



50151 - Version: 4  
11 September 2021

# Windows Presentation Foundation (WPF)



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 **5 days Course**

## Description:

This five-day instructor-led course provides students with the knowledge and skills to develop Graphical User Interface (GUI) applications on Windows using the Windows Presentation Foundation framework. Window Presentation Foundation (WPF) is a managed framework for designing and creating user interfaces and presentation layer. It is a major part of the .NET Framework Runtime Components. WPF provides a consistent programming model for building applications for a full smart-client installation(Stand alone), or as top tier for Distributed Application. WPF enables richer control, design, and development of the visual aspects of Windows programs by unifying a host of application services: user interface,MVVM, data-binding, 2D and 3D drawing, fixed and adaptive documents, vector graphics, raster graphics, animation, audio and video. The course is packed with code samples, demos, exercises and labs, to facilitate understanding WPF-based UI applications design concepts, development and best practices as currently used in real projects.

## Intended audience:

This course is intended for C# developers with at least 6 months of experience with the .NET framework and familiarity with UI development.

## Prerequisites:

Working knowledge of C# 3.0 or above  
Basic knowledge of UI development  
Familiarity with XML

## Objectives:

Understand the Windows Presentation Foundation framework architecture and design concepts.

Use WPF built-in controls from Visual Studio and introduction to Expression Blend.

Reading and Writing with Xaml language.

.Net Applications & modern WPF.

Using WPF layout system.

Styling applications & WPF Template mechanism.

MVVM as a standard, architecture, best practices and frameworks.

Introduction to 3D and animation with WPF

WPF Dispatcher model and Multithreaded application

## Topics:

### Module 1 – Introduction

- History of Windows GUI applications
- Graphics and DirectX
- WPF main abilities
- WPF and Windows versions
- The hierarchical class tree of WPF

### Module 2 - Application Layer and IDE

- .NET application
- App.xaml
- Custom application
- Window Type and Dialogs
- Introduction to Expression Blend
- Visual Studio IDE
- Xaml and Xaml.Cs interactions (code behind)

### Module 3 – XAML

- XAML the concept
- Xaml name space

- Markup extension
- Writing syntax
- Element Binding

## Module 4 – Controls

- Commonly built in controls.
- Behind WPF controls.
- Content Model.
- Introduction to custom controls

## Module 5 – Layout

- All WPF Panels
- Layout Properties
- Layout system
- Introduction to custom Panels
- Design Principles

## Module 6 - Style Templates & Resources

- Using style
- Style levels
- Resources
- Dynamic & Static
- Style Triggers
- Visual State Manager.
- Control template

## Module 7 - WPF fundamentals

- Dependency Object & Dependency Property
- Attached Property
- Visual & Logical trees
- Dispatcher and STA



- Routed Events

## Module 8 - Data & Data Binding

- Data Binding overall
- INotifyPrtoptyChnged
- Relative binding concept
- Data context
- DataTemplates
- Converters

## Module 9 – MVVM

- The Pattern
- Model , View, ViewModel
- WPF Commands
- Event To command (Blend SDK)
- ObservableCollection
- View first & ViewModel First
- Navigation basics
- MVVM Light
- Popular MVVM Frameworks

## Module 10 – Validation

- User input
- Validation Rules
- IDataErrorInfo
- Visual Feedback
- Custom validation methods

## Module 11 - Animation Media and 3D

- Basic WPF 3D
- Animation in XAML



- Animation in C#
- Windows Media Classes

## Module 12 - Debug

- Visual Studio output
- Converter as Debugger
- WPF Snoop
- Visual Studio 2015 Profiling tools