

## LabVIEW

LabVIEW (short for Laboratory Virtual Instrument Engineering Workbench) is a system-design platform and development environment for a visual programming language from National Instruments.

Originally released for the Apple Macintosh in 1986, LabVIEW is commonly used for data acquisition, instrument control, and industrial automation on a variety of platforms including Microsoft Windows, various versions of UNIX, Linux, and OS X.

From the inception of an idea to the commercialization of a widget, NI's unique platform-based approach to engineering and science applications has driven progress across a wide variety of industries. Central to this approach is LabVIEW, a development environment designed specifically to accelerate the productivity of engineers and scientists. With a graphical programming syntax that makes it simple to visualize, create, and code engineering systems, LabVIEW is unmatched in helping engineers translate their ideas into reality, reduce test times, and deliver business insights based on collected data. From building smart machines to ensuring the quality of connected devices, LabVIEW has been the preferred solution to create, deploy, and test the Internet of Things for decades.

### Topics Covered:

#### Introducing the LabVIEW Environment:

The LabVIEW environment including windows, menus, and tools

Creating and using LabVIEW projects

The LabVIEW front panel and block diagram

Searching for controls, VIs, and functions

#### Build a simple LabVIEW application that acquires analyzes and presents data:

Understanding the dataflow programming model of LabVIEW

Recognizing different data types

Tools for developing, cleaning and organizing your Vis

Using Express VIs to build a basic VI

#### Debugging and error-checking techniques in LabVIEW

Correcting broken Vis

Using common debugging techniques



Addressing undefined or unexpected data

Implementing error checking and error handling

**LabVIEW code and techniques for managing loop execution:**

Using structures like the While Loop and For Loop

Adding software timing to your code

Sharing data between loop iterations

Plotting data to a waveform chart

**Data Types**

Creating and using array controls and indicators

Creating and using cluster controls and indicators

Using type definitions to improve reuse of data structures in applications

**Structures**

Creating and using Case structures

Creating and using Event structures

**Basic concept of file I/O**

High-level and low-level file I/O functions available in LabVIEW

Implementing File I/O functions to read and write data to files

**LabVIEW design techniques and the state machine design pattern.**

Techniques for sequential programming

Using state programming

Implementing a state machine design pattern

**Eligibility:** It's a basic level workshop so there are no prerequisites. Anyone interested, can join this workshop.

**Fee:** Rs. 1100/-(inclusive of all Taxes) per participant.

