

# **UNIVERSITY OF MUMBAI**



## **Syllabus for Semester V and VI**

**Program: B.Sc.**

**Course: Web Design and Technologies**

(Credit Based Semester and Grading System with  
effect from the academic year 2017–2018)

**T.Y.B.Sc. Computer Science Syllabus**  
**Credit Based Semester and Grading System**  
**To be implemented from the Academic year 2017-2018**

<b>SEMESTER V</b>			
<b>Course</b>	<b>TOPICS</b>	<b>Credits</b>	<b>L / Week</b>
USACWD501	.Net Technologies	02	04
USACWD5P1	Practical of USACWD501	02	04

**THEORY**

<b>Course:</b>	<b>TOPICS (Credits : 02 Lectures/Week: 04)</b>	
<b>USACWD501</b>	<b>.Net Technologies</b>	
<b>Objectives:</b>		
To provide insight into .NET technologies for web programming and enable them design and develop interactive and responsive web applications. Explain learners the insights into the efficient usage of .NET technologies and their facilities.		
<b>Expected Learning Outcomes:</b>		
<ol style="list-style-type: none"> <li>1. To gain Knowledge of .NET technologies framework</li> <li>2. To understand and implement various controls for Creating a web Application</li> <li>3. Understand the security aspects of web Application.</li> </ol>		
<b>Unit I</b>	<b>Overview of .NET Framework</b> , Objectives, Main components of .NET Framework and their overview, Types of Applications .NET Framework Architecture– CLR(Goal of CLR, Services/Features, Benefits, Managed Execution Process, Automatic memory Management), CTS(CTS Overview, Type Definitions, Type members, Different types of data such as class, delegates, pointers, arrays, interfaces), Meta Data, Structure of Metadata & Self Describing Components, Cross Language Interoperability & CLS, Assemblies(Assembly overview, Benefits, Contents, Types)	<b>15L</b>

	<p><b>Creating Web Sites</b> :- Working with Web Forms, Working with CSS in Visual Web Developer, ASP.NET Server Controls, Standard Controls, HTML Controls, Understanding ASP.NET State Engine.</p>	
<b>Unit II</b>	<p><b>Introduction to Programming</b>:- Data Types and Variables, Statements, Methods: Functions and Subroutines.</p> <p>Consistent Page Layout with Master Pages, Using a Centralized Base Page.</p> <p><b>Structured Exception Handling</b> : try, catch, finally blocks, throwing exceptions, Err object, Using masked Textboxes</p> <p><b>Navigation Controls</b>- Architecture of the Navigation Controls, Menu Control, TreeView Control</p> <p><b>Validation Controls</b> – Validations &amp; Validator controls,</p>	<b>15L</b>
<b>Unit III</b>	<p><b>ADO.NET</b>: Data Provider Model, Direct Data Access - Creating a Connection, Select Command, DataReader, Disconnected Data Access</p> <p><b>Data Binding</b>: Introduction, Single-Value Data Binding, Repeated-Value Data Binding, Data Source Controls – SqlDataSource, Other Data Controls, Working Together with Data Source and Data-bound Controls</p> <p><b>User Controls</b>-Creating User Controls, Adding User Controls to a Content Page or Master Page</p> <p><b>LINQ</b> -LINQ to Objects, LINQ to ADO.NET</p> <p>Introducing Query Syntax, Standard Query Operators, Shaping Data with Anonymous Types, Using Server Controls with LINQ Queries.</p>	<b>15L</b>
<b>Unit IV</b>	<p><b>Caching</b> : Introduction to Caching Data ,Different Ways to Cache Data in ASP.NET Web Applications</p> <p><b>Security</b>-Identity, Authentication, Authorization, Using Login Controls , Configuring the Web Application</p> <p><b>AJAX in ASP.NET</b> –Using ScriptManager, Partial refreshes, UpdatePanel, Triggers, Timed Refreshes</p> <p><b>Web Service</b> – What is web service, ASP.NET Web services, Creating a simple web service, Consuming Web service</p>	<b>15L</b>
<b>Textbook(s):</b>		

1. Beginning ASP.NET 4: in C# and VB, Imar Spaanjaars, WROX Publication
2. Murach's ASP.NET 4 Web Programming with C# 2010 by Anne Boehm , Joel Murach

**Additional Reference(s):**

1. The Complete Reference ASP .NET, MacDonald, Tata McGraw Hill
2. Beginning ASP.NET 4 in C# and VB Imar Spanjaars, WROX

**Suggested List of Practical – SEMESTER V**

<b>Course:</b> <b>USACWD5P1</b>	<b>(Credits : 02 Practical/Week:04)</b> <b>Practical of USACWD501</b>	
<b>.Net Technologies</b>		
<ol style="list-style-type: none"> <li>1. Fundamentals of ASP.NET such as using HTML/Web Controls, Autopostback, Application events, Configuration files,</li> <li>2. ADO.NET Programming &amp; Data Binding.</li> <li>3. Creating Custom Controls.</li> <li>4. State management, Validation Controls</li> <li>5. LINQ- Using Server Controls with LINQ Queries</li> <li>6. Performance improvement using Caching</li> <li>7. Using AJAX in ASP.NET</li> <li>8. Creating &amp; Consuming web services</li> </ol>		

**T. Y. B. Sc.(Semester V and VI)**  
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<b>SEMESTER VI</b>			
<b>Course</b>	<b>TOPICS</b>	<b>Credits</b>	<b>L / Week</b>
USACWD602	Advanced Web Technology	02	04
USACWD6P2	Practical of USACWD602	02	04

**THEORY**

<b>Course:</b> <b>USACWD602</b>	<b>TOPICS (Credits : 02 Lectures/Week: 04)</b> <b>Advanced Web Technology</b>	
<b>Objectives:</b> To enable learners master the advanced topics in web programming and enable them design and develop interactive and responsive web applications. Explain learners the insights into the efficient usage of various web technology products and their facilities.		
<b>Learning Outcomes:</b> <ol style="list-style-type: none"> <li>1. Learn about using XML for managing Data</li> <li>2. Learn about using Ajax programming</li> <li>3. Learn about PHP and jQuery for developing web applications</li> </ol>		
<b>Unit I</b>	<b>XML-</b> Introduction to XML, Comparing XML with HTML Describing the Structure of XML - Declaration, Elements, Attributes, Comments, CDATA, XML Entity References, Parsers ,Describing Document Type Definitions, <b>Using XSLT with XML</b> :xsl:template Element , xsl:apply-templates Element,xsl:import , xsl:include Element , Element,xsl:element Element, xsl:attribute Element, xsl:value-of Element, using Conditional Statements, Sorting Elements, XSLT	<b>15L</b>

	functions, Creating Well-formed and Valid Documents.	
<b>Unit II</b>	<p><b>Introduction to Ajax –</b> AJAX Web Application Model, Working of AJAX</p> <p><b>Asynchronous Data Transfer with XMLHttpRequest</b>-Creating the XMLHttpRequest Object, XMLHttpRequest Properties, XMLHttpRequest Methods, Using the XMLHttpRequest Object in Different Browsers, Reading a File Synchronously, Reading a File Asynchronously, Performing Tasks Using the XMLHttpRequest Object,</p> <p><b>Integrating PHP and AJAX</b>-Sending Data from a Web Application to a Server, Validating a Field Using AJAX and PHP,</p>	<b>15L</b>
<b>Unit III</b>	<p><b>Handling XML Data using PHP and AJAX</b>-JavaScript properties for Extracting with nodeValue, Accessing XML Elements by Name, Accessing Attribute Values in XML Elements. Validating XML Documents in Ajax Applications</p> <p><b>Retrieving Data from a Database Using PHP and AJAX</b></p> <p><b>Consuming Web Services Using AJAX</b>-Exploring Web Service Protocols-SOAP, Web Service Description Language, UDDI, REST, Consuming Web Services Using AJAX</p>	<b>15L</b>
<b>Unit IV</b>	<p><b>jQuery-</b> JavaScript DOM objects their methods and properties-Window, History, Location Document, Form etc.</p> <p>Fundamentals of jQuery, Loading and using jQuery, using jQuery Library files, Callback functions, jQuery Selectors , jQuery Methods to Access HTML Attributes, jQuery Methods of traversing, jQuery Manipulators, jQuery Events, jQuery Effects, jQuery with AJAX</p>	<b>15L</b>
<p><b>Textbook(s):</b></p> <ol style="list-style-type: none"> <li>1) XML: A Beginner's Guide by Steven Holzner</li> <li>2) AJAX For Beginners , Ivan Bayross and Sharanam Shah, SPD</li> </ol>		

- 3) Web Development with jQuery (WROX) by Richard York
- 4) Learning PHP, MySQL & JavaScript with j Query, CSS & HTML5 – by Robin Nixon ,SPD

**Additional Reference(s):**

- 1) Ajax in Action Dave Crane, Eric Pascarello, Darren James
- 2) Ajax for Dummies Steve Holzner,PhD, Wiley Publishing Inc.

**Suggested List of Practical – SEMESTER VI**

<b>Course:</b> <b>USACWD6P2</b>	<b>(Credits : 02 Practical/Week:04)</b> <b>Practical of USACWD602</b>	
<b>Advanced Web Technology</b>		
<ol style="list-style-type: none"> <li>1. Representing Data using XML with XSL and Internal DTD</li> <li>2. Representing Data using XML with XSL and External DTD</li> <li>3. Retrieving data from server &amp; Sending data to server using AJAX</li> <li>4. Retrieving data from HTML form using PHP</li> <li>5. Retrieving Employee Details/ Registration Details from the database using Ajax and PHP</li> <li>6. Adding ,Modifying and Deleting data from Client side to into table in MySql Ajax and PHP</li> <li>7. Representing Data Using jQuery Selectors/ jQuery Methods to Access HTML Attributes</li> <li>8. Representing Data using jQuery Manipulators, jQuery Events, jQuery Effects</li> </ol>		

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