

AUTOCAD ELECTRICAL

BEGINNER AND INTERMEDIATE LEVEL



Duration: 35h

Prerequisites:

- Have basic knowledge of the Windows environment
- Experience or familiarity with electrical drafting is an asset
- Have a computer equipped with Autodesk AutoCAD Electrical

Recognized Certification: Yes

Post-training technical support: Free of charge for one year

Teaching methods:

- Remote training
- Demonstration
- Training material included

Target audience: Electrical engineers, technicians, designers and drafters, and electromechanical, mechatronics and electronics specialists, among others.

Skills acquired at the end of the training:

- The main objective of this course is to familiarize you with the use of AutoCAD Electrical computer-aided design software.
- Through exercises and practical applications, you will develop a working methodology for creating complex 2D electrical schematics and control panels using metric or imperial units and various drawing scales.

DESCRIPTION

Training for electrical engineers, technicians, designers, and drafters who wish to acquire the skills required to use AutoCAD Electrical technical drafting software for industrial projects.

Upon completion of the training, participants will be able to create, modify, and manage electrical schematics and projects. The skills acquired will be particularly useful to professionals working in electrical engineering, automation, mechatronics, electromechanics, and electronics.

COURSE OUTLINE

Session 1 (3h): Introduction to the AutoCAD Electrical Environment

A- Create a New Drawing

- Introduction;
- Browse templates;
- Acadiso.dwt workspace;
- ACE_IEC_A(?).dwt workspace;
- ACE_ANSI_ (?).dwt workspace;
- Additional templates online;
- Create a sheet set

B- Open a Project

- Open files and drawings;
- Open a sheet set;
- Explore sample projects and drawings;
- Manage recent files;
- Guided exercises



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C- Tabs and Panels

- Overview of the interface and ribbon;
- Difference between tabs and panels;
- Customize the interface display;
- Guided exercises

D - Configure Display Options

- Modify drawing window colors;
- Adjust crosshair size;
- Manage file tabs;
- Manage layout tabs;
- Guided exercises

Session 2 (3h): Project Manager and Drawings

A- Create a New Project

- Configure project properties
- Choose the template style for the project
- Choose the drawing standard to follow
- Describe the overall project
- Create project pages
- Guided exercises

Session 3 (3h): Basic Drawing and Modification Tools

A - Configure Drawing Units and Scale

- Define the type and format of length units;
- Set the precision of length units
- Define the angular unit type;
- Set angular precision;
- Configure the insertion scale;

- Configure the annotation scale for the current view;
- Guided exercises

B - Manage Layers and Create Electrical Wires

- Review of standard layer management:
 - ✓ Color;
 - ✓ Linetype;
 - ✓ Lineweight.
- Review and manage the electrical wire layer list;
- Create and modify electrical wires;
- Guided exercises

C - Drawing and Modification Tools

- Create geometric shapes:
 - Line; Polyline; Rectangle; Circle;
 - Arc; Triangle; Polygon; Ellipse.
- Modify objects and geometric shapes:
 - Move; Rotate; Scale;
 - Mirror; Offset; Extend;
 - Fillet; Copy; Stretch;
 - Trim; Chamfer.
- Guided exercises

Session 4 (3h): Blocks and Annotation

A- Drawing Annotation

- Create and format single-line and multiline text;
- Dimensioning and dimension style configuration;
- Create and manage leader lines;
- Create and format tables;
- Guided exercises



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B - Create and Manage Blocks and Attributes

- Define and create attributes;
- Create and insert blocks;
- Create external block files (**WBLOC**);
- Use the Block Editor;
- Manage and modify attributes;
- Guided exercises

C - Extract and Use Drawing Information

- Extract data and information contained in the drawing;
- Calculate and verify areas and perimeters
- Guided exercises

Session 5 (3h): My Project “Create and Configure a Custom Template”

A- Create Cadre_Format_A3

- Review a sample custom template in PDF or image format;
- Import the model into AutoCAD Electrical;
- Review object snap modes
- Take measurements using the Cotation command;
- Create the border using rectangles and precise dimensions;
- Use the Décaler command;
- Create and divide reference cells;
- Use the Réseau command;
- Use the Décomposer command
- Insert and number reference markers;
- Use the TCOUNT command;
- Create the “Cadre_Format_A3” block.

B - Create and Configure a Title Block

- Create the various areas and information fields;
- Add fixed text;
- Define and insert attributes;
- Organize and configure the title block.

C- Create the Custom Template

- Create and integrate the template blocks;
- Finalize the custom template;
- Save and back up the work in AutoCAD Electrical template format (.DWT)

Session 6 (3h): Creating Electrical Schematics

A - Wires and Wire Numbers

- Insert electrical wires;
- Insert three-phase wire numbers;
- Operations on wires and wire numbers:
 - ✓ Modify the number
 - ✓ Move the number
 - ✓ Delete
 - ✓ Align
 - ✓ Scoot
 - ✓ Toggle the number inline with the wire
 - ✓ Flip
 - ✓ Leader line
 - ✓ Other operations
- Guided exercises



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B- Create Power Schematics

- Configure line spacing;
- Insert a three-phase network;
- Add power components;
- Use the icon menu;
- Use the Catalog Browser;
- Manage and modify electrical components
- Automatically tag components;
- Cross-reference coils and contacts;
- Guided exercise: create a power schematic

Session 7 (3h): Electrical Schematics

C- Create Control Schematics

- Configure line spacing.
- Insert the control network;
- Create links and cross-references between the various schematics:
 - ✓ Source – Destination link;
 - ✓ Source – Entrance link;
 - ✓ Destination – Entrance link;
- Add control components
- Use the icon menu;
- Use the Catalog Browser;
- Manage and modify electrical components;
- Automatically tag components;
- Cross-reference coils and contacts in real time;
- Use Circuit Builder;
- Guided exercise: create an electrical control schematic.

Session 8 (3h): Electrical Schematics

D- Create and Integrate the PLC Module

- Configure line spacing;
- Add PLC modules;
- Use the icon menu;
- Use the Catalog Browser;
- Manage and modify PLC modules;
- Annotate and describe the PLC inputs/outputs (I/O);
- Insert wire numbers based on I/O addresses;
- Create links and cross-references:
 - ✓ Source – Destination link;
 - ✓ Source – Entrance link;
 - ✓ Destination – Entrance link;
- Insert and manage terminals;
- Create, edit, and modify terminal strips;
- Guided exercise: create a wiring diagram for a PLC module and its inputs/outputs.

Session 9 (3h): Electrical Schematics

A - Create and Represent an Electrical Panel

- Insert and lay out electrical enclosure components;
- Add and position rails and supports;
- Insert control components;
- Insert power components;
- Use the icon menu;
- Use the Catalog Browser;
- Manage and modify components;
- Automatically tag components;
- Guided exercise: complete the full layout of an electrical panel.



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B- Create Custom Components

- Use Symbol Builder;
- Create a custom icon menu;
- Create and organize icon submenus;
- Add a new power component to the icon menu;
- Add a new control component to the icon menu;
- Create and integrate custom circuits;
- Guided exercises.

Session 11 (5h): Final Assessment and Validation of Learning

- Final practical test in AutoCAD Electrical;
- Complete an exercise or a full project;
- Assess the skills acquired during the training;
- Review and analyze the results;
- Training summary.

Session 10 (3h): Reports and Printing

A - Reports and Bills of Materials

- Introduction to reports and bills of materials;
- Generate bills of materials;
- Main AutoCAD Electrical reports;
- Configure reports;
- Export reports;
- Customize bills of materials;
- Practical application.

B- Printing and Page Setup

- Configure the drawing page setup;
- Choose the paper size;
- Select the printer or plotter;
- Configure the plot area;
- Set the plot scale;
- Manage paper orientation;
- Configure plot styles and lineweights;
- Print preview;
- Print an individual drawing or a set of drawings (Publication / Batch Plot);
- Create and save a reusable page setup template;
- Configure title blocks and drawing borders;
- Export drawings to PDF.

