

AUTOMATION ACADEMY

A u t o m a t i o n S y s t e m s T r a i n i n g S p e c i a l i s t s

Course Title: GEM 80 Maintenance Course Using AGP

The GEM 80 Maintenance Course has been designed to familiarise Electricians, Technicians and Maintenance Engineers with little or no experience of GEM 80 systems to the different aspects associated with the operation and maintenance of GEM 80 controllers and the ATS Advanced GEM 80 Programming (AGP) programming software. This course is intended to give students the background knowledge and practical experience in working on a GEM 80 system so that they have a good understanding of the system and have the ability to make small edits and make changes to program parameters.

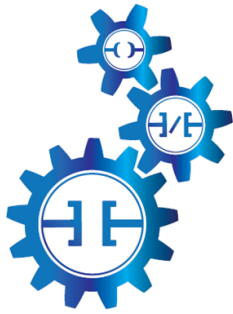
Where possible, application specific exercises, actual drawings and plant programs will be used to allow the students to gain the greatest possible benefit from the course.

Course Objectives:

- ☒ To introduce students to the concepts, terminology and operation of GEM 80 Controllers.
- ☒ To recognise and understand the hardware associated with GEM 80 controllers.
- ☒ To recognise and understand what the system LED's and Watchdog LED's indicate.
- ☒ To be able to open and understand the structure of the GEM 80 program in AGP and to have the confidence to implement minor changes to the ladder program and parameters.
- ☒ Understanding the use and operation of GEM 80 standard instructions and GEM 80 special functions.
- ☒ To be able to use the AGP programming software to connect online to monitor and be able to use the search and cross reference facilities to chase through the program to determine problems on plant.
- ☒ To understand the operation and terminology of GEM 80 serial communication links.
- ☒ To be able to locate and replace faulty modules by understanding and using the system diagnostics available in AGP when an error is present.
- ☒ To be able to create a backup copy of the GEM 80 controllers program. To be able to restore a program back into the controller from a backup copy.

Course Content:

The hardware architecture and operation of GEM 80 controllers.
Understanding GEM 80 I/O modules, their plant wiring and LED indicators.



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Addresses used in the GEM 80 range of controllers.
Watchdogs and safety circuits
First steps using the AGP programming software.
Creating a training program to demonstrate plant programming examples.
Getting an online connection to the GEM 80 controller in AGP, serial and/or Ethernet.
Downloading the user program to the GEM 80 controller from AGP.
Online monitoring and the cross reference search facility within AGP.
Creating and using tables in the table monitor to monitor the PLC status.
An overview of the GEM 80 ladder programming techniques used on plant programs.
A demonstration of simple program editing and modifying plant programs.
Reading the GEM 80 controllers standard instruction set.
Programming examples including relay, delays, logic, maths, and compares.
Understanding and configuring Special Functions in a GEM 80 program..
Binary, Decimal and Hex numbering systems and their use in a GEM 80 program.
Using and creating program documentation.
Using program documentation for fault finding purposes.
Analogue modules & analogue signal processing configuring and using LINCON in the program.
The P tables and their importance in a GEM 80 program
GEM 80 serial communications, configuration, operation and fault finding in AGP.
GEM 80 controller fault messages and their meanings

Customised training included in the course cost.

As part of this training course we will include custom application exercises for your own plant and processes, this value added option creates immediate payback for students on plant. It will have the benefit of the students becoming familiar with key areas of your PLC project(s) during the training course. This option does require the supply of your plant drawing and program listings at least 2 weeks prior to the course start date.

Course Duration: 4 Days

Documentation: GEM 80 AGP Maintenance Training Manual.

Equipment per student: GEM 80 controller

AGPV4 Programming laptop

Plant simulator

Web link: [GEM 80 Maintenance Course using AGP](#)