

TestStand I: Introduction Course

Overview

The TestStand I: Introduction course teaches you to use features provided in the TestStand environment. The course introduces you to the basics of customizing items (such as the user interface, user privileges, reports, and process model) which allows you to build applications to match your test needs. Upon completion of this course, you can develop practical test applications using the built-in tools supplied with TestStand.

Duration

Classroom: Three (3) Days

Online: Four 4-hour sessions, plus homework

Audience

- New TestStand users
- Engineers and developers tasked with maintaining already-built test sequences
- Users and technical managers evaluating TestStand in purchasing decisions
- TestStand users pursuing the Certified TestStand Developer certification

Prerequisites

- Familiarity with LabVIEW, LabWindows/CVI or C programming
- Recommended – depending on your development application:
 - LabVIEW Core 1 and Core 2
 - LabWindows/CVI Basics I and Basics II

NI Products Used During the Course

- TestStand Version 4.1 or later
- LabVIEW Professional Development System Version 8.6 or later
- LabWindows/CVI Version 8.6 or later
- NI Vision Acquisition Software Version 8.6 or later
- IVI Compliance Package Version 3.3 or later
- NI-DMM Version 2.9 or later

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

910667-xx
-01 NI Corporate or Branch
-11 Regional
-21 Onsite (at your facility)

After attending this course, you will be able to:

- Develop practical test applications in the TestStand environment and distribute them to test stations
- Build test code and interface it to TestStand
- Use TestStand debugging tools
- Configure TestStand using the configuration dialog boxes and customize user privileges
- Share data between TestStand and LabVIEW or LabWindows/CVI
- Understand how a test executive functions
- Log test results to a database and use the Data Viewer to view logged data

Suggested Next Steps

- TestStand II: Customization
- Certified TestStand Developer Exam

TestStand I: Introduction Course Outline

Introduction to Testing

This lesson introduces fundamental concepts of tests and test systems, including the associated industry terminology, components of automated test systems, the roles of those who interact with and develop test systems, the test development process, and requirements tracking.

Topics include:

- Types of tests
- Automated testing
- Test system terminology
- Components of an automated test system
- Testing roles
- Test system development process
- Covering and tracking requirements

Introduction to TestStand

This lesson introduces TestStand. You learn the role of test management software, TestStand terminology, the components of TestStand—sequence editor, user interface, and TestStand Engine, and the TestStand execution architecture. This lesson also describes how to use the sequence editor to create, modify, execute, and debug sequences.

Topics include:

- Role of test management software
- TestStand terminology
- TestStand components
- Using the TestStand Sequence Editor
- TestStand execution architecture

Analyzing Sequences

This lesson discusses debugging and diagnostic tools for analyzing TestStand sequences, and tools to help you find information in sequence files and compare sequence files.

Topics include:

- Debugging and diagnostics
- Informational tools

Creating Sequences

This lesson describes the steps involved in creating a test routine, or sequence. You learn how to create a new TestStand sequence, create steps, create and call code modules for steps, call subsequences, and configure sequence and sequence file properties.

Topics include:

- Overview
- Creating steps
- Code modules
- Subsequences
- Sequence properties
- Sequence file properties

Managing Data

This lesson describes the data layout, or how TestStand stores data in variables and containers. You learn to create expressions, define custom data types, and create three types of TestStand variables—locals, sequence file globals, and station globals. This lesson also describes how to import and export properties for sequences.

Topics include:

- TestStand data layout
- Expressions
- Custom data types
- Variables
- Importing and exporting properties

Overriding Callbacks

This lesson introduces the concept of callback sequences, which can modify the behavior of the process model without modifying the process model itself, or allow the process model or sequence file to react to events defined by the TestStand Engine. You learn how and when to override process model callbacks and engine callbacks.

Topics include:

- Callbacks
- Process model callbacks
- Engine callbacks

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Configuring TestStand

This lesson introduces how to configure TestStand, including setting preferences for TestStand stations, configuring module adapters, editing search directories, and setting report and database options.

Topics include:

- Station options
- Adapter configuration
- Edit search directories
- Report options
- Database options

Executing Tests in Parallel

This lesson describes how to conduct high manufacturing tests using multiple test stations or parallel testing. You also learn to use multithreading, parallel and batch process models, and synchronization to test multiple units in parallel.

Topics include:

- Multi-UUT testing
- Multithreading
- Executing sequences in new threads
- Multithreaded process models
- Multithreading caveats
- Synchronization step types

Best Practices for Test Development

This lesson reinforces best practices for test development, including modular design techniques, appropriate data storage and communication mechanisms, and proper use of setup and cleanup step groups. You learn to abstract non-product-specific operations, and to include documentation in sequence files, sequences, and steps.

Topics include:

- Creating modular test systems
- Using appropriate data scope
- Using setup and cleanup groups
- Handling non-product-specific operations
- Documenting test systems
- Additional resources

User Management

This lesson introduces user management in TestStand. You learn how to create user groups, add users, customize user privileges, and synchronize TestStand user management with external user management systems.

Topics include:

- TestStand user management
- User groups
- Privileges
- Synchronizing with other user management systems

Deploying a Test System

This lesson describes how to distribute a test system to other computers and considerations for deployment, including which test system components to deploy, filenames and file paths, support files, and user interfaces. You also learn the deployment process and create a test system installer.

Topics include:

- Introduction to deployment
- Deployment considerations
- Deployment process
- Common deployment scenarios