

**PGDCA22**  
**VB.NET WITH SQL Server (8 weeks)**

<b>Contents</b>	<b>Lecture No.</b>
<b>What is Microsoft .Net</b> <ul style="list-style-type: none"> <li>• Definition, Core Components of .Net</li> </ul> <b>What is Visual Studio.Net</b> <ul style="list-style-type: none"> <li>• Diff. Applications supported by VB.Net, Features</li> </ul>	<b>The .Net Framework</b> <ul style="list-style-type: none"> <li>• The CLR, CLR's Execution Mode, Common Type System, .Net Framework Libraries, Unifying Components</li> </ul> (1)
<b>Object Oriented Concepts</b> <ul style="list-style-type: none"> <li>• Class, Objects, Encapsulation, Properties, Inheritance, Overloading</li> <li>• Starting VB.Net, Configuring VB.Net, VB.Net Options Dialog Box, General Tab, Projects &amp; Solutions Tab, Opening VB.Net Solution, Organization of a VB.Net Solution</li> </ul>	(2)
<b>IDE</b> <ul style="list-style-type: none"> <li>• Types of Projects in VB.Net, Creating a New Solution, Opening a New Project, Form Modules, The Solution Explorer, The Properties Window, The Toolbox, The IDE, Code Window, VB.Net Window Types, Docked, Floating Toolbars, Document Windows, Tool Windows, Saving a project.</li> </ul>	(3)
<b>Controls</b> <ul style="list-style-type: none"> <li>• Introducing Controls, Form and its Properties, Label Control &amp; its Properties, Link Label Control &amp; its Properties, Button control &amp; its Properties, Textbox control &amp; its Properties, Textbox Control Methods</li> </ul>	(4)
<b>VB.Net Language Basics</b> <ul style="list-style-type: none"> <li>• Variables, Data Types, Identifiers, keywords, Literals, Dimensioning Variable, Operators, Expression, Statements, Namespaces</li> </ul>	(5)
<b>Functions and Programming</b> <ul style="list-style-type: none"> <li>• Some simple functions in VB.Net like Val, Inputbox function, MessageBox, Substring function.</li> </ul> <b>Flow control and Decision Making Statements</b> <ul style="list-style-type: none"> <li>• If...then...Else....end If, Select Case....End Select, Do While ....Loop, Do until....Loop, While.....End While, For Each.....Next, With....End With</li> </ul>	(6,7,8)
<b>Arrays</b> <ul style="list-style-type: none"> <li>• Arrays – Creating 1-D arrays, Assigning values, Redimensioning arrays, Control Arrays, 2-D Arrays.</li> </ul>	(9)
<b>Advanced Controls, their properties ,methods and usage</b> <ul style="list-style-type: none"> <li>• RichTextBox Control, PictureBox Control, GroupBox Control, Panel Control, Checkbox Control</li> </ul>	(10)
<b>More Advanced Controls- their properties, methods and usage</b> <ul style="list-style-type: none"> <li>• Radio button Control, List box control, Checked Listbox control, Combobox Control.</li> </ul>	(11)
Programming Strings and Event Handling	(12)
<b>Site Navigation and more controls</b> <ul style="list-style-type: none"> <li>• User Control, Treeview, Timer, ListView, TrackBar, ProgressBar</li> </ul>	(13)
<b>Tooltip and error Provider</b> <ul style="list-style-type: none"> <li>• ScrollBars, ToolTip and Error Provider</li> </ul>	(14)
<b>Functions and Procedures</b> <ul style="list-style-type: none"> <li>➤ <b>Introduction to general procedures</b></li> <li>• Subroutines (user-defined), Syntax, Creation, Calling, Passing Arguments- By Value, By Reference</li> <li>• Functions (user-defined)–Syntax, Creation, Calling, Passing Arguments- By Value, By Reference</li> <li>• Event Procedures</li> </ul>	(15,16)
<b>Dialog Boxes</b> <ul style="list-style-type: none"> <li>• Common Dialog Boxes- Color Dialog Box, Font Dialog Box, Open File Dialog, Save File Dialog, Print Dialog, Page Setup Dialog, Print Preview Dialog</li> </ul>	(17)
<b>Menus and MDI</b> <ul style="list-style-type: none"> <li>• Menus and MDI Forms, Handling Clipboard, Save File method, Cut, Copy and Paste</li> </ul>	(18)

<b>Error and File Handling</b> <ul style="list-style-type: none"> <li>• Handling Errors- Try, Catch</li> <li>• Sequential Files –Creating, Adding Items,Deleting,Moving ,Reading, Appending, Copying</li> <li>• Introduction to Modules</li> </ul>	(19,20)	
<b>QUIZ, Classes and Objects</b> <ul style="list-style-type: none"> <li>• Instance of a class, Accessing the members, Properties, Constructors, Overloading</li> <li>• Implementing Class Library</li> </ul>	(21,22)	
Introduction to databases, Normalization, Introduction to SQL Server	(23,24)	
Creating SQL Server database, Creating Tables, Constraints	(25)	
Introduction to T-SQL, Joins, SubQueries	(26,27, 28)	
Action Queries in T-SQL, Functions in T-SQL	(29,30)	
Creating Views	(31)	
Stored Procedures	(32,33)	
User Defined Functions, Triggers	(34,35)	
<b>Database Handling</b> <ul style="list-style-type: none"> <li>• Database Projects, Data Binding</li> </ul>	<b>Concepts in VB.NET</b> <ul style="list-style-type: none"> <li>• Data Adapter, Data Reader etc.</li> </ul>	(36,37)
Examples showing database connectivity	(38)	
Crystal Reports	(39)	
Graphical Interface Elements, Customising a setup project	(40)	

## SYSTEMS ANALYSIS AND DESIGN (2 weeks)

Contents	Lecture No.	
<b>Introduction to System, System Development Life Cycle:</b> <ul style="list-style-type: none"> <li>• Definition of System, Various Phases- Study, Analysis, Design, Development, Implementation, Maintenance</li> </ul>	(1)	
<b>Feasibility Study &amp; its importance:</b> <ul style="list-style-type: none"> <li>• Types of feasibility reports, System selection plan &amp; proposal, Prototyping, Cost-Benefit-Analysis</li> </ul>	(2)	
<b>System Analysis:</b> <ul style="list-style-type: none"> <li>• Scope of study, Data and fact gathering technique, On-Site observation, Interviews, Questionnaires, Group Discussion, Presentations, Site Visits</li> </ul>	(3)	
<b>Structured Analysis Tools:</b> <ul style="list-style-type: none"> <li>• Data Dictionary, Decision Tables</li> </ul>	(4)	
<b>Structured Analysis Tools:</b> <ul style="list-style-type: none"> <li>• Data Flow Diagrams</li> </ul>	(5-6)	
<b>Modular Design:</b> <ul style="list-style-type: none"> <li>• Module Specifications, Coupling &amp; Cohesion, Top-Down design, Bottom-Up design</li> </ul>	(7)	
<b>File Design:</b> <ul style="list-style-type: none"> <li>• File Organization, Sequential Organization, Direct-Access Organization, Indexed Organization, Indexed-Sequential Organization</li> </ul>	<b>Input Design:</b> <ul style="list-style-type: none"> <li>• Objectives, Input-Validation</li> </ul>	(8)
<b>System Testing:</b> <ul style="list-style-type: none"> <li>• Purpose &amp; Plan, Types of Testing, Unit Testing, Integration Testing, System Testing, Alpha-Testing, Beta-Testing, Validation</li> </ul>	(9)	
<b>System Documentation and Implementation:</b> <ul style="list-style-type: none"> <li>• Principles of Systems Documentation, Types of Documentation &amp; their importance, Enforcing Documentation discipline in an organization</li> </ul>	(10)	
<b>QUIZ, Review</b>	(11)	

### Marks Distribution for PGDCA22

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|-------------------------------|-----------|
| 1. System Analysis and Design | 50 marks  |
| 2. VB.NET with SQL Server     | 150 marks |