

“FloPro Programming - GM”

(HMI/SCADA Course #T-FPGM1)

Course Duration: Four days (normally Tuesday through Friday) 8:30 through 4:30

Course Location: Ann Arbor, Michigan

Course Overview

The purpose of this course is to provide students with a basic understanding of the tools available, and design methods used, when developing FloPro projects adhering to the specifications required by General Motors Powertrain. The students will also be taught methods of utilizing FloPro template screens to create HMI screens for GM Powertrain projects. Communications between FloPro and hardware I/O will also be covered.

Objectives

At the conclusion of this course, the student should be able to reference the GM specification and utilize GM Powertrain template flowcharts and HMI template screens to automate machinery, connect to hardware via I/O, modify FloPro projects, Troubleshoot FloPro Charts, I/O addressing and FloPro screens.

Prerequisites

Students are required to have a working knowledge of: PC/MS-DOS
Past experience with a control software package (ladder or flowchart) will be helpful.

Audience

The target audience consists of Control Engineers from OEM's, suppliers, and GM employees involved with GM Powertrain programs.

Course Outline

The course is designed utilizing step-by-step hands-on labs while covering the following subjects (one computer per student):

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| <p>1 Flowchart Programming Applications Course</p> <ul style="list-style-type: none"> • Courseware Organization • Module Descriptions | <ul style="list-style-type: none"> • Runtime Screen Construction • RMU Message Construction • User Interface Example | <p>9 Running and Testing a Flowchart</p> <ul style="list-style-type: none"> • Flowchart I/O Execution Modes • Flowchart Program Execution Modes • Flowchart Debugger • Application Exercise: Flowchart Debugger |
| <p>2 Introduction to PC Based Controls and Flowchart Programming</p> <ul style="list-style-type: none"> • Overview of PC Based Controls • Overview of Flowchart Programming | <p>6 Integrating Motion</p> <ul style="list-style-type: none"> • Flowchart Servo Motion • Servo Motion: Axis Blocks • Spindle Motion: Spindle Blocks • Application Exercise | <p>10 Flowchart Exits</p> <ul style="list-style-type: none"> • Flowchart Exits • Execution with C • Execution with BASIC • Execution with Pascal • Flowchart Exit Considerations |
| <p>3 Flowchart Application Program Development</p> <ul style="list-style-type: none"> • Flowchart Development Process • Functional Flowchart • Application Exercise | <p>7 Flowchart Utilities</p> <ul style="list-style-type: none"> • Copy and Backup Utilities • Duplicating a Flowchart • Copy, Cut, Delete and Paste • Renumbering Blocks • Printing Flowcharts • Application Exercise | <p>11 Flowchart Optimization and Organization</p> <ul style="list-style-type: none"> • Flowchart Block Execution • Flowchart Organization • Typical Flowchart Groups • Flowchart Optimization • Flowchart Tool Kit |
| <p>4 Creating and Editing a Flowchart Program</p> <ul style="list-style-type: none"> • Detailed Executable Flowcharts • Mnemonics • Criteria Blocks • Instruction Blocks • Application Exercise | <p>8 Compiling a Flowchart Program</p> <ul style="list-style-type: none"> • Flowchart Compile • Compiler Messages, Warnings and Errors • Compiling the Project Using Interbus-S • Application Exercise | <p>12 Flowchart Application Exercises</p> <ul style="list-style-type: none"> • Using Real I/O and Servos • Using Real I/O • Without Real I/O |
| <p>5 The User Interface</p> <ul style="list-style-type: none"> • The Flowchart Runtime Display • Flowchart Remote Messages • Flowchart Interaction | | |