

MATRIXx Basics Course

Overview

The MATRIXx Basics course prepares you to use the MATRIXx Product Family. The student will learn how to build and analyze models, run simulations, compare simulation results, and generate and execute AutoCode in non real-time. The course includes both lecture and hands-on exercises. This is a very practical, results-oriented course, which will provide knowledge and skills that can be applied immediately.

Duration

Three (3) Days

Audience

- New MATRIXx users
- Users and technical managers evaluating MATRIXx in purchasing decisions

Prerequisites

- Experience using the Microsoft Windows operating system
- Scientific or engineering background
- Programming experience helpful, but not required

NI Products Used During the Course

- MATRIXx Version 7.0
 - Xmath
 - SystemBuild
 - AutoCode
 - DocumentIt

After attending this course, you will be able to:

- Use the following MATRIXx products – Xmath, SystemBuild, AutoCode (non real time), and DocumentIt
- Build and analyze models, run simulations, and compare simulation results
- Generate and execute AutoCode in non-real-time
- Use the intermediate features of Xmath and SystemBuild
- Use the DocumentIt editor to generate an ASCII documentProtect your process from computer failure
- Use integrated SPC tools in your application

Registration

Register online at ni.com/training or call (800)433-3488 Fax: (512)683-9300 info@ni.com

Outside North America, contact your local NI Office. Worldwide Contact Info: ni.com/global

Part Number

910657-xx
-01 NI Corporate or Branch
-11Regional
-21 Onsite (at your facility)

MATRIXx Basics Course Outline

Day 1

Beginning Xmath

- Overview of MATRIXx product family
- Using Xmath command tool at the basic level and starting and stopping the tool
- Using Xmath help
- Organizing the Xmath workspace with partitions and variables
- Creating and using different objects
- Creating, viewing, saving, and loading variables
- Xmath built-in functions and commands

Beginning SystemBuild

- Using the SystemBuild Editor and Simulator at a basic level
- Using the built-in block libraries to build models
- Assigning timing attributes to models
- Parameterizing models
- Running simulations
- Saving and loading models

Day 2

Fundamentals of Xmath

- Creating more detail on plots and using mtxplt
- Using MathScript to create functions, commands, macros, aliases, and to automate simulations
- Using startup files to customize the Xmath environment
- Using the MathScript debugger

Fundamentals of SystemBuild

- Types of SuperBlocks
- Creating and navigating model hierarchies
- Using the Interactive Simulator
- Using the Catalog Browser to manage (Copy/Rename/Delete) models
- Changing timing attributes of dynamic models
- Using Xmath partitions to scope model parameters
- Recognizing and resolving algebraic loops

Day 3

Autocode

- Using the SystemBuild editor to generate code
- Creating and run standalone simulations with the code and link the code back to the SystemBuild simulator to test individual procedures
- Understanding how the SystemBuild model is used to define signal data-types, global variables, procedures and subsystems

Advanced SystemBuild

- Using more advance features of SystemBuild
- Using the different discrete SuperBlocks
- Timing considerations with discrete blocks

DocumentIt

- Using the SystemBuild editor to generate an ASCII document
- Understanding the document generation process, and the different fields in the SystemBuild model where information is entered
- Understanding the methods of modifying the generated document