

LabVIEW Core 1

The first step in any LabVIEW learning path, LabVIEW Core 1 gives you the opportunity to explore the LabVIEW environment, dataflow programming, and common LabVIEW development techniques in a hands-on format. In this course, learn to develop data acquisition, instrument control, data-logging, and measurement analysis applications. Also discover how to create applications using the state machine design pattern to acquire, process, display, and store real-world data



Classroom: 3 days



On-Site: 3 days



Virtual: four 4-hour sessions



Online: self-paced

Coursework Goals

- Understand front panels, block diagrams, icons, and connector panels
- Create user interfaces with charts, graphs, and buttons
- Use programming structures and data types that exist in LabVIEW
- Use various editing and debugging techniques
- Create and save VIs for use as subVIs
- Display and log data
- Create applications that use data acquisition devices
- Create applications that use GPIB and serial port instruments
- Use the state machine design pattern in your applications

Prerequisites

- LearnNI.com getting started modules
- Experience with Microsoft Windows
- Experience writing algorithms in the form of flowcharts or block diagrams

NI Products Used

- LabVIEW Professional Development System
- NI data acquisition device
- IEEE 488.2 (GPIB) controller
- Instrument Simulator

Coursework Topics

Navigating LabVIEW

Explore the LabVIEW environment, including windows, menus, and tools, and learn to create LabVIEW projects. Use the LabVIEW front panel and block diagram and search for controls, VIs, and functions.

Creating Your First Application

Learn how to build a simple LabVIEW application that acquires, analyzes, and presents data. Topics include understanding the dataflow programming model, recognizing different data types, and using Express VIs to build a basic VI.

Troubleshooting and Debugging VIs

Learn debugging and error-checking techniques in LabVIEW and identify problems with block diagram organization and data passing within a block diagram.

Using Loops

Explore the different ways that you can iteratively execute LabVIEW code and techniques for managing loop execution. Topics include adding software timing to your code and sharing data between loop iterations.

Creating and Leveraging

Data structures Examine data types that combine related data into a single structure for improved data access and analysis. Topics include creating and using array controls and indicators and using type definitions to improve reuse of data structures in applications.

Using Decision-making structures

Study LabVIEW structures that you can use to implement decision-making algorithms in your applications. Topics include creating and using case and event structures.

Modularity (subVis)

Discover modular programming in LabVIEW and learn how to build the icon and connector pane of a VI so that it can be used as a subVI. Topics include basics of modular programming and documenting your code.

Acquiring measurements With hardware

Examine the differences between NI DAQ systems and instrument control and how LabVIEW connects to hardware to create real-world measurements

Accessing Files in LabVIEW

Learn basic file I/O concepts and how to access and modify resources in LabVIEW. Topics include available high-level and low-level file I/O functions

Using sequential and state machine Programming

Explore common sequential LabVIEW design techniques and the state machine design pattern, including techniques for sequential programming and implementing a state machine design pattern

Suggested Next Courses:

- LabVIEW Core 2
- Data Acquisition and Signal Conditioning
- Embedded Control and Monitoring Using LabVIEW
- LabVIEW Instrument Control
- Other hardware courses

About Haliatech

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