

LabVIEW Instrument Control Course

Overview

This course is designed to explore the basics of instrument control and teach you how to use, modify, and develop instrument drivers for programmatically controlling instruments in LabVIEW. You learn about the benefits of instrument control, explore industry applications and gain an in depth understanding of how LabVIEW can be used to communicate with instruments. Additionally, you learn how to efficiently modify an instrument driver and create new instrument drivers. Upon completion of the course, you are able to apply best practices in LabVIEW to communicate with instruments.

Duration

Classroom: Two (2) Days

Online: Three (3) Days

Audience

- Application developers using LabVIEW to control computer-based instruments via GPIB, serial, or other communication protocol

Prerequisites

- Experience with Microsoft Windows
- Core 1 course or equivalent experience

NI Products Used During the Course

- LabVIEW Professional Development System Version 2010 or later
- GPIB (IEEE 488) Controller
- NI Instrument Simulator

After attending this course, you will be able to:

- Use LabVIEW to communicate with instruments
- Program with VISA, VISA properties, and VISA events
- Parse data
- Use instrument drivers
- Modify an existing instrument driver
- Design, develop, test, and deploy a new instrument driver
- Create an effective and efficient instrument control 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

910557-xx
-01 NI Corporate or Branch
-11 Regional
-21 Onsite (at your facility)
-69 Online

Suggested Next Courses

- LabVIEW Core 2
- LabVIEW Core 3
- IVI Instrument Driver Development

LabVIEW Instrument Control Course

Day 1

Industry Applications

This lesson introduces the benefits of instrument control and shows industry applications using instrument control. Topics include:

- Introduction to instrument control
- Benefits of instrument control
- Instrument control example
- Industry applications using instrument control

Communicating with Instruments

This lesson describes how you can use LabVIEW to communicate with instruments. You will learn how to use NI-VISA, NI Spy, SCPI commands, and the Instrument I/O Assistant to perform instrument I/O.

Topics include:

- Comparing instrument buses
- Connecting to instruments
- Monitoring bus activity
- Communicating with your instrument using the VISA API
- Parsing data
- Using the Instrument I/O Assistant

Using Instrument Drivers

This lesson introduces LabVIEW Plug & Play instrument drivers. You will learn when to use instrument drivers, how to install instrument drivers, and how to program with instrument drivers. Topics include:

- Introduction to instrument drivers
- When to use instrument drivers
- Installing an instrument driver
- Using an instrument driver

Modifying an Existing Instrument Driver

If an instrument driver is lacking a feature you need, you will need to modify it. This lesson describes how to modify an existing instrument driver. Topics include:

- When to modify an instrument driver
- Exploring the structure of an instrument driver
- Steps to modify an instrument driver

Day 2

Creating a New Instrument Driver

Sometimes you have an instrument that does not have an instrument driver. This lesson describes how to create a new instrument driver. Topics include:

- Designing an instrument driver structure
- Developing an instrument driver
- Testing an instrument driver
- Deploying an instrument driver

Developing an Application

This lesson describes how to develop effective and efficient instrument control applications. You will integrate the lessons learned in this class to develop a real world, automated application. Topics include:

- Exploring and applying common, effective LabVIEW architectures for instrument applications
- Applying best practices in LabVIEW as it relates to instrument control applications.