

Course Contents for Diploma in Web Technology

Course Name : Diploma in Web Technology
Duration : 315 hours (six months)
Eligibility : 12th

Objective of the Course: The objective of this course is to enable students self sufficient in designing and developing dynamic Web sites using HTML, PHP and MySQL. This course also aims at making a student capable of developing console, Windows and Web based Applications using C# on .NET platform.

Module No.	Module Name	Theory (Hrs)	Practical (Hrs)	Total (Hrs)
B07_01	Windows Operating System	10	20	30
B07_02	Programming Fundamentals	10	10	20
B07_03	MySQL	20	30	50
B07_04	C# and ASP.Net	30	70	100
B07_05	PHP	35	80	115
	Total	105	210	315

Detailed Course Contents of Computer Fundamentals & Operating System

Module	Name of Course	Detailed contents	Theory (Hrs)	Practical (Hrs)	Total Hrs
B07_01	Windows Operating System	Introduction to Windows OS: Definition of an operating system, Windows OS, Comparative study of features of Windows OS such as Windows XP, Windows Vista, Windows 2003, 2008 and 2012	1	1	2
		Basics of Windows : Understanding and using My Computer , Recycle Bin, Status Bar, My Network places and My documents, Starting & Quitting a Program, Opening a Document, Getting Help, Using right Button of the Mouse, Starting a Program by using the Run Command, Start Button.	1	2	3
		Windows Settings: Control Panel settings (Administrative Tools, Adding or removing programs and/or Window Components, adding Hardware, Sound and Audio Devices Settings, Internet Options, System Properties), Network Connections, Add, Remove & Configure Printers, Sharing Folders or Printers, Using Resources Located on other Computer, Display properties (Wall paper and Screen Saver settings), Task Bar and Start Menu, Setting the Date and Time, Scheduling Tasks, Maintaining Backup Information on your Disk, Check & Repair Disk by using ScanDisk, Increase disk space by compressing data, Defragment disk, Formatting pen drives	2	4	6
		Exploring Windows Explorer: Viewing of Files and Folders and subfolders, Creating and Renaming, Moving and deleting files and folders, Selecting Multiple Items, Creating Short cuts	2	4	6
		Window Accessories: Notepad , Calculator, Paint and WordPad	2	5	7
		Software Installation: Understanding and Installing commonly used Web Browser and Web Server software, comparison between IIS and Apache web server, How Web Server works? MySQL Installation, PHP Installation & configuration Settings, connecting to MYSQL with PHP, .NET installation	2	4	6
		Total	10	20	30

Detailed Course Contents of Programming Fundamentals

Module	Name of Course	Detailed contents	Theory (Hrs)	Practical (Hrs)	Total Hrs
B07_02	Programming Fundamentals	Introduction to Programming: Evolution of Programming: Machine level Programming, Standalone Programming, Multi User Programming, Client Server Programming and Web Based Programming.	2	-	2
		Introduction to Process modeling: Flow Chart, UML, USE CASE, State Event Diagram	3	-	3
		<p>HTML: HTML document Structure, Understanding Basic formatting Tags, creating and saving HTML document using Notepad, Lists: Ordered, unordered and Definition Lists, Creating Tables, Inserting Images, Internal and external linking using anchor tags, Creating Frames using frameset and frame Tags</p> <p>Developing Forms: Form Tag and its attributes like name, method and action, understanding of controls such as Textboxes, Password, Text Area, Check Box, Radio Button, Button, Submit, Reset, Hidden Fields and Drop Down Menu Using Select to accept user input.</p>	5	10	15
			10	10	20

Detailed Course Contents MYSQL

Module	Name of Course	Detailed Syllabus	Theory (Hrs)	Practical(Hrs)	Total Hrs
B07_03	MYSQL	Introduction to Database concepts: Introduction to Relational Database Management Systems and its terminology, Candidate Key, Primary Key and Foreign Key in a Relation, Integrity constraints	2	-	2
		The Entity Relationship Model: Entities and Attributes, Relationships	2	-	2
		Normalization: Introduction, first Normal Form, data Anomalies in 1NF Relations Partial Dependencies, Second Normal Form, data Anomalies in 2NF Relations, Transitive Dependencies, Third Normal Form, data Anomalies in 3NF Relations.	3	-	3
		MYSQL: An overview of MYSQL Systems Architecture, Installing MySQL for Windows, Data types, Data Definition Language (DDL) commands(creating, deleting and Modifying tables), Data Manipulations Language (DML) Commands (Insert, Select, Update, Execute) View, Understanding Data Constraint (Type of Data Constraints, Column Level Constraints, Table Level Constraints, The CHECK Constraint, Viewing the User Constraint) Computation, Arithmetic Operators, Logical Operators, Comparison Operators, MYSQL FUNCTIONS (Number Functions, Group Functions, Scalar Functions, Data Conversation Functions, Manipulating Dates using Date functions, and Character Functions)	7	20	27
		Joins and Sub Queries: Joins (Equi Joins, Cartesian Joins, Self Joins, Outer Joins), Sub Queries, Correlated Queries, Using Set Operators (Union, Intersect, Minus)..	6	10	16
		Total	20	30	50

Detailed Course Contents of ASP.Net (with C#.Net)

Module	Name of Course	Detailed Syllabus	Theory (Hrs)	Practical (Hrs)	Total Hrs
B07_04	ASP.Net (with C#.Net)	Introduction to .NET Framework: Understanding the .NET Framework (.NET Languages, Common Language runtime(CLR), .NET Framework Class library, ASP.NET, User and Program Interfaces), Components of a .NET Application, Benefits of the .NET approach, .NET Architecture, Understanding The Integrated Development Environment (IDE) to build a .NET Project using C#	3	6	9
		ASP.NET: Web Form fundamentals, Basic Web Controls, Web Control Class Hierarchy, Validation Controls, State Management	2	6	8
		Introduction: Introduction to C# and its necessity, Evolution of C#, Characteristics of C# and Applications of C# Overview of C#: Introduction, Namespaces, Adding comments, Main returning a value, Using aliases for Namespace classes, Passing String objects to WriteLine method, Command line arguments, Main with a Class, Providing interactive input, Using mathematical functions, multiple main methods, compile time errors, program structure, program coding style.	2	5	7
		Data types, Operators and Expressions: Literals, Variables & Data Types: Literals, variables, data types, value types, reference types, declaration and initialization of variables, default values, boxing and unboxing, Superglobal variables, Introduction to operators and expressions, Arithmetic Operators, Relational Operators, Logical Operators, Assignment Operators, Increment and Decrement Operators, Conditional Operator, Bitwise Operators, Special Operators, Arithmetic Expressions, Evaluation of Expressions, Precedence of Arithmetic Operators, Type Conversions, Operator Precedence and Associativity, Mathematical Functions.	3	6	9
		Decision Making with Branching and Looping: Introduction, Decision Making with simple if Statement, The if...else Statement, Nesting of ifelse Statements, The else if Ladder, Switch Statement and The ? : Operator, Introduction to Looping, while Statement, do Statement, for Statement, foreach Statement and Jumps in Loops using Continue, Break.	2	5	7
		Using Methods in C #: Introduction, Declaring Methods, The Main Method, Invoking Methods, Nesting of Methods, Method Parameters, Pass by Value, Pass by Reference, The Output Parameters, Variable Argument Lists, Methods Overloading.	2	4	6
		Handling Arrays: Introduction, One-Dimensional Arrays, Creating an Array, Two-Dimensional Arrays, Variable-Size Arrays, The System. Array Class, ArrayList Class. String Manipulation: Introduction, Creating Strings, String Methods, Inserting Strings Using System, Comparing Strings, Finding Substrings, Mutable Strings, Arrays of Strings, Regular Expressions.	2	4	6
		Structures and Enumerations: Introduction, Structures, Structs with Methods, Nested Structs, Difference between Classes and Structs, Enumerations, Enumerator Initialization, Enumerator Base Types, Enumerator Type Conversion.	2	4	6
		Introduction to Object oriented aspects of C#: Basic Principles of OOP, Introduction to Classes and Objects, Defining a Class, Adding Variables, Adding Methods, Member Access Modifiers, Creating Objects, Accessing Class Members, Constructors, Overloaded Constructors, Static Members, Static Constructors, Private Constructors, Copy Constructors, Destructors, Member Initialization, The this Reference, Nesting of Classes, Constant Members, Read-only Members, Properties, Indexers.	3	6	9

<p>Inheritance and Polymorphism: Introduction, Classical Inheritance, Containment Inheritance, Defining a Subclass, Visibility Control, Defining Subclass Constructors, Multilevel Inheritance, Hierarchical Inheritance, Overriding Methods, Hiding Methods, Abstract Classes, Abstract Methods, Sealed Classes: Preventing Inheritance, Sealed Methods, Polymorphism.</p> <p>Interfaces: Multiple Inheritances: Introduction, Defining an Interface, Extending an Interface, Implementing Interfaces, Interfaces and Inheritance, Explicit Interface Implementation, Abstract Class and Interfaces.</p>	3	6	9
<p>Operator Overloading: Introduction, Overloadable Operators, Need for Operator Overloading, Defining Operator Overloading, Overloading Unary Operators, Overloading Binary Operators, Overloading Comparison Operators.</p>	2	4	6
<p>Delegates and Events: Introduction, Delegates, Delegate Declaration, Delegate Methods, Delegate Instantiation, Delegate Invocation, Using Delegates, Multicast Delegates, Events.</p>	2	4	6
<p>Managing Console I/O Operations: Introduction, The Console Class, Console Input, Console Output, Formatted Output, Numeric Formatting, Standard Numeric Format, and Custom Numeric Format.</p>	1	2	3
<p>Managing Errors and Exceptions: Introduction, Types of Errors, Exceptions, Syntax of Exception Handling Code, Multiple Catch Statements, The Exception Hierarchy, General Catch Handler, Using finally Statement, Nested Try Blocks, Throwing Our Own Exceptions, Checked and Unchecked Operators, Using Exceptions For Debugging.</p>	2	4	6
<p>ADO.NET: Overview of ADO.NET architecture, ADO.NET Classes, .NET framework Data Providers,(OLE DB.NET,ODBC.NET), Choosing an ADO.NET Provider Connecting to Data, The Connection object, The Command object, Data Reader, Data Adapter, DataSet, DataTables, and DataViews. Difference between Dataset and Data Reader, Executing SQL Commands (select, insert, update and delete), Datasets and XML (loading a Dataset from XML, Reading XML data using DataSet,, Saving Data from a DataSet to XML)</p>	2	10	12
<p>Suggested Readings:</p> <p>Balagurusamy, E.: Programming in C#, Tata McGraw-Hill</p> <p>ASP.NET by Mathew Macdonald, Apress</p> <p>C# and ASP.NET Projects BPB Publication</p> <p>Schildt, Herbert 2004: The Complete Reference: C#, Tata McGraw-Hill</p>			
TOTAL	30	70	100

Detailed Course Contents of PHP

Module	Name of Course	Detailed contents	Theory (Hrs)	Practical (Hrs)	Total Hrs
B07_05	PHP	Introducing PHP: History, Unique Features, Server side scripting Vs Client side scripting, Basic Development Concepts (Mixing PHP with HTML), Creating, Writing & Running First PHP Script, Handling Script errors, Storing data in Variables, destroying variables, inspecting variable contents, setting and checking variable data types (integers, floats, strings and Booleans), using constants, manipulating variables with all types of operators, operator precedence, Echo / Print statement, Designing of Forms using HTML, Form Handling using GET and POST methods of Form	3	8	11
		Controlling Program Flow: If, if...Else, if.....Elseif.. Else, Switch, Looping, While Loops, do...While, For Loops, for each loop, interrupting and skipping loops	2	4	6
		Arrays: Understanding Arrays, One-Dimensional Arrays, Multi-Dimensional Arrays, Processing Arrays with Loops, Using Arrays with Forms, Array Functions	2	4	6
		Using Functions: Purpose of functions, Built-in functions, Working with String, Numeric and Date Functions, Working with Dates and Times, Creating User-Defined Functions, Invoking Functions, using Arguments and return values, Setting Default Argument values, using Dynamic Argument Lists, Understanding Variable Scope, Recursive Functions	3	6	9
		Introducing Classes and Objects: Defining and using Classes, Using Constructors and destructors, extending Classes, Adjusting Visibilities Settings, Generating Form Selection Lists	2	4	6
		Working with Files and Directories: Opening local or remote files, Reading local or remote files or specific segments of a file, writing files, Opening and reading Directories, Handling file permissions, Handling file ownership, File uploads from the browser/user, File locking, Using File and Directory functions, Create a Photo Gallery in practical session using above concepts	4	8	12
		Working with databases and SQL: Understanding Databases and basic SQL commands, Accessing data using simple SQL queries to MySQL database, create database, create table, primary key with AUTO_INCREMENT setting, Insert Data Into a Database Table, Select Data From a Database Table, Open or close a Connection to the MySQL Server, Create an ODBC Connection, Connecting to an ODBC, Insert Data From a Form Into a Database, Display the Result in an HTML Table, Update Data In a Database, Delete Data In a Database, Retrieving Records, Retrieving Fields from a Record, Closing an ODBC Connection	4	16	20
		Working with Cookies: Cookie Basics, Cookie Attributes, Cookie Headers, Setting, Reading and removing Cookies, Saving and restoring user preferences	2	4	6
		Sessions in PHP: Session Basics, Creating Session and Session variables, Dependencies on the php.ini file, Removing Session and Session variables, Tracking previous visits to a page, Using HTTP Headers	2	4	6
		Graphics in PHP: Graphics basics, Image MIME type, Basic examples, Creation from an existing image, Image copying and resizing, Drawing text on images, True Type fonts	2	4	6
		Handling Email with PHP: Sending email, Sending multi part email – MIME, Accessing mail boxes - IMAP & POP	2	4	6
Web Services: SOAP: SOAP Overview, Simple SOAP Client, Simple SOAP Server, create SOAP web services using PHP	2	4	6		

		PEAR, PECL and Smarty: PECL quick tour, APC - Alternative PHP Cache, PEAR installation and quick tour, PEAR Config, PEAR Log, PEAR Auth, PEAR HTML_Quick form, Smarty Templates, Smarty and HTML_Quick form, Smarty and Quick form help with security	6	12	18
		Other I/O Issues in PHP: Getting IP addresses from visitors, Getting referring URLs from visitors, Environment variables Showing different content to different browsers (IE, Netscape, Mozilla, Opera, etc), Handling HTTP and MIME headers	3	6	9
		Reference Books and sites: PHP by Vikram Vaswani, Tata McGraw Hill http://php.net/manual/en/install.php http://pear.php.net/			
		Total	35	80	115