B.TECH. CSE with specialization in Microsoft Technologies

Departmental Elective-I	Learn To Code (BCS 046)
Departmental Elective-II	Web Development (BCS 056)
Departmental Elective-III	Microsoft Dot Net (BCS 066)
Departmental Elective-IV	HTML5 Application Development (BCS 075)
Open Elective	Software Testing (BOE-075)
Departmental Elective-V	Networking (BCS 085)
Departmental Elective-VI	Windows Server Administration (BCS 089)

Department Elective-I

BCS-046: Learn To Code

L T P **Credit-4**

3 1 2

UNIT I **08 hours**

Introduction to Python: Basic output Generation, Python Interpreter, Informal Introduction to Python; Numeric Operations in Python, First Steps towards Programming,

UNITII **08 hours**

Control Flow Tools; If statement, for loop, range () function, continue, break, else, pass statement, Defining Functions, Data Structures: Stacks, Queues, Functional, The **del** statement, Tuples and Sequences

UNIT III **08 hours**

Modules: Executing modules as scripts, Standard Modules, The dir () Function, Packages, Input and Output : Fancier Output Formatting, Reading and Writing Files.

UNIT IV **08 hours**

Errors and Exceptions: Syntax Errors, Exceptions, Handling Exceptions, Raising Exceptions, User-defined Exceptions, Defining Clean-up Actions, Predefined Clean-up Actions.

UNIT V **08 hours**

Classes: A Word about Names and Objects, Python Scopes and Namespaces, Class Definition Syntax, Class Objects, Instance Objects, Method Objects, Class and Instance Variables, Inheritance, Private Variables and Class-local References, Odds and Ends, Exceptions Are Classes Too, Iterators, Generators. Interactive Input Editing, Floating Point Arithmetic: Issues and Limitations.

Text Books:

1. Kenneth A. Lambert, The Fundamentals of Python: First Programs, 2011, Cengage Learning, ISBN: 978-1111822705.

2. Python is an open-source language with excellent documentation. We'll achieve much in this class using the Python Tutorial, the Python Programming wiki book, and the free Think Python book.

Department Elective-II

BCS-056: Web Development

L T P **Credit-4**

3 1 2

UNIT I **08 hours**

Creating a Web Page: customizing the Layout and Appearance of a Web page, ASP.NET Intrinsic Objects, and State Information in Web Applications.

Creating an Interactive Web Page: Events and Control Page Flow, Controls, Configuration Files.

UNIT II **08 hours**

Working with XML, Data Objects and WCF: Reading and Writing XML Data, Choosing the Data Object Based on Application Requirements, Calling a Service from a Web Page.

UNIT III **08 hours**

Working with Data: DataSource Controls, Binding Controls to Data Using Data-Binding Syntax Managing Data Connections and Databases.

UNIT IV **08 hours**

Working with Client-Side Scripting: Client-Side Scripting, Ajax Concepts.
Troubleshooting and Debugging Web Applications: Debugging a Web Application, Handling Web Application Errors.

UNIT V **08 hours**

Configuring and Deploying Web Applications: Configuring Authentication and Authorization, Configuring Projects and Solutions and Referencing Assemblies, Publishing Web Applications, Application Pools.

Reference Books:

1. Burdman, "Collaborative Web Development" Addison Wesley.
2. Chris Bates, "Web Programing Building Internet Applications", 2nd Edition, WILEY, Dreamtech
3. Joel Sklar, "Principal of web Design" Vikash and Thomas Learning

Department Elective-III

BCS-066: Microsoft Dot Net

L T P **Credit-4**

3 1 2

UNIT I **08 hours**

nderstanding Object Oriented Programming: Understand object oriented concepts in the .NET Framework, Understand .NET class hierarchies, Understand .NET namespaces, Understand and create class libraries.

UNIT II **08 hours**

Understanding Data Types and Collections: Using different data types in the .NET Framework, Arrays, Generics, Generic Collections.

UNIT III **08 hours**

Understanding Events and Exceptions: Understand events and event handling in the .NET Framework, Understand structured exception handling in the .NET Framework, Understand basic application settings

UNIT IV **08 hours**

Understanding Code Compilation and Deployment: Fundamentals of Microsoft Intermediate Language (MSIL) and Common Intermediate Language (CLI), Strong naming, Private and shared assemblies, Assembly metadata, Assembly version control.

UNIT V **08 hours**

Understanding Input/output (I/O) Classes: console class, Command-line arguments, File operations Reading and writing text files, Reading and writing binary files, XML classes in the .NET Framework.
Understanding Security: Authentication, Authorization, Cryptography, Code access security.

Reference Books:

1. James Rumbaugh etal, "Object Oriented Modeling and Design", PHI.
2. Booch Grady, "Object Oriented Analysis & Design with application 3/e", Pearson Education, New Delhi.
3. Wiley," Beginning Visual C# 2008",Wrox
4. Fergal Grimes," Microsoft .Net for Programmers". (SPI)
5. Balagurusamy," Programming with C#", (TMH)
6. Mark Michaelis, "Essential C# 3.0: For .NET Framework 3.5, 2/e, Pearson Education
7. Shibi Parikkar, " C# with .Net Frame Work" , Firewall Media.

Department Elective-IV

BCS-075: HTML5 Application Development

L T P **Credit-4**

3 1 2

UNIT I **08 hours**

Managing the Application Life Cycle: Understand the platform fundamentals; manage the state of an application, Touch interfaces and gestures, Debugging and testing an HTML5-based touch-enabled application, publishing an application to an online store. Building the User Interface by Using HTML5: Text, Graphics, and Media: HTML5 essentials, displaying text content, displaying graphics, playing audio and video files. Organization, Input, and Validation: Organizing content, Creating forms, Restricting input, validating markup.

UNIT II **08 hours**

Understanding CSS Essentials: Content Flow, Positioning, and Styling: CSS essentials, separating content from style, Understanding selectors and declarations, Understanding fonts and font families, managing content flow, positioning individual elements, managing content overflow.
Understanding CSS Essentials: Layouts: Arranging user interface content with CSS, Using a flexible box to establish content alignment, direction, and orientation, using grid layouts to establish content alignment, direction, and orientation.

UNIT III **08 hours**

Managing Text Flow by Using CSS: Managing the flow of text content by using CSS, Using regions to flow text content between multiple sections.
Managing the Graphical Interface by Using CSS: Creating graphics effects, applying transparency, applying background gradients, understanding typography and the Web Open Font Format, applying 2D and 3D transformations, Creating transitions and animations, Applying SVG filter effects, using canvas to enhance the GUI.

UNIT IV **08 hours**

Understanding JavaScript and Coding Essentials: Managing and maintaining JavaScript, Creating and using functions, updating the UI by using JavaScript, Locating and accessing elements, Listening and responding to events, Showing and hiding elements, Updating the content of elements, Adding elements. Creating Animations, Working with Graphics, and Accessing Data: Creating animations, Working with images, shapes, and other graphics, Manipulating the canvas with JavaScript, Sending and receiving data, Transmitting complex objects and parsing, Loading and saving files, Using the Application Cache (App Cache), Understanding and using data types, Using JavaScript to validate user form input, Understanding and using cookies, Understanding and using local storage.

UNIT V **08 hours**

JavaScript Coding for the Touch Interface, Device and Operating System Resources: Touch interface, Gestures, Capturing geo location data, Using Web Workers, Web Sockets, and the File API, Accessing in-memory resources, Hardware capabilities: GPS, accelerometer, camera.

Reference Books:

1. Ivan Bayross," HTML, DHTML, Java Script, Perl & CGI", BPB Publication

Open Elective
BOE-075: Software Testing

L T P **Credit-4**

3 1 2

UNIT I **08 hours**

Describe Testing Fundamentals: Describe software testing, software and hardware components, Fundamental of programming, application lifecycle management.

UNIT II **08 hours**

Describe Testing Methodology: Describe testing techniques, testing levels, testing types
Create Software Tests: user-centric testing, software thgvb estability, test plan components, feature tests, appropriately scoped test cases.

UNIT III **08 hours**

Manage Software Testing Projects: Testing milestones, the agile process, Work with distributed teams, Define test reports.

UNIT IV **08 hours**

Work with Bugs: Detect software defects, Log bugs, Manage bugs, Define appropriately scoped test cases.

UNIT V **08 hours**

Automate Software Testing: Describe test automation, Define test automation strategies, Write automation tests, Manage test scripts

Reference Books:

1. S. Desikan and G. Ramesh, "Software Testing: Principles and Practices", Pearson Education.
2. Aditya P. Mathur, "Fundamentals of Software Testing", Pearson Education.
3. Naik and Tripathy, "Software Testing and Quality Assurance", Wiley
4. K. K. Aggarwal and Yogesh Singh, "Software Engineering", New Age International Publication.

Department Elective-V

BCS-085: Networking

L T P **Credit-4**

3 1 2

UNIT I **08 hours**

Understanding Local Area Networking**:** Examine Local Area Networks, Devices, and Data Transfer, Identify Network Topologies and Standards.
Defining Networks with the OSI Model: Understand OSI Basics, Define the Communications Sub-network, Define the Upper OSI Layers, and Define the Communications Sub-network.

UNIT II **08 hours**

Understanding Wide Area Networks: Routing, Common WAN Technologies and Connections.
Understanding Local Area Networking: Networks outside the LAN, Security Devices and Zones.

UNIT III **08 hours**

Understanding Wired and Wireless Networks: Wired Networks and Media Types, Wireless Networks.
Understanding Internet Protocol: Understand IPv4, Understand IPv6.

UNIT IV **08 hours**

Implementing TCP/IP in the Command Line: Use Basic TCP/IP Commands, Work with Advanced TCP/IP Commands.

UNIT V **08 hours**

Working with Networking Services: Set Up Common Networking Services, Define More Network Services, and Define Name Resolution Techniques.

Reference Books:

1. Forouzen, "Data Communication and Networking", TMH
2. A.S. Tanenbaum, Computer Networks, Pearson Education
3. W. Stallings, Data and Computer Communication, Macmillan Press
4. Anuranjan Misra, “Computer Networks”, Acme Learning
5. G. Shanmugarathinam, ”Essential of TCP/ IP”, Firewall Media

Department Elective-VI

BCS-089: Windows Server Administration

L T P **Credit-4**

3 1 2

UNIT I **08 hours**

Server Overview**:** Understanding What a Server Does, Installing Windows Server 2008 RS, Understanding Windows Licensing, Windows Activation, Windows Updates.

Managing Windows Server 2008 R2: Performing Initial Configuration, Using the Control Panel, Configuring IP Address Settings, Managing Devices and Device Drivers. Using Microsoft Management Console and Administrative Tools, Installing Programs, Roles, Features, Managing Services, Understanding the Registry, Managing Server Core.

UNIT II **08 hours**

Managing Storage: Identifying Storage Technologies, Looking at Network Attached Storage and Storage Area Networks, Understanding Disk Structure, Using Disk Management Tools.

UNIT III **08 hours**

Monitoring and Troubleshooting Servers: Introducing Troubleshooting Methodology, Booting the System, Understanding Performance, Introducing Business Continuity, Understanding Backups, Performing Server Repair.

UNIT IV **08 hours**

Essential Services: Naming Resolution (Understanding HOSTS and LMHOSTS Files, Exploring DNS, WINS), DHCP Services, Introducing Directory Services with Active Directory

File and Print Services: Introducing NTFS, Sharing Drives and Folders, Looking at Printers, Enabling Auditing

UNIT IV **08 hours**

Popular Windows Network Services and Applications: Introducing the Web Server (Managing Web Sites with IIS, Managing FTP with IIS), Understanding Remote Access, Introducing Remote Administration, Understanding Server Virtualization (Creating Virtual Machines Managing Virtual Machines)