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Sixclear Lucid LabVIEW Fundamentals Training - Course Topics

The following is a selected list of topics covered in Sixclear Lucid LabVIEW Fundamentals Training. It's nearly impossible to make this list exhaustive as there are just too many concepts, techniques, and sometimes subtle principles covered. This list should, however, give you a clearer picture of the scope of material covered.

The LabVIEW Development Environment
Navigating the Environment
Navigating Functions Palette
Navigating Controls Palette
The Auto-Tool and Cursor States
Using the Tools Palette
Configuration Options and Preferences

Programming Structures
Case Structures
For Loops
While Loops
Shift Registers
Formula Nodes
Event Structures

Data Types
Numerics
Booleans
Strings
Enums
Arrays
Clusters
Variants
Waveforms
Dynamic Data

User Interface Items
Charts and Graphs
Lists and Tables
Tabs and Containers
Decorations
Custom Controls
Classic vs Modern vs System

LabVIEW Native Functions and Palettes
Logical Functions
Numeric Functions
String Functions
Array Functions
Cluster Functions
Waveform Functions
Synchronization Functions
Mathematics Functions
Timing
Dialog

The LabVIEW Project
Virtual Folders and Code Organization
Targets and Execution Context
Build Specifications

Array Processing
Common Functions
Auto-Indexing
Polymorphism
Memory Management Techniques

Dataflow Programming
Dataflow Data Processing Paradigm
Debugging Tools and Techniques
Error Handling

Modular Programming with SubVIs
SubVI Creation Techniques
Connector Panes and Passing Data
Icon Creation
SubVI Code Reuse
Re-entrance and SubVI Memory Allocation

Course topics continued next page / other side

File I/O
Text (ASCII) Files
Binary Files
Datalog Files
TDM and TDMS Files
Configuration (.ini) Files
Basic and Advanced Functions

Design Patterns
Single Loop
Parallel Loops
State Machines
Master-Slave Synchronization
Producer-Consumer
Race Conditions and Data Management

Event Programming
User Interface Events
Managing Event Data
Programmatically Firing Events
Custom Events

Express VIs
Common Use Cases
Trade-offs and Performance
Native Functional Equivalents
Best Practices

VI Server
Property Nodes
Invoke Nodes
Programmatic User Interface Control
Control, VI, and Application Class Hierarchy
Weakly vs Strictly Typed Refnums

Type Definitions
Type Definitions vs Common Controls
Strict Type Definitions
Custom Controls
Control Property and Data Propagation

LabVIEW Variables
Local Variables
Global Variables
Functional Global Variables
Code Modules
Shared Variables

Documenting Code
Control Labels
Primitive and Function Labels
Captions
Tip Strips
Self-Documenting Code
Self-Generating Documentation

Data Acquisition
Measurement & Automation Explorer (MAX)
Digital I/O
Analog I/O
Single Sample Acquisition
Finite Sample Acquisition
Continuous Sample Acquisition
DAQmx API and Driver
Virtual Channels
DAQmx Tasks
Signal Wiring
The DAQ Assistant and DAQ Express VIs

Instrument Communication
Instrument Communication Concepts
Handling and Controlling Instruments
Virtual Instrument Software Architecture (VISA) API
Serial RS-232 and RS-485 Communication
GPIB Communication
Using Instrument Driver APIs
Building Instrument Drivers

Standalone Applications and Installers
Configuring, Building, Distributing Executables
Configuring, Building, Distributing Installers
Relative File Path Handling Techniques
Window Appearance Customizations
Default Values and Boundary Conditions

Application Case Studies
Temperature Monitoring
Pressure Monitoring
Process Flow Testing
Automated Test
Data and Computationally Intensive Processing Techniques