

## Visual Programming

### Table of content of the Course

| S.No                                      | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Lectures<br>Required |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| <b>PART 1: Console Based Applications</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |
|                                           | <b>Introduction to Microsoft Visual C# and Visual Studio 2019</b><br>* Graphical User Interface<br>* The need of Visual Programming<br>* Advantages and Disadvantages of Visual Programming                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | CL01                 |
|                                           | <b>Introduction to .NET</b><br>* Need of .NET<br>* Explain the role of CLR and Intermediate Language<br>* Describe the core components of Microsoft .NET.<br>* Features of VS.Net<br>* Shared IDE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | CL01                 |
|                                           | <b>.Net C# Coding</b> <ul style="list-style-type: none"> <li>• Working with variables, Data types, Operators, and Expressions</li> <li>• Visual C# Programming Language Constructs, Creating Methods</li> <li>• Invoking Methods, Handling Exceptions, Creating overloaded Methods</li> <li>• Using Decision Statements</li> <li>• Using Compound Assignment and Iteration Statements</li> <li>• Managing Errors and Exceptions</li> <li>• Implementing Type-safe Collections: Creating Classes, Organizing Data into Collections, Handling Events, Defining and Implementing Interfaces</li> <li>• Developing the Code for a Graphical Application: Implementing Structs and Enums</li> <li>• Creating a Class Hierarchy by Using Inheritance, Extending .NET Framework Classes, Creating Generic Types</li> <li>• Using Arrays and Collections and Understanding Parameter Arrays</li> <li>• Using Garbage Collection and Resource Management</li> </ul> | CL02                 |
| <b>PART 2: Windows Based Applications</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |
| 1                                         | <b>Introduction to WinForms and Controls</b><br>* Winforms GUI<br>* Form (Properties, Methods and Events)<br>* Controls in Winform                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | CL02                 |
| 2                                         | <b>Advanced User Interface Enhancement</b><br>* Dialog Boxes<br>* Types of Dialog Boxes<br>* Visual Effect in Winform                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | CL02                 |

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| 3                      | <b>Error Handling in Winforms</b> <ul style="list-style-type: none"> <li>* Exception</li> <li>* Types of Errors</li> <li>* Exception Classes</li> <li>* Properties of Exceptions</li> <li>* Handling Exceptions</li> <li>* ErrorProvider Control</li> </ul>                                                                                                                           | CL02 |
| 4                      | <b>MDI Applications</b> <ul style="list-style-type: none"> <li>* Single Document Interface</li> <li>* Multiple Document Interface</li> <li>* Designing an MDI application</li> <li>* Activating and Deactivating Windows</li> </ul>                                                                                                                                                   | CL02 |
| <b>PART 3: ADO.Net</b> |                                                                                                                                                                                                                                                                                                                                                                                       |      |
| 1                      | <b>Introduction to ADO.Net Data Access Components</b> <ul style="list-style-type: none"> <li>* ODBC</li> <li>* OLE DB</li> <li>* ADO</li> <li>* ADO.NET</li> <li>* Benefits of ADO.NET</li> <li>* ADO.Net Architecture</li> <li>* Components of ADO.Net</li> <li>* DataSet</li> <li>* DataTable</li> <li>* DataView</li> <li>* Connection Object</li> <li>* Command Object</li> </ul> | CL02 |
| <b>PART 4: ASP.Net</b> |                                                                                                                                                                                                                                                                                                                                                                                       |      |
|                        | <b>Introduction to Web Applications and ASP.NET</b> <ul style="list-style-type: none"> <li>* Describe Web applications</li> <li>* Describe the Web application development cycle</li> <li>* Discuss Active Server Pages</li> <li>* Enumerate the features of ASP.NET</li> <li>* Enumerate the features of ASP.NET 2.0</li> </ul>                                                      | CL03 |
|                        | <b>ASP.NET and HTTP</b> <ul style="list-style-type: none"> <li>* Request/Response Programming</li> <li>* HttpRequest Class</li> <li>* HTTP Collections</li> <li>* HttpResponse Class</li> <li>* Redirection</li> <li>* HttpUtility Class</li> </ul>                                                                                                                                   | CL03 |
|                        | <b>Web Applications and Web Services Using Visual Studio</b> <ul style="list-style-type: none"> <li>* Using Visual Web Developer</li> <li>* Visual Studio Forms Designer</li> <li>* Using Components</li> <li>* Shadow Copying</li> <li>* Using the Global.asax File</li> </ul>                                                                                                       | CL03 |
|                        | <b>State Management and Web Applications</b>                                                                                                                                                                                                                                                                                                                                          | CL03 |

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|  | <ul style="list-style-type: none"> <li>* Session State</li> <li>* Application State</li> <li>* Multithreading Issues</li> <li>* Cookies</li> </ul>                                                                                                                              |      |
|  | <b>Server Controls</b> <ul style="list-style-type: none"> <li>* HTML Server Controls</li> <li>* Web Forms Server Controls</li> <li>* Rich Controls</li> <li>* Validation Controls</li> <li>* User Controls</li> </ul>                                                           | CL03 |
|  | <b>ASP.NET Configuration and Security Fundamentals</b> <ul style="list-style-type: none"> <li>* Configuration Overview</li> <li>* Authentication and Authorization</li> <li>* Forms Authentication</li> <li>* Windows Authentication</li> <li>* Security and ASP.NET</li> </ul> | CL03 |
|  | <b>Services in C#</b> <ul style="list-style-type: none"> <li>* Services in Windows</li> <li>* How services works in windows</li> <li>* Implementing a simple service in C#</li> <li>* How to implement UML class diagram through DLL</li> </ul>                                 | CL03 |