GE
Intelligent Platforms

Part #: 44A728312-259

Proficy Logic Developer Machine Edition

Course Description

The **Proficy Logic Developer Machine Edition** course familiarizes the student with the control logic development tool suite used to program the entire family of GE Intelligent Platforms industrial control hardware. Emphasis is given to understanding and operating in the development environment, understanding the available logic development options, generating programs using the ladder logic language and communicating with control targets (90/30, 90/70, VersaMax, RX7i and RX3i controllers).

Who Should Attend?

This course provides the opportunity for individuals who are or who will be involved in programming, operating and troubleshooting control systems using Proficy Logic Developer PLC. The course is designed for electrical technicians, electricians, and programmers beginning to work with Proficy Logic Developer PLC or those tasked with developing, modifying and maintaining controller programs.

Are There Any Prerequisites?

Participants should be comfortable operating in an MS Windows environment, and have a basic understanding of electrical/control fundamentals.

What Tasks Will Be Taught in This Class?

Upon completion of this course, the student will be able to:

- Describe Control System Architecture & Operational Fundamentals
- Describe Basic Systems & Components (Series 90-30 or 90-70 or VersaMax, RX7i or RX3i)
- Operate Proficy Machine Edition
- Establish and Utilize Communications to the Controller
- Create a New Project - Basic Configuration of the Controller
- Expand Controllers and Describe Specialty Modules
- Create a New Project - A Ladder Logic Program
- Explain Relay and Contact Logic Elements; explain Timer and Counter Functions
- Work with Numbers in Relational and Arithmetic Operations
- Work with Data Move and Numerical Operations
- Work with bit operations

Course Length

4 days

Suggested Class Size

10 students

Class Hours

8:00 am - 5:00 pm, daily

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Course Agenda

(Schedule and timing may vary.)

Day 1

Morning

Control System Fundamentals

Introduction to Controllers components and the roles Controllers play in automation.

Controller application components and Logic Structure.

Basic Controller Variables, Data Types, and Numbering Systems.

Understanding the Controller Scan.

Controller Hardware Overview

Basic controller system hardware components.

Find Controller Information using InfoLink and GE Intelligent Platforms web sites.

Afternoon

Operating Proficy Machine Edition

Orientation to the Machine Edition programming environment and purpose of each of its tools.

Machine Edition "Best-Kept Secrets".

Define a Project and Target.

Navigate through the Project.

Backup, Delete, and Restore a Project.

Provide Project and Target Documentation.

Configuring Controller and IO

Configure the Controller, IO, and Option Modules.

Understand Hardware Configuration Status indicators.

Assign Reference Addresses to I/O Modules.

Use the Hardware Reference View.

Import and Export Hardware Configuration.

Run and Print Hardware Configuration Reports.

Day 2

Morning

Working with Controllers

Establish communications to Controller over Serial and Ethernet connections.

Validate a Machine Edition Project.

Download to and Upload from a Controller.

Verify Information between a Project and a Controller.

Work with Fault Tables.

View Controller Status information.

Working with Variables

Understand basic Variable concepts, along with Universal, Local, Global, and Alias scoping of Variables.

Understand Variable Types, Variable access, and the various Variable attributes.

Afternoon

Online Monitoring Tools

Monitor programs using online Logic Monitoring, Data Watches, Reference View Tables, and the Data Monitor.

Online Application Modification

Make program changes to an application while the Controller is running.

Understand online change methods: Word-for-Word, Run Mode Store, and Test Edit

Machine Edition Options

Understand the key Machine Edition options and their impact on Machine Edition operation.

Reset Machine Edition options to their Default Values.

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Day 3

Morning

Ladder Diagram Basics

Understand basic operation of the Ladder Diagram (LD) programming language.

Enter a simple LD program with Contacts and Coils.

Assign Variables to logic components.

Print LD logic.

Place LD Blocks in a Toolchest Drawer for re-use.

Contacts and Coils

Understand the basic operation of LD Contacts and Coils, including contact and coil types.

Develop Series and Parallel LD logic.

Utilize System Bits in LD logic.

Find Variable references in a Project.

Monitor, modify, and force Boolean Variables.

Afternoon

Program Flow Operations

Understand the basic operation of LD Program Flow operations. Understand the Controller Block Architecture and the operation of _MAIN and Interrupt Blocks. Create and call Program Blocks.

Include Machine Edition Toolchest Program Blocks in an application.

Timers and Counters

Understand the basic operation of LD Timers and Counters. Understand the organization of Timer and Counter Instance Data.

Use Timers and Counters in LD Logic.

Conversion Operations

Understand the basic operation of LD Conversion instructions.

Understand how to change data display formats in the LD Editor.

Day 4

Morning

Math Operations

Understand the basic operation of LD Math instructors.

Understand the concept of Typed Instructions.

Change Variable data values directly in the LD Editor.

Relational Operations

Understand the basic operation of LD Relational instructions.

Data Operations

Understand the basic operation of LD Data instructors.

Understand how to initialize application data using Data Move Functions.

Understand the basic operation of a Shift Register.

Afternoon

Control Operations

Understand the basic operation of LD Control instructions, the PID Function Block parameters and its data structure. Understand the Service Request Function parameters, parameter block, and its uses, as well as how to display Controller ASCII String information.

Bit Operations

Understand the basic operation of LD Bit instructors.

Understand the operation of the Masked Compare Function.

Project Import

Understand how to import Logicmaster 90, VersaPro, and Control 90 applications into Logic Developer PLC.

Understand how to convert from older PLC Targets to PACSystems Targets.

Introduction to Proficy View

Understand the basic operation of Proficy View as a Controller information monitoring tool.

Use Proficy View to monitor Controller Variables.