GB853 System 800xA
Engineering Projects with Control Modules

Course Description

Course Duration
The duration is 4.5 days.

Course Type
This is an instructor led course with interactive classroom discussions and associated lab exercises. Approximately 50% of the course is hands-on lab activities.

Course Goal
There are two goals. Firstly, to gain thorough understanding of Control Modules and Object Oriented Programming Techniques. Secondly, to gain an understanding of the software architecture used when implementing projects using Control Modules.

This is an advanced software engineering course whose contents cover not just coding but also implementation strategies for medium to large projects.

Student Profile
This training is targeted at application engineers, programmers and system integrators. Technical Project leaders and planners will also benefit.

Prerequisites and Recommendations
Students should be experienced in using Control Builder M. This course is an extension to the T315 – System 800xA - Engineering.

Equipment
Each student will be provided with a workstation and controller. Controllers have a small IO system connected to test switches and potentiometers.

Course Objectives
Upon completion of this course, students will be able to:

- Understand the concepts of Libraries, Types and Instances
- Understand and Argue the benefits of Object based solutions
- Plan the software structure of projects implemented solely with Control Modules
- Use the Control Module Diagram Editor efficiently to create applications
- Design and Define Object Types in a consistent manner.
- Design and Define suitable Data types for use in Object based solutions
- Use Structured Text language to build types.
- Use the Control Module Diagram editor to build maintenance and diagnostic views, and windows for objects.
- Have a knowledge of the work flow to be expected during the build phase of a project
- Understand and discuss the implications of object based solutions for project management.
Main Topics

- User defined Libraries
  - Data Types
  - Control Module Types
- Application topologies using Control Module Solutions
- Control Module Design basic structure of a generic module
- The Control Module Diagram Editor
  - Graphic Primitives, Interaction Objects, Nodes and Graphical Connections.
  - Advanced application structures
- Graphics Structures in the CMD Editor
  - Two Layer Modules
  - Application design using graphic layering
  - Pop-up window strategies and design
  - Multi-layer applications
  - Masters and Single Modules
- The Code Editor
  - Structured Text Language and Syntax
  - Efficient use of Data types in design and implementation
  - Code Organisation within a code block
- Compilation
  - Code Sorting
  - Static Variable Referencing
  - Loops and Loops Avoidance
- Nodes and Graphical Connections
- Self-sufficient and self-aware modules
- Designing types for Applications with ‘No Glue Logic’

Course Outline

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