing Origin-Destination Arrows

- What are Origin-Destination Arrows?
- Origin-Destination Arrows

12. Dynamic Programmable Logic Control

- What is a PLC?
- Adding a new scheme
- Adding a PLC Mark
- Inserting a PLC
- Editing a PLC

13. Automated Programmable Logic Control

- How are PLCs automated?
- PLC mark, part
- IO manager

14. Connectors

- Connectors
- Insert connector
- Connector Insertion

15. 2D Cabinet Layouts

- What are Cabinet layouts?
- Creating a 2D Layout
- Inserting Ducts and rails
- Inserting Components
- Wire cabling order

16. Design Rule Checks

- What are design rule checks?
- Unconnected pins
- Equipotential conflicts
- Max. terminal wires
- Duplicated parent symbols
- Child symbols without parent
- Empty terminal strip
- Duplicated terminals

17. Reports

- What are Reports
- Report Manager
- Report columns
- Column formula
- SQL query column variable
- Sort and break

18. Simple Reports

- What are Views?

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SOLIDWORKS Electrical: 3D – 1 Day (7h)

1. Assembly Creation

- What are Assemblies?
- Unarchiving a Project
- SOLIDWORKS Assembly

2. Cabinets, Ducts, Rails

- Cabinets, Ducts, Rails
- Insert Component
- Inserting Rails
- Inserting Ducts

3. Component Intelligence

- What is a component?
- Component Intelligence
- The Electrical Component Wizard

4. Insert Components

- Insert Components
- Align Components
- Inserting Terminals

5. Routing Wires

- Routing Wires
- Routing Path
- Route Wires

6. Routing Cables

- Routing Cables
- Route Cables

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SOLIDWORKS Routing: Electrical – 1 Day (7h)

1. Fundamentals of Routing

- What is Routing?
- Routing Setup
- General Routing Settings

2. Basic Electrical Routing

- Basic Electrical Routing
- Adding Routing Components
- Start by Drag and Drop Connector
- Auto Route
- Save to External Files

3. Routing with Clips

- Routing with Clips
- Routing Through Existing Clips
- Adding Clips while Auto Routing
- Editing a Route
- Working with Clips
- Routing Through a Clip
- Splitting a Route
- Adding a Splice
- Multiple Routes Through a Clip

4. Electrical Routing Components

- Routing Library Parts Introduction
- Electrical Routing Library Parts
- Libraries
- Routing Component Wizard
- Routing Component Attributes
- Electrical Libraries

5. Standard Cables and Reusing Routes

- Using Standard Cables
- Standard Cable Excel File
- Modifying Standard Cables
- Creating a standard Cable
- Reuse route
- Delink harness
- Routing Templates

6. Electrical Data Import

- Importing Data
- Routing Library Manager
- From/To Lists
- Route Properties
- Route Guidelines
- Using Guidelines and Clips

7. Electrical Drawings

- Route Flattening and Detailing
- Annotation Flattening
- Flatten Route
- Manufacture Flattening

8. Flex Cables

- Flex Cables
- Flex Cable Routes
- Flex Cable Auto Routing
- Using Flex Cables with Clips.

9. Electrical Conduits

- Electrical Conduits
- Rigid Conduit
- Orthogonal Routing with Auto Route
- Electrical Data in Conduits
- Manual Sketch Routing
- Flexible Electrical Conduit

Appendix A: Review Section

- Review of Configurations
- A Note About File References
- Design Tables
- Review of Top Down Design
- Editing Options
- Review of Design Library Task Pane
- Review of 3D Sketching

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SOLIDWORKS PCB Essentials – 1 Day (7h)

1. SOLIDWORKS PCB Basics and the User Interface

- Overview
- SOLIDWORKS PCB Environment

2. Working with PCB Design Projects

- Understanding Projects
- Creating Project
- Creating Project Documents
- Basic Project Management Tasks

3. Creating Schematics Templates

- Understanding Templates
- Creating One Template from Another
- Inserting a Company Logo
- Setting Document Text Parameters
- Setting Template Project Parameters

4. Configuring the Schematic Preferences

- Optimizing Wires and Buses
- Breaking Wires at Auto junctions
- Displaying Cross-Over
- Auto Panning

4. Creating Symbols

- Creating New Symbols
- Using the Symbol Wizard

6. Populating Schematics

- Using Symbol Placement Shortcuts
- Placing Library Components
- Placing Parts
- Inserting Power Ports
- Applying Supplier Links

7. Creating Schematic Connections

- Wiring Placement Modes
- Placing Wire Connections
- Creating Buses
- Using Net Labels

8. Using Schematic Annotations

- Processing Order
- Processing Location
- Matching Options
- Proposed Change List
- Engineering Change Order

9. Compiling and Verification

- Setting Design Violations
- Compiling and Realizing the Results
- Resolving Error Violations and Warnings

10. Collaborating with SOLIDWORKS

- Creating a PCB Board in SOLIDWORKS
- Pushing a Board to SOLIDWORKS PCB
- Creating a PCB Board in SOLIDWORKS PCB
- Pushing a Board to SOLIDWORKS

11. Configuring Layers and PCB Stacks

- Configuring PCB View Configurations
- Defining the Board Layer Stack
- Checking the Board Thickness in SOLIDWORKS

➔ Continued...

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SOLIDWORKS PCB Essentials (continued...)

12. Designing Rigid-Flex PCBs

- Using the Rigid-Flex Approach for Designing PCBs
- Understanding the Collaboration Workflow of Rigid-Flex PCBs
- Repositioning Components on a Rigid-Flex Board

13. Configuring the Outline, Cutouts and Keepouts

- Redefining the Board Shape
- Applying Cut outs
- Applying Keep outs
- Defining PCB Placement Constraints in SOLIDWORK

14. Configuring Origins and Grids

- Setting an Origin
- Creating a Cartesian Grid
- Creating a Polar Grid

15. Transferring Design Data

- Linking Components
- Updating Schematics
- Updating the PCB Layout

16. Creating Footprints

- Creating New Footprints
- Using the IPC Footprint Wizard

17. Placing Footprints

- Positioning Footprints
- Reposition Footprints in SOLIDWORKS

18. Using Design Rule Checks

- Modifying the Existing Rules
- Creating New Rules

19. Routing

- Interactive Routing Preferences
- Interactive Routing Nets
- Quick Routing
- Adding Vias
- Multi-Trace Routing
- Auto routing
- Adjusting the Tracks to Fix Errors

20. Defining Polygon Pour

- Setting Polygon Pour Parameters
- Defining Polygon Pours Nets

21. Inspection – Global Edition

- Finding Similar Objects
- Modifying Multiple Objects

22. Outputting Data

- Configuring Output Files
- Generating Manufacturing Output

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