

# LabVIEW Core 1 Course Outline

Lesson	Overview	Topics
Introduction to LabVIEW	Explore LabVIEW and the common types of LabVIEW applications	<ul style="list-style-type: none"><li>▪ Exploring LabVIEW Environment</li><li>▪ Common Types of Applications Used with LabVIEW</li></ul>
Exploring an Existing Application	Explore an existing LabVIEW project and parts of a VI	<ul style="list-style-type: none"><li>▪ Exploring a LabVIEW Project</li><li>▪ Parts of a VI</li><li>▪ Understanding Dataflow</li><li>▪ Finding Examples for LabVIEW</li></ul>
Creating Your First Application	Build a VI that acquires, analyzes, and visualizes data.	<ul style="list-style-type: none"><li>▪ Creating a New Project and a VI</li><li>▪ Exploring LabVIEW Data Types</li></ul>
Exploring LabVIEW Best Practices	Use various help and support materials, explore resources, tips and tricks for using LabVIEW	<ul style="list-style-type: none"><li>▪ Exploring Additional LabVIEW Resources</li><li>▪ LabVIEW Tips and Tricks</li><li>▪ Exploring LabVIEW Style Guidelines</li></ul>
Debugging and Troubleshooting	Explore tools for debugging and troubleshooting a VI	<ul style="list-style-type: none"><li>▪ Troubleshooting a Broken VI</li></ul>

		<ul style="list-style-type: none"> <li>▪ Debugging Techniques</li> <li>▪ Managing and Displaying Errors</li> </ul>
<p>Executing Code Repeatedly Using Loops</p>	<p>Explore components of LabVIEW loop structures, control the timing of a loop, and use loops to take repeated measurements</p>	<ul style="list-style-type: none"> <li>▪ Exploring While Loops</li> <li>▪ Exploring For Loops</li> <li>▪ Timing a Loop</li> <li>▪ Data Feedback in Loops</li> </ul>
<p>Working with Groups of Data in LabVIEW</p>	<p>Work with array and waveform data types.</p>	<ul style="list-style-type: none"> <li>▪ Exploring Data Groups in LabVIEW</li> <li>▪ Working with Single-Channel Acquisition Data</li> <li>▪ Working with N-Channel Acquisition Data</li> <li>▪ Using Arrays</li> </ul>
<p>Writing and Reading Data to File</p>	<p>Explore basic concept of file I/O and how to access and modify file resources in LabVIEW</p>	<ul style="list-style-type: none"> <li>▪ Writing Data to a Text File</li> <li>▪ Writing Multi-Channel Data to a Text File</li> <li>▪ Creating File and Folder Paths</li> <li>▪ Analyzing Text File Data</li> <li>▪ Comparing File Formats</li> </ul>
<p>Bundling Mixed Data Types</p>	<p>Use LabVIEW to bundle data of different data types and pass data throughout your code using clusters</p>	<ul style="list-style-type: none"> <li>▪ Exploring Clusters and Their Usage</li> <li>▪ Creating and Accessing Clusters</li> </ul>

		<ul style="list-style-type: none"> <li>▪ Using Clusters to Plot Data</li> </ul>
Executing Code Based on a Condition	Configure Case structure and execute code based on a condition	<ul style="list-style-type: none"> <li>▪ Conditional Logic Introduction</li> <li>▪ Creating and Configuring Case Structures</li> <li>▪ Using Conditional Logic</li> </ul>
Reusing Code	Explore the benefits of reusing code and create a subVI with a properly configured connector pane, meaningful icon, documentation, and error handling	<ul style="list-style-type: none"> <li>▪ Exploring Modularity</li> <li>▪ Working with Icons</li> <li>▪ Configuring the Connector Pane</li> <li>▪ Working with SubVIs</li> </ul>
Controlling Data Type Changes	Propagate data type changes using type definitions	<ul style="list-style-type: none"> <li>▪ Exploring Type Definitions</li> <li>▪ Creating and Applying Type Definitions</li> </ul>
Implementing a Sequencer	Sequence the tasks in your application by using the State Machine design pattern	<ul style="list-style-type: none"> <li>▪ Exploring Sequential Programming</li> <li>▪ Exploring State Programming</li> <li>▪ Building State Machines</li> <li>▪ Additional Scalable Design Patterns in LabVIEW</li> </ul>