B515 Taylor Control Language Using Advant OCS

Course Description

Course Duration

The duration is 10 days.

Course Goal

The goal of this course is to teach students the skills required to write Taylor Control Language (TCL) sequences using fundamental and advanced language features. Although this course is written for users of Advant OCS with MOD 300 software, it also applies to the traditional MOD 300 System.

Student Profile

This training is targeted to system/process engineer or system programmer.

Prerequisites and Recommendations

Successful completion of one of the following system engineering courses is required: B115, B400, B405, or B425. Students should also have knowledge of basic process operations and control.

Description

In this course, students will learn about the fundamentals of TCL programming and design. Topics include the development of calculation algorithms, database accessing techniques, unit relative and unit symmetrical sequences, inter-program and intra-program control and communications,

mailbox facilities, and sequence control statements for concurrent and independent sequence actions.

Course Objectives

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

- Identify database and environment modifications to use TCL.
- Using the MOD 300 System displays, locate the functional level of sequences.
- Develop, debug, test, and execute sequences using the Editor and Runtime Console Support.
- Develop TCL sequences that:
  - Perform process control calculations, manipulate arrays, and access recipes.
  - Perform start-up, shutdown, and emergency actions.
  - Control system sequences and perform sequence activation.
  - Control batch processes.
  - Monitor and access functional elements.
  - Access/modify sequence parameters.
  - Perform batch process data collection and generate batch reports.
  - Access data and string FCM’s.

Course Calendar - B515 Taylor Control Language Using Advant OCS

Day 1	Day 2	Day 3	Day 4	Day 5

• General Information
• MOD 300 Unit Concept
• MOD 300 Database
• TCL Structore Basics
• Editing/Compiling/ Linking
Lab:
• Reactor Control
• Edit/Compile/Load
• Sequence Debugging
	• Language Basics
	  • Sequence Variables
	  • Unit Message Interface
	  • Sequence Constants
	  • Selection Constructs
	  • Iteration Constructs
	Lab:
	• Minimal Sequence
	• Sequence Variables and Constants
		• Language Basics (cont.)
		  • String Handling
		  • Subroutines
		• Database Access
		  • Database Variables
		  • CCF Loop Access
		Lab:
		• Operator Input
		• Selection Constructs
		• Database Access
			• Database Access (cont.)
			  • TCL Recipe Access
			  • Taylor Ladder Logic (TLL) Access
			  • Program Control Block
			Lab:
			• Iteration Constructs
			• Local Array Variables
			• Internal Subroutine
				• TLL/TCL Interlock applications
				• Summary and Wrap-up
				Lab:
				• Reactor Project
				  • General Information
				  • Structured Design

Day 6	Day 7	Day 8	Day 9	Day 10

• Special Topics
  • TCL Mailbox
  • Abnormal Processing
  • Event Processing
Lab:
• Reactor Project (cont.)
  • Operator Interface with Subroutine
	• Report Services Interface
	• History Services Interface
	Lab:
	• Reactor Project (cont.)
	  • Basic Reactor Functionality
	  • Recipe Control
		• Advanced Topics
		  • External (compiled) Subroutines
		  • User Calculation, Synchronous and Asynchronous
		Lab:
		• Project Enhancements
		  • Sampling Sequence
			• Unit Arrays
			• Peripheral I/O Statements
			• Sequential Function Chart Statements
			• Batch 300 Statements
			Lab:
			• Project Enhancements
			  • Shared Sampler
			  • Batch Filr/Report
				• TLL/TCL Interlock Applications
				• Lab: