

## 50218 Windows 7 Training for Developers

4 Days

### Overview:

This four-day instructor-led course provides students with the knowledge and skills to develop real-world applications on the Windows 7 operating system, using managed and native code.

Windows 7 is the latest client operating system release from Microsoft. Windows 7 offers improvements in performance and reliability, advanced scenarios for user interaction including multi-touch support at the operating system level, innovative hardware changes including sensor support and many other features.

The course is packed with demos, code samples, labs and lab solutions to provide an deep dive into the majority of new features in Windows 7, and the primary alternatives for interacting with them from managed code.

### Course Content:

#### Module 1: Introduction to Windows 7

This module explains how to use the various new features of Windows 7, how to prepare for the OS roadmap with regard to OS versions, bitness and editions, and how the various Windows 7 features are presented throughout the course.

##### Lessons

- Windows Operating System Roadmap
- Highlights of Improvements
- Course Structure

#### Module 2: Win32 Programming Refreshment

This module explains how to use the Win32 application programming interface (API) to interact with the Windows operating system, and how to develop applications with better understanding of fundamental system mechanisms.

##### Lessons

- Win32 API Introduction
- Objects and Handles
- Processes and Threads
- Synchronization Mechanisms
- Windows and Window Classes
- Window Messages

- Structured Exception Handling
- Other Interfaces to Windows
- The Windows Shell

#### Module 3: Taskbar

This module explains how to use the Windows 7 taskbar for delivering applications that light-up on Windows 7, taking advantage of numerous user productivity features.

##### Lessons

- Windows Taskbar History
- Taskbar Design Goals
- Taskbar Buttons and Application ID
- Jump Lists
- Overlay Icons and Progress Bars
- Custom Thumbnail and Peek
- Custom Switchers (MDI/TDI)

#### Module 4: Libraries and Federated Search

This module explains how to use shell libraries to better organize similar data items, and how to take advantage of federated search to provide quicker access to information within an enterprise.

##### Lessons

- The New Windows Explorer
- Library Overview
- Common File Dialogs
- Native and Managed Libraries API
- Federated Search
- Proper File Formats

## Module 5: Multi-Touch

This module explains how to use multi-touch enabled hardware to add the next generation of user interaction to your applications, and how to choose among the various modes of programmatic access to multi-touch in Windows 7.

### Lessons

- Overview of Multi-Touch and its Roadmap
- Control Panel Settings
- Touch Scenarios (Good, Better, Best)
- Gesture and Touch Support
- Manipulation and Inertia
- Windows Presentation Foundation (WPF)
- User Experience Guidelines

## Module 6: Sensors and Location

This module explains how to use the Windows 7 Sensor and Location Platform to interact with a variety of physical sensors providing location information, ambient light, temperature and a variety of other readings.

### Lessons

- The Sensor and Location Platform
- Sensor Architecture in Windows 7
- Working with the Sensor API
- Location Architecture in Windows 7
- Working with the Location API

## Module 7: Scenic Ribbon

This module explains how to use the Windows 7 Scenic Ribbon to add an "Office-like" appearance to your applications, streamlining the user interaction and providing for a cleaner command-oriented user interface.

### Lessons

- The Ribbon Landscape
- Scenic Ribbon API Overview and Architecture
- Markup Syntax Overview
- Integrating Scenic Ribbon into an Application

## Module 8: Direct2D and DirectWrite

This module explains how to use latest advances in graphics hardware and software to deliver compelling graphic experiences for 2D graphics and text in Windows 7.

### Lessons

- The Windows 7 Graphics Platform
- Direct2D
- DirectWrite

## Module 9: Application Compatibility

This module explains how to design and implement applications for forward and backwards compatibility with Windows, and how to troubleshoot common application compatibility scenarios with existing applications.

### Lessons

- Why Aren't Applications Compatible with Windows?
- Windows 7 Compatibility Changes
- Compatibility Guidelines
- Compatibility Diagnostics
- Windows 7 Logo Requirements

## Module 10: User Account Control

This module explains how to use User Account Control to develop more secure applications on Windows 7, and how to overcome the compatibility problems introduced by User Account Control.

### Lessons

- Why Not Run as Admin?
- User Account Control and "The Standard User"
- Removing Unnecessary Elevation
- Designing Applications for UAC
- UAC Virtualization

## Module 11: Background Services

This module explains how to design and implement background services on Windows, and how to minimize the performance and security impact of background activities on the user's experience.

#### Lessons

- Impact of Background Activities
- Services vs. Tasks
- Service Startup Types (Auto-Start, Delayed Auto-Start, Trigger-Start)
- Service Performance and Security Goals
- Task Triggers

#### Module 12: Energy Efficient Applications

This module explains how to minimize the power consumption impact of applications on the system, and how to take advantage of the latest Windows 7 features to instrument power consumption and energy efficiency.

#### Lessons

- Why Is Power Consumption Important?
- Hardware and Software Power Savings

- Coalescing Timers
- Power State Notifications
- Background Activities
- Interfering with Power Transitions
- Power Availability Requests
- Power Policies
- Power Efficiency Diagnostics

#### Module 13: Instrumentation and Performance

This module explains how to use the Windows instrumentation mechanisms to expose instrumentation and performance information from your application, and how to use external troubleshooting tools to analyze misbehaving applications or poor system performance.

#### Lessons

- Performance Counters
- Event Tracing for Windows and Event Log
- Windows Management Instrumentation
- Windows Performance Toolkit
- Windows Troubleshooting Platform