C# & winforms & WPF Syllabus

1.Overview

2. Program Structure

2.1 Creating simple Program

2.2 Compiling and Executing the Program

3. Basic Syntax

3.1 *using* Keyword

3.2 *class* Keyword

3.3 Member Variables

3.4 Member Functions

3.5 Instantiating a Class

3.6 Identifiers

3.7 Keywords

3.8 Variables

3.9 Constants

4. Data Types

4.1 Value Type

4.2 Reference Type

4.3 Object Type

4.4 Dynamic Type

4.5 String Type

4.6 Pointer Type

4.7 Type conversion

4.8 Nullable datatype

5. Operators

5.1 Arithmetic Operators

5.2 Relational Operators

5.3 Logical Operators

5.4 Bitwise Operators

5.5 Assignment Operators

5.6 Miscellaneous Operators

5.7 Operator Precedence

6. Decision Making

6.1 if statement

6.2 if -else statement

6.3 nested if

6.4 switch

6.5 nested switch

7. Loops

7.1 for

7.2 while

7.3 do-while

7.4 nested loops

7.5 foreach

8. Encapsulation

8.1 Public Access Specifier

8.2 Private Access Specifier

8.3 Protected Access Specifier

8.4 Internal Access Specifier

8.5 Protected Internal Access Specifier

9. Methods

9.1 Defining Methods

9.2 Calling Methods

9.3 Recursive Method Call

9.4 passing parameters to method

10. Arrays

10.1 Declaring Arrays

10.2 Initializing an Array

10.3 Assigning Values to an Array

10.4 Accessing Array Elements

10.5 multi-dimensional array

10.6 jagged arrays

10.7 params array

11. Strings and StringBuilder

12. Structure and Enums

13. OOPS

13.1 Classes

13.2 Inheritance

13.3 Interfaces

13.3 Polymorphism

13.4 Operator overloading

14. **Regular expression**
15. **File handling**
16. **Exception handling**
17. **Generics**
18. **Collections**

18.1 ArrayList

18.2 Stack

18.3 Queue

18.4 SortedList

18.5 HashTable

18.6 BitArray

19. **Delegates**

19.1 Single cast delegate

19.2 Multi cast delegate

20. **Events**
21. **Multithreading**

    21.1 Thread Life Cycle

    21.2 Properties and Methods of the Thread Class

    21.3 Creating Threads

    21.4 Managing Threads

    21.5 Destroying Threads
22. **Anonymous Methods**

    22.1 Writing an Anonymous Method

Windows Forms Applications

- Windows Forms Applications
- Setting Form Properties
- Understanding the Life-cycle of a Form
- Using the Windows Forms Designer
- Using the `MessageBox` Class
- Using a `.config` File

Using Controls

- Working with Windows Forms Controls
- Using `Text` Controls
- Using `Button` Controls
- Using `Selection` Controls
- Using `List` Controls
- Using `Container` Controls
- Using `Image` Controls
- Using `Up/Down` Controls
- Using the `ErrorProvider` and `ToolTipProvider` Controls

Handling Events

- Understanding the Event-Driven Programming Model
- Writing Event Handlers
- Sharing Event Handlers

ADO.NET

- Understanding the ADO.NET Object Model
- Connected vs. Disconnected Access

- Using a Connection to Connect to a Data Source
- Using a Command to Execute Queries and Stored Procedures
- Using a `DataReader` to Work with Cursors
- Using the `DataSet` with Disconnected Data
- Using `DataAdapters` with DataSets

Data Binding

- Understanding ADO.NET Data Binding
- Binding to Simple and Complex Controls
- Manually Binding Controls
- Using the `BindingSource` Control
- Using the `BindingNavigator` Control
- Using the `DataGridView` Control
- Using the `Chart` Control

Working with Menus, Toolbars and Status Bars

- Working with Menus
- Working with Toolbars
- Working with Status Bars

Using Controls

- Working with Windows Forms Controls
- Using `Text` Controls
- Using `Button` Controls
- Using `Selection` Controls
- Using `List` Controls
- Using `Container` Controls
- Using `Image` Controls
- Using `Up/Down` Controls
- Using the `ErrorProvider` and `ToolTipProvider` Controls

Performing Asynchronous Activities

- Understanding Threading
- Working with Delegates
- Using the Background Worker
- Updating Controls from Other Threads

Using XML

- Understanding XML and XML Schemas
- Reading XML Data with a `DataSet`
- Writing XML Data with a `DataSet`

Working with Forms

- Understanding Modal vs Modeless Forms

- Displaying Modal Forms
- Working with `DialogResult`
- Retrieving Data from Modal Forms
- Displaying Modeless Forms
- Working with Data in Modeless Forms
- Using the Common Dialogs

Working with Files and Directories

- Working with the Windows File System
- Discovering Drives
- Discovering Directories
- Discovering Files
- Examining File, Directory and Drive Attributes
- Reading, Writing and Appending to Files

Deploying Windows Forms Applications

- Understanding Deployment Options
- Configuring an Application for Deployment
- Using XCOPY Deployment
- Using Installers
- Using Click-Once Deployment

Calling Web Services

- Understanding Web Services
- Calling SOAP Services
- Calling REST Services

Serializing and Deserializing JSON

Syllabus of WPF Course

- Introduction to WPF
- Controls
- Custom Controls
- Layout
  - Introduction to WPF Layout
  - StackPanel
  - Grid Panel
  - Dock Panel
  - Canvas Panel
  - Wrap Panel

- ViewBox
- Create a Custom Layout Panel
- Data Binding
- Data Binding Overview
- Debug DataBinding Issues
- Data Validation
- Value Converters
- Data Viewing, Sorting and Filtering
- Popular Data Binding Expressions
- How to Bind EnumValues
- Elegant way for INotifyPropertyChanged
- Styling
- Themes
- Styles
- Control Templates
- Data Templates
- Localization in WPF
- Evaluate a localization mechanism
- Localization using a MarkupExtension
- 2D Graphics
- Draw excactly on physical device pixels
- Geometry Transformer
- Images
- How to get a Bitmap from a Visual
- DrawRoundedRectangle
- WPF with MVVM