

**Ahmednagar Jilha Maratha Vidya Prasarak Samaj's
New Arts, Commerce, and Science College, Ahmednagar
(Autonomous)
(Affiliated to Savitribai Phule Pune University, Pune)**



**National Education Policy (NEP)
Choice Based Credit System (CBCS)**

**Programme Skeleton and Syllabus of
B.Sc. Computer Science (Minor) - II Year**

**Implemented from
Academic Year 2024-25**

Ahmednagar Jilha Maratha Vidya Prasarak Samaj's
New Arts, Commerce and Science College, Ahmednagar
(Autonomous)

Board of Studies in Computer Science

Sr. No.	Name	Designation
1. 1.	Prof. M.B. Bhingare	Chairman
2. 2.	Prof. A.D. Gangarde	Member
3. 3.	Prof. M.B. Gobare	Member
4. 4.	Prof. B.M. Danve	Member
5. 5.	Dr.P.P. Mulay	Hon.Vice-Chancellor Nominee
6. 6.	Dr. V.S. Kumbhar	Academic Council Nominee
7. 7.	Prof. S.D. Pachpande	Academic Council Nominee
8. 8.	Mr. U.C. Temkar	Industrial Expert
9. 9.	Mrs. Aboli J.Joshi Potnis	Post Graduate Meritorious Allumnus
10. 10.	Prof. S.D. Shelke	Co-Opt (Electronics)
11. 11.	Prof. S.A. Tarate	Co-Opt (Mathematics)
12. 12.	Dr. A.A. Kulkarni	Co-Opt (Statistics)

• **Prologue/ Introduction of the programme:**

Education is the key to development of any society. Role of higher education is crucial for securing right kind of employment and also to pursue further studies in best available world class institutes elsewhere within and outside India. Quality education in general and higher education in particular deserves high priority to enable the young and future generation of students to acquire skill, training and knowledge in order to enhance their thinking, creativity, comprehension and application abilities and prepare them

to compete, succeed and excel globally. Sustained initiatives are required to reform the present higher education system for improving and upgrading the academic resources and learning environments by raising the quality of teaching and standards of achievements in learning outcomes across all undergraduate programs in science, humanities, commerce and professional streams of higher education including computer science. B.Sc. (Computer Science) has been evolving as an important branch of science and engineering throughout the world in last couple of decades and it has carved out a space for itself like any other disciplines of basic science and engineering. Computer science is a discipline that spans theory and practice and it requires thinking both in abstract terms and in concrete terms. Computer science has a wide range of specialties. These include Computer Architecture, Software Systems, Graphics, Artificial Intelligence, Computational Science, and Software Engineering. Drawing from a common core of computer science knowledge, each specialty area focuses on specific challenges. Computer Science is practiced by mathematicians, scientists and engineers. Mathematics, the origins of Computer Science, provides reason and logic. Computer Science education at undergraduate level (+3) will result in earning Bachelor of Science (BSc) degree in Computer Science. The coursework required to earn a BSc is equally weighted in mathematics and science. B.Sc. with Computer Science are aimed at undergraduate level training facilitating multiple career paths. Students so graduated, can take up postgraduate programmes in Computer Science and can be employable at IT industries. There are several employment opportunities and after successful completion of an undergraduate programme in Computer Science, graduating students can fetch employment directly in companies as Web Developer, Software Engineer, Network Administrator, Data Scientist, or AI/ML personnel.

• **Programme Outcomes (POs)**

1. Demonstrate the aptitude of Computer Programming and Computer based problem solving skills.
2. Display the knowledge of appropriate theory, practices and tools for the specification, design, implementation.
3. Ability to link knowledge of Computer Science with other two auxiliary disciplines of study.
4. Display ethical code of conduct in usage of Internet and Cyber systems.
5. Ability to pursue higher studies of specialization and to take up technical employment.
6. Ability to formulate, to model, to design solutions, procedure and to use software tools to solve real world problems and evaluate.
7. Ability to operate, manage, deploy, configure computer network, hardware, software operation of an organization.
8. Ability to present result using different presentation tools.
9. Ability to appreciate emerging technologies and tools.
10. Apply standard Software Engineering practices and strategies in real-time software project development.
11. Design and develop computer programs/computer -based systems in the areas related to algorithms, networking, web design, cloud computing, IoT and data analytics.
12. The ability to work independently on a substantial software project and as an effective team member.

Credit Distribution: B.Sc. Computer Science including Minor and OE and other courses.

	Type of Courses	III Yr	IV Yrs (Honours)	IV Yrs Research
Major Comp.sci.	Discipline-Specific Courses (DSC)	46	74	66
	Discipline Specific Elective (DSE)	08	16	16
	Skill Enhancement Courses (SEC)	06	06	06
	Vocational Skill Courses (VSC)	08	08	08
	On-Job Training (OJT)	04	08	04
	Field Project (FP)	04	04	04
	Community Engagement and Service (CEP)	02	02	02
	Research project	00	00	12
	Research Methodology	00	04	04
	Indian Knowledge System	02	02	02
	Total (I, II and III Year)	80	124	124
Minor	Minor	20	20	20
Other Courses	Open Elective (OE)/ Multidisciplinary Courses	12	12	12
	Co-Curricular Courses	08	08	08
	Ability Enhancement Courses	08	08	08
	Value Education Courses	04	04	04
	Total	132	176	176

Programme Framework (Courses and Credits): B.Sc. Computer Science (Minor)

Sr. No.	Year	Semester	Level	Course Type	Course Code	Title	Credits
1. Sr. No.	Year	Semester	Level	Course Type	Course Code	Title	Credits
2.	I	I	4.5	MNR-1	BS-CS101	Web Designing -I	03
3.	I	II	4.5	MNR-2	BS- CS 201	Web Designing -II	03
4.	II	III	5.0	MNR-3	BS- CS 301	Web Technology -I	03
5.	II	IV	5.0	MNR-4	BS- CS 401	Web Technology - II	03
6.	III	V	5.5	MNR-5	BS- CS 501	Internet Programming-I	04
	III	VI	5.5	MNR-6	BS- CS 601	Internet Programming-II	04

Ahmednagar Jilha Maratha Vidya Prasarak Samaj's
New Arts, Commerce and Science College, Ahmednagar
(Autonomous)
Syllabus
B.Sc. Computer Science (Minor)

Title of the Course: Web Designing -I								
Year: I				Semester: I				
Course Type	Course Code	Credit Distribution		Credits	Allotted Hours	Allotted Marks		
		Theory	Practical			CIE	ESE	Total
MNR-1	BS-CS101 T/P	02	01	03	60	30	70	100

Learning Objectives:

- Be able to use the HTML programming language.
- Be able to use the Design Programs.

Course Outcomes (Cos)

- Define the basics in web design
- Visualize the basic concept of HTML
- On completion of the course, student will be able to Design a responsive web site using HTML.

Detailed Syllabus: Theory

Unit I: Introduction to Web Technologies

(Allotted Lectures)

1.1 Brief History of Internet

05

1.1.1 Introduction to Web Technologies

1.2 Creation of a web site

1.2.1 Working of Website

1.2.2 Introduction of Clients- Servers and Communication

1.2.3 Client and Server Scripting Languages

1.3 Internet-Basic, Internet Protocols (HTTP,FTP,IP)

1.3.1 World Wide Web (WWW) HTTP Request message,

1.3.2 HTTP Response message

1.3.3 Types of Websites (Static and Dynamic Websites)

Unit II: Introduction To Html	06
2.1 Editors for HTML	
2.1.1 Basic HTML Document	
2.1.2 HTML Document Structure	
2.2 HTML Tags	
2.2.1 HTML Elements	
2.2.2 HTML Attributes	
2.2.3 HTML Basic Tags	
2.3 HTML – FORMATTING Tags Types	
2.4 HTML – IMAGE Tag	
2.5 HTML – LISTS and its Types	
Unit III: Html – Tables	05
3.1 Table Tags	
3.1.1 Cellpadding and Cellspacing Attributes	
3.1.2 Colspan and Rowspan Attributes	
3.2 Tables Backgrounds	
3.3 Table Height and Width	
3.4 Table Caption	
3.5 Table Header, Body, and Footer	
3.6 Nested Tables	
Unit IV: Html-Form	06
4.1 HTML Form	
4.2 HTML Form Attributes	
4.2.1 Action attribute	
4.2.2 Target attribute	
4.2.3 Method attribute (GET and POST)	
4.2.4 AutoComplete attribute	
4.2.5 novalidate attribute	
4.3 HTML Form Element	

- 4.3.1 TextFields
- 4.3.2 Password Fields
- 4.3.3 Labels
- 4.3.4 Radio-Button
- 4.3.5 Checkbox
- 4.3.6 Submit button

Unit V: Advanced Html Tags 04

- 5.1 Embedding Audio and Video
- 5.2 Working with Text
- 5.3 Working with Frames
- 5.4 Working with Multimedia

Unit VI: Html 5 Introduction 04

- 6.1 Limitations of HTML
- 6.2 Introduction and Advantages of HTML 5
- 6.3 First HTML5 Document
- 6.4 Overview of New Features of HTML5
- 6.5 List of HTML elements removed from HTML5

Suggested Readings/Material:

1. Ivan Bayross -“HTML, DHTML, JavaScript, Pearl & CGI”, Fourth Revised Edition, BPB Publication.
2. HTML: The Complete Reference, Second Edition - Thomas A. Powell
Osborne/McGrawHill Berkeley New York St. Louis San Francisco
3. HTML 5 Black Book (Covers CSS3, JavaScript, XML, XHTML, AJAX, PHP, jQuery) .

Detailed Syllabus: Practical: Web Designing-I LabHTML Assignments

1: Introduction to HTML

Exercise:

1. Write HTML code to develop a web page having the background in red and title “My First Page” in any other color.

2. Create a HTML document giving details of your name, age, telephone, address, TLC code & enrollment no. aligned in proper order?
3. Write HTML code to design a page containing a text in a paragraph give suitable heading style.

2: Tags in HTML Exercise:

1. Create a page to show different attribute of Font tag.
2. Create a page to show different attribute italic, bold, underline.
3. Design a page having background color given text color red and using all the attributes of font tag.

3: Tags in HTML Exercise:

1. Write a HTML code to create a web page of blue color and display links in red color.
2. Write HTML code to create a WebPages that contains an Image at its center.
3. Create a web page with appropriate content and insert an image towards the left hand side of the page when user clicks on the image. It should open another web page.

4: Tags in HTML Exercise:

1. Create a web Page using href tag having the attribute alink, vlink etc.
2. Create a web page, when user clicks on the link it should go to the bottom of the page.
3. Write a HTML code to create a web page of pink color and display moving message in red color.

5: Tags in HTML Exercise:

1. Create a web page, showing an ordered list of name of your five friends.
2. Create a HTML document containing a nested list showing the content page of **any book**
3. Create a web page, showing an unordered list of name of your five friends.

6: Tags in HTML Exercise:

1. Create a web page which should contain a table having two rows and two columns. fill in the data in the table created by you in question 1.
2. Create the following table in HTML with Dummy Data

Name of Train	Place	Destination	Train No.	Time		Fair
				Arrival	Departure	

7: Tags in HTML Exercise:

1. Create the following table

a.

Color (White)		
RED	GREEN	BLACK

b.

Weather	DELHI	MUMBAI
	40	35

- Write HTML code to create a web page that contain an image at the center of the page.
- Write HTML code to generate following output

1	2	3	4
5	Image		6
7			8
9	10	11	12

8: Frames in HTML Exercise:

1. Create a web page which should divide page into two equal frames

Frame1	Frame2
--------	--------

2. Create a web page which should generate following output:

Frame1	Frame2
	Frame3

3. Create a web page having two frames one containing links and another with contents of the link. When link is clicked appropriate contents should be displayed on Frame 2.

9: Frames in HTML Exercise:

1. Create a home page for a TLC in following format

TLC Information	
Links	Appropriate Information

10: Frames in HTML Exercise:

1. Create a web page using all the attributes of the frame and other tags learned till now.

11: Frames in HTML Exercise:

1. Design a form using all input types.
2. Create a simple form accepting
Name
Enrollment No.
and Submit
button

12. Design and implement a static website using HTML as a Mini Project for this course

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Syllabus
B.Sc. (Computer Science) (Minor)

Title of the Course: Web Designing -II								
Year: I					Semester: II			
Course Type	Course Code	Credit Distribution		Credits	Allotted Hours	Allotted Marks		
		Theory	Practical			CIE	ESE	Total
MNR-2	BS-CS201 T/P	02	01	03	60	30	70	100

Learning Objectives:

- Be able to use the HTML programming language.
- Be able to use the Design Programs related with the Javascript, CSS, XML etc.

Course Outcomes (Cos)

- Define the advances in web design
- Visualize the basic concept of JavaScript , CSS and XML
- Student will be able to Design a responsive web site using HTML,JavaScript,CSS,XML.

Detailed Syllabus:

(Allotted Lectures)

Unit I: Introduction

05

1.1 JavaScript Introduction

1.2 JavaScript Syntax

1.2.1 Variable Declaration

1.2.2 Operators

1.2.3 Control Statements

1.2.4 Error Handling

Unit II: Arrays And Functions

06

2.1 Arrays

2.2 Functions

2.2.1 Built-in Functions

2.2.2 Date Functions

2.2.3 Time Functions

2.2.4 User defined Functions

2.3 JS Strings

2.3.1 JS String methods.

2.4 Popup Boxes

2.4.1 Alert box

2.4.2 Prompt box

2.4.3 Confirm box

Unit III: Dom And Javascript Objects

05

3.1 HTML Forms

3.2 DOM (Document Object Model)

3.3 Working with HTML and its elements.

3.4 Working with Objects and Classes.

3.5 JavaScript Built in Objects

3.5.1 Classes

3.5.2 Inheritance

3.5.3 Static

Unit IV: Introduction To Cascading Style Sheets

06

4.1 Concept of CSS

4.2 Creating Style Sheet

4.3 CSS Properties

4.4 CSS Styling (Background, Text Format, Controlling Fonts)

4.5 Working with Block Elements and Objects.

Unit V: CSS Advanced

04

5.1 Working with Lists and Tables

5.2 CSS Id and Class

5.3 Box Model (Introduction, Border Properties, Padding Properties, Margin Properties)

5.3.1 CSS Color

5.3.2 Creating page Layout and Site Designs

Unit VI: Introduction To Xml (Extended Markup Language)

04

6.1 What is XML?

6.2 XML document Structure

6.3 XML parser

6.4 The document object model

6.5 The simple XML extension

6.5.1 Changing a value with simple XML

Suggested Readings/Material:

1. Ivan Bayross -“HTML, DHTML, JavaScript, Pearl & CGI”, Fourth Revised Edition, BPB Publication.
2. HTML: The Complete Reference, Second Edition - Thomas A. Powell Osborne/McGraw-Hill Berkeley New York St. Louis San Francisco.
3. HTML 5 Black Book (Covers CSS3, JavaScript, XML, XHTML, AJAX, PHP, jQuery).

Detailed Syllabus: Practical: Web Designing-II Lab Course Outcomes:

1. Analyze a web page and identify its elements and attributes.
2. Create web pages using Cascading Style Sheets.
3. Build dynamic web pages using JavaScript (Client side programming).
4. Create XML documents and Schemas.

Assignments:

- 1) Write a javascript to display message ‘Good Morning’ using alert box.
- 2) Write a javascript to display message ‘Good Afternoon’ using function.(Hint: use Event‘Onload’).
- 3) Write a javascript function to validate username and password for a membership form.
- 4) Using Javascript function, display the string in different formatting styles(Bold, italic,underline, strikethrough, hypertext etc)
- 5) Write a Javascript to create a FIFO queue . Insert new element in it (Hint: Use concept of Array)
- 6) Write a Javascript program to accept name of student, Change font color to red, font size to 18if student name is present otherwise on clicking on empty text box display image which change its size (Use onblur, onload, onmouseover, onmouseleave, onmouseup)
- 7)Write a script to create XML file named “Course.xml”

```
<Course>
  <Computer Science>
    <Student name>.....</Student name>
    <Class name> ..... </Class name>
    <percentage> ..... </percentage>
  </Computer Science>
```

</Course>

Store the details of 5 students who are in TYBSc.

- 8) Link “Course.xml” file to the CSS style sheet and get wellformatted output as given below

Property Name	Student Name	Class Name	Percentage
Color	Blue	Green	Red
Font-family	Bodoni MT	Arial, Helvetica, sans-serif	Impact, Charcoal, sans-serif
Font-style:	italic	Normal	oblique
Font Size	16 pts	12pts	14pts

- 9) Create a XML file which gives details of movies available in “Mayanagari CD Store” from following categories

- a. Classical
- b. Action
- c. Horror

Elements in each category are in the following format

<Category>

<Movie Name> ---- </Movie Name>

<Release Year>----- </Release Year>

</Category>

Save the file with name “movies.xml”.

- 10) Create an application that reads “book.xml” file into simple XMLObject. Display attributes and elements (Hint:simple_xml_load_file() function)

- 11) Write a script to create “cricket.xml” file with multiple elements as given below

<Cricket team>

<Country = India>

<Player Name >----- <Player Name >

<Wickets> ----- </Wickets>

<Runs> ----- </Runs>

</Country>

</Cricket team>

Also add country = “England” and its elements

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Syllabus
B.Sc. (Computer Science) (Minor)

Title of the Course: Web Technology -I								
Year: II					Semester: III			
Course Type	Course Code	Credit Distribution		Credits	Allotted Hours	Allotted Marks		
		Theory	Practical			CIE	ESE	Total
MNR-3	BS-CS301 T/P	02	01	03	60	30	70	100

Learning Objectives:

- Use PHP7 to improve accessibility of a web document.
- Gain necessary skills for designing and developing web applications

Course Outcomes:

- Understand how server-side programming works on the web.
- Using PHP built-in functions and creating custom functions
- How to receive and process form submission data.
- Read and process data in a MySQL database.

Detailed Syllabus:

(Allotted Lectures)

Unit I: PHP Basics

(05)

- 1.1 Setting up a development environment
- 1.2 Variables, numbers and strings
- 1.3 Calculations with PHP
- 1.4 Using Arrays

Unit II: Control Structures and Loops

(05)

- 2.1 Conditional Statements
- 2.2 Using Loops for Repetitive tasks
- 2.3 Combining Loops and Arrays

Unit III: Functions, Objects and Errors

(05)

- 3.1 PHP's Built-in functions
- 3.2 Creating Custom functions
- 3.3 Passing Values by Reference

3.4 Understanding Objects

Unit IV: Working with Forms (05)

4.1 Building a Form

4.2 Processing a Form's Data

4.3 Differences between POST and GET

4.4 Preserving User Input

Unit V: More with Forms (05)

5.1 Dealing with checkboxes and radiobuttons

5.2 Retrieving values from lists

5.3 Validating and restricting data

5.4 Sending Email

Unit VI: MySQL Database Overview (05)

6.1 phpMyAdmin Overview

6.2 Using a MySQL Database

6.3 Reading and Writing Data

Suggested Readings:

Lab Course Web Technology - IPHP Assignments:

Assignment 1

- 1) Write a program for Currency notes cashier have to return
- 2) Tax on income (take input from user)
- 3) Profit and loss (take c.p. and s.p. from user)
- 4) find a entered year is lear year or not
- 5) find a number is palindrome or not
- 6) find a power of a number

Assignment 2

- 1) Find a entered number is armstrong or not
- 2) check whether entered number is prime or not

- 3) check whether entered number is perfect or not
- 4) find out the factorials of a given number
- 5) find sum of digits of a given number
- 6) count even and odd digits from given number
- 7) write a program to find fibonacci series upto n

Assignment 3

- 1) Write a program to count string length
- 2) write a program to count words from given string
- 3) Write a program to reverse a entered string
- 4) write a program to find largest between 5 given numbers
- 5) write a program to connect two strings entered by a user.

Assignment 4

- 1) Write a program to display a multiplication table of entered number.
- 2) Write a PHP program to display elements of an array along with the keys.
- 3) Write a PHP program to delete an element from an array from the given index
- 4) write a PHP program to perform addition of two matrix
- 5) write a PHP program to perform Multiplication of two matrix

Assignment 5

- 1) Write a program to find transpose of a given matrix
- 2) Write a program to convert a number from Binary to decimal
- 3) write a program to convert a number from decimal to binary
- 4) write a program to convert a number from decimal to octal
- 5) Write a program to convert a given string to uppercase.

Assignment 6

Q. print the following patterns

1)

*

**

2)

1

2 2

3 3 3

4 4 4 4

5 5 5 5 5

3)

1

2 3

4 5 6

7 8 9 10

4)

A

B B

C C C

D D D D

E E E E E

5)

A

B C

D E F

G H I J

Assignment 7

1)

1

1 1

1 1 1

1 1 1 1

1 1 1 1

1 1 1

1 1

1

2)

1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

3)

5

5 4

5 4 3

5 4 3 2

5 4 3 2 1

5)

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Assignment 8

1)

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2) *

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* * * *

* * * * *

3)

0

0 1

0 1 0

0 1 0 1

0 1 0 1 0

0 1 0 1 0 1

4)

5 4 3 2 1

5 4 3 2

5 4 3

5 4

5

Assignment 9

1) Write a PHP script for the following: Design a form to accept a string. Write a function to count the total number of vowels (a,e,i,o,u) from the string. Show the occurrences of each vowel from the string. Check whether the given string is a

palindrome or not, without using built-in function. (Use radio buttons and the concept of function.

2) Write a PHP script for the following: Design a form to accept two strings from the user. Find the first occurrence and the last occurrence of the small string in the large string. Also count the total number of occurrences of small string in the large string. Provide a text box to accept a string, which will replace the small string in the large string.

3) Write a PHP script for the following: Design a form to accept two numbers from the user. Give options to choose the arithmetic operation (use radio buttons). Display the result on the next form.

4) Write a PHP script for the following: Design a form to accept two strings from the user. Find whether the small string appears at the start of the large string. Provide a text box to accept the string that will replace all occurrences of small string present in the large string. Also split the large string into separate words. (Use regular expressions).

5) Write a PHP script for the following: Design a form to accept the details of 5 different items, such as item code, item name, units sold, rate. Display the bill in the tabular format. Use only 4 text boxes. (Hint : Use of explode function.)

Assignment 10

1) Write a PHP script for the following: Design a form to accept two strings. Compare the two strings using both methods (= = operator & strcmp function). Append the second string to the first string. Accept the position from the user; from where the characters from the first string are reversed. (Use radio buttons).

2) Write a menu driven PHP program to perform the following operations on an associative array: i. Display the elements of an array along with the keys. ii. Display the size of an array iii. Delete an element from an array from the given index. iv. Reverse the order of each element's key-value pair.[Hint: use array_flip()] v. Traverse the elements in an array in random order [[Hint: use shuffle()].

3) Write a menu driven PHP program to perform the following operations on associative arrays: a) Sort the array by values (changing the keys) in ascending, descending order. b) Also sort the array by values without changing the keys. c) Filter the odd elements from an array. d) Sort the different arrays at a glance using single function. e) Merge the given arrays. f) Find the Union, intersection& set difference of two arrays.

4) Write a PHP script to define an interface which has methods area(), volume(). Define constant PI. Create a class cylinder which implements this interface and calculate area and volume.

5) Write class declarations and member function definitions for an employee(code, name, designation). Design derived classes as emp_account (account_no, joining_date) from employee and emp_sal(basic_pay, earnings, deduction) from emp_account. Write a menu driven PHP program a) to build a master table b) to sort all entries c) to search an entry d) Display salary.

Assignment 11

1) Derive a class square from class Rectangle. Create one more class circle. Create an interface with only one method called area(). Implement this interface in all the classes. Include appropriate data members and constructors in all classes.

Write a PHP program to accept details of a square, circle and rectangle and display the area.

2) Write PHP Script to create a class account (accno,cust_name). Derive two classes from account as saving_acc(balance, min_amount) and current_acc(balance, min_amount). Display a menu a) Saving Account b) Current Account For each of this displays a menu with the following options. 1. Create account 2. Deposit 3. Withdrawal.

3) Implement calculator to convert distances between (both ways) miles and kilometres. One mile is about 1.609 kilometres. User interface (distance.html) has one text-input, two radio-buttons, submit and reset -buttons. Values are posted to PHP-script (distance.php) which calculates the conversions according the user Input.

4) Using regular expressions check for the validity of the entered email-id. The @ symbol should not appear more than once. The dot (.) can appear at the most once before @ and at the most twice or at least once after @ symbol. The substring before @ should not begin with a digit or underscore or dot or @ or any another special character.

5) Write PHP program to create input form for Grocery that displays List of grocery items with checkboxes and create a bill according to list of items selected after clicking the submit button.

Assignment 12

1) Write a PHP program that accept customer name, consumer number and number of electricity units consumed from an input form and print electricity bill from following data · For first 50 units – Rs. 3.50/unit · For next 100 units – Rs. 4.00/unit · For next 100 units – Rs. 5.20/unit · For units above 250 – Rs. 6.50/unit · Fixed meter and service charge- Rs. 150/-.

2) Write a PHP program for course registration of Learner in an institute that accept Name, Course to be admitted, Mobile number using input form validation such as Name should be only string of character, mobile number should contain digits with valid length and so on. and give feedback to Learner with registration details including registration number.

3) Write a PHP script to create a login form with a username and password.

Once the user logs in, the second form should be displayed to accept user details (name, city, phone no). If the user doesn't enter information within a specified time limit, expire his session and give a warning.

4) Write a PHP script to keep track of number of times the web page has been Accessed.

5) Write a PHP script to change the preferences of your web page like font style, font size, font color, background color using cookies. Display selected settings on next web page and actual implementation (with new settings) on the third web page.

Assignment 13

1) Write a PHP script to create a form to accept student information (name, class, address). Once the student information is accepted, accept marks in next form (Phy, Bio, Chem, Maths, Marathi, English). Display the mark sheet for the student in the next form containing name, class, marks of the subject, total and Percentage.

2) Write a PHP program to create a shopping mall UI. User must be allowed to do purchase from two pages. Each page should have a page total. The third page should display a bill, which consists of a page total of whatever the purchase has been done and printed the total. (Use http session tracking).

3) Write a PHP script to create a form to accept customer information (name, address, ph no). Once the customer information is accepted, accept product information in the next form (Product name, qty, rate). Display the bill for the customer in the next form. Bill should contain the customer information and the information of the products entered.

4) Write a PHP script to accept username and password. If in the first three chances, username and password entered is correct, then display second form, otherwise display an error message.

5) Consider the following entities and their relationships Emp
(emp_no, emp_name, address, phone, salary) Salary(em_pno, Basic, HR, TA, DA)
Dept (dept_no, dept_name, location) Emp-Dept are related with one-many
relationship Create a RDB for the above and solve the following Using the above database.
write a PHP script which will print a salary statement for specified emp_no with his details.

Assignment 14

- 1) Consider the following entities and their relationships Doctor (doc_no, doc_name, address, city, area) Hospital (hosp_no, hosp_name, hosp_city) Doctor and hospitals are related with many-many relationships. Create a RDB in 3 NF for the above and solve following Using above database, write a PHP script which accepts hospital name and print information about doctors visiting / working in that hospital in tabular format.
- 2) Considerer the following entities and their relationships project(pno integer, p_name char(30), p_type char(20),duration integer), employee (eno integer, e_name char (20), qualification char (15), join date date) .The relationship between project - employee: M-M, with descriptive attributes as start_date (date), no_of_hours_worked (integer). Using above database write a script in PHP to accept a project name from user and display information of employees working on the project.
- 3) Consider the following entities and their relationships student (sno integer, s_name char(30), s_class char(10), s_addr char(50)), teacher (tno integer, t_name char (20), qualification char (15),experience integer). The relationship between student-teacher: m-m with descriptive attribute subject. Using above database write a script in PHP to accept a teacher name from user and display the names of students along with subjects to whom the teacher is teaching.
- 4) Consider the following entities and their relationships Movie (movie_no, movie_name, release_year) Actor (actor_no, name) Relationship between movie and actors are many – many with attribute rate in Rs. Create a RDB in 3NF for the above and solve following Using above database, write PHP scripts for the following:(Hint: Create HTML form having three radio buttons) a) Accept actor name and display the names of the movies in which he has acted. b) Insert new movie information. c) Update the release year of a movie. (Accept the movie name from user).
- 5) Considerer the following entities and their relationships Student (Stud_id,name,class) Competition (c_no,c_name,type) Relationship between student and competition is many-many with attribute rank and year. Create a RDB

in 3NF for the above and solve the following. Using above database write a script in PHP to accept a competition name from user and display information of student who has secured 1st rank in that competition.

Suggested Readings:

1. Web Technologies: HTML, JAVASCRIPT, PHP, JAVA, JSP, XML and AJAX, Black Book Kindle Edition, by Kogent Learning Solutions Inc.
2. HTML 5 Black Book, Covers CSS 3, JavaScript, XML, XHTML, AJAX, PHP and jQuery, 2ed Kindle Edition, by DT Editorial Services
3. Programming PHP: Creating Dynamic Web Pages, Third Edition, by Kevin Tatroe, O'REILLY
4. Introduction to JavaScript Object Notation: A To-the-Point Guide to JSON kindle Edition by Lindsay Bassett, O'REILLY
5. Bootstrap: Responsive Web Development by Jake Spurlock, Paperback

Ahmednagar Jilha Maratha Vidya Prasarak Samaj's
New Arts, Commerce and Science College, Ahmednagar
(Autonomous)
Syllabus
B.Sc. (Computer Science) (Minor)

Title of the Course: Web Technology -II								
Year: II				Semester: IV				
Course Type	Course Code	Credit Distribution		Credits	Allotted Hours	Allotted Marks		
		Theory	Practical			CIE	ESE	Total
MNR-4	BS-CS401 T/P	02	01	03	60	30	70	100

Learning Objectives:

- To develop an ability to design and implement static and dynamic website
- Choose best technologies for solving web client/server problems
- Create conforming web pages
- To prepare PHP scripts
- Understand, analyze and create XML documents and XML Schema
- Understand, analyze and build web applications using PHP
- Use appropriate client-side or Server-side applications
- Handling Cookies and Sessions using PHP, SERVLETS and JSP

Course Outcomes:

1. Explain different components and technologies of World Wide Web as a platform.
2. Design and develop websites using fundamental web languages, technologies, and tools.
3. Distinguish between server-side and client-side web technologies.
4. Describe various web technology and application development issues and trends.
5. Conduct independent research on a subject related to the course material.

Detailed Syllabus:

(Allotted Lectures)

Unit I: Introduction to Object Oriented Programming in PHP

(04)

- 2.1 Server information
- 2.2 Processing forms
- 2.3 Sticky forms
- 2.4 Setting response headers

Unit II Web Techniques

(03)

- 2.1 Server information

2.2 Processing forms

2.3 Sticky forms

2.4 Setting response headers

Unit III: XML (05)

3.1 Introduction XML

3.2 XML document Structure

3.3 PHP and XML

3.4 XML parser

3.5 The document object model

3.6 The simple XML extension

3.7 Changing a value with simple XML

Unit IV: Ajax with PHP (04)

4.1 Understanding java scripts for AJAX

4.2 AJAX web application model

4.3 AJAX –PHP framework

4.4 Performing AJAX validation

4.5 Handling XML data using php and AJAX

4.6 Connecting database using php and AJAX

Unit V: Introduction to Web Services (06)

5.1 Definition of web services

5.2 Basic operational model of web services, tools and technologies enabling web services

5.3 Benefits and challenges of using web services.

5.4 Web services Architecture and its characteristics

5.5 Core building blocks of web services

5.6 Standards and technologies available for implementing web services

5.7 Web services communication models

5.8 Basic steps of implementing web services.

Unit VI: PHP Framework (Joomla / Druple) (08)

6.1 Introduction to Joomla/Druple

6.1.1 Introduction: which framework to introduce codeigniter/laravel

6.1.2 Joomla/Druple features

6.1.3 How joomla/Drupleworks ?

6.1.4 The platform Components, Modules and Plugins

6.2 Administering Joomla/Drupal

6.2.1 Presentation Administration

6.2.2 Content Administration

6.2.3 System Administration

6.3 Working with Joomla/Drupal

6.3.1 Adding articles

6.3.2 Adding menus to point to content

6.3.3 Installing new templates

6.3.4 Creating templates

6.3.5 Adding a Module and Component

6.3.6 Modifying the existing templates

6.3.7 Creating templates with web editors

Suggested Readings:

Lab Course on Web Technology - II Assignments:

Assignment 1

- 1) Write a PHP script to create a simple calculator that can accept two numbers and perform operations like addition, subtraction, multiplication etc.
- 2) Write a php script to create a student.xml file which contains student rollno, name, address, college and course. Print student details of specific courses in tabular format after accepting the course as input.
- 3) Write a simple PHP program which implements Ajax for subtraction of two numbers.
- 4) Write a script to solve following questions (Use "Student.xml" file)
 1. Create a DOM Document object and load this XML file.
 2. Get the output of this Document to the browser.
 3. Save this [. XML] document in another format i.e. in [.doc]

Write a XML Script to print the names of the students present in the

"Student.xml "

5) Write a Calculator class that can accept two values, then add, subtract, multiply them or divide them on request.

Assignment 2

1) Write a script to create "cricket.xml" file with multiple elements as shown below:

```
<CricketTeam>
<Team country="Australia">
<player> ----- <runs>
</player>-----</ runs>
<wicket>----- </wicket>
</Team>
</CricketTeam >
```

Write a script to add multiple elements in the "cricket.xml" file of category, country=" India".

2) Define a class Employee having private members - id, name, department, salary. Define parameterized constructors. Create a subclass called "Manager" with a private member bonus. Create 3 objects of the Manager class and display the details of the manager having the maximum total salary (salary + bonus).

3) Create an xml file which should comprise the following:

```
<cricket>
<player>Sachin Tendulkar</ player>
<runs>2000</runs>
<wickets> 100 </ wickets>
<noofnotout>20</noofnotout>
</cricket> For at least 5 players.
```

Write a PHP script to display the details of players who have scored more than 1200 runs and at least 50 wickets

4) Create an abstract class Shape with methods area() and volume(). Derive three classes: rectangle (length, breath), Circle(radius) and Cylinder(radius,

height) , Calculate area and volume of all. (Use Method overriding).

5) Create student table as follows: Student(sno, sname, standard, Marks, per). Write AJAX script to select the student name and print the student's details of a particular standard.

Assignment 3

1) Write a PHP script, which will return the following component of the URL (Using response header) `http://www.college.com/Science/CS.php`

2) Create an employee table as follows: EMP (eno, ename, designation, salary). Write an Ajax program to select the employees name and print the selected employee's details.

3) Consider the following relational database: Project

(P_Group No, Project_Title)

Student (Seat_no, Name, Class, P_Group_No)

Write an AJAX script to accept project titles and display a list of students who are working on a particular project.

4) Write a PHP Script to create class Shape and its subclass Triangle, Square, Circle and display area of selected shape (use concept of inheritance).

5) Write an Ajax script to get player details from an XML file when the user selects the player name. Create an XML file to store details of the player (name, country, wickets and runs).

Assignment 4

1) Write a PHP program to create a Class Calculator which will accept two values from user and pass as an argument through parameterized constructor and do the following task:

a) Add

b) Subtract

c) Multiply them together or divide them on request.

2) Consider the following entities and their relationships Movie(movie no, movie_name, release_year) Actor(actor no, name) Relationship between movie and actor is many-many with attribute rate in Rs. Create a RDB in 3 NF. With using three radio buttons (accept, insert, update)

Write an AJAX script to accept actor names and display names of movies in which he has acted.

- 3) Write a PHP Script to demonstrate the concept of Introspection for examining objects.(Using any 3 predefined functions)
- 4) Write a PHP script to perform the following stack related operationsinsert, display.(Use concept of self processing form)
- 5) Write a PHP script to perform the following stack related operationsdelete, display.(Use concept of self processing form)

Assignment 5

- 1) Write a PHP program to create a class circle having a radius data member and two member functions find_c ircumfer ence() and find _area(). Display area and circumference depending on user' s preference.
- 2) Write an Ajax code to print the content of "Myfile.dat" on clicking on fetch Button. The Data fetches from the server using Ajax Technique
- 3) Write a PHP program to convert temperature Fahrenheit to Celsius using sticky form.
- 4) Write a PHP program to convert temperature Celsius to Fahrenheit using sticky form.
- 5) Write an AJAX script to read the contact.dat file and print the content of a file in a tabular form when the user clicks on the print button. Contact.dat file contains srno, name, residence number, mobile number (Enter at least 3 records in contact.dat file)

Assignment 6

- 1) Create a form to accept Employee details and display it in the next page. (Use sticky form concept).
- 2) Create a web Application that contains Voters details and check proper validation for (name, age, and nationality), as Name should be in upper letters only, Age should not be less than 18 yrs and Nationality should be Indian.(use HTML-AJAX-PHP)
- 3) Write a PHP script to accept a string from user and then display the accepted string in reverse order.(use concept of self processing form)
- 4) Write a PHP script to accept a string from user and then display the

accepted string in Uppercase.(use concept of self processing form)

5) Write a PHP script using AJAX concept, to check if username and passwords are valid or Invalid (use a database to store username and password).

Assignment 7

1) Write a PHP program to select a list of subjects from the list box and display the selected subject information on the next page. (Use sticky Multi Value parameter).

2) Write a PHP script using AJAX concept, to give hints to the user when he/she types a city name in the text field.

3) Write an Ajax program to carry out validation for a username entered in the textbox. If the textbox is blank, print ' Enter username ' . If the number of characters is less than three, print ' Username is too short ' . If the value entered is appropriate the print ' Valid username ' .

4) Write a PHP Script to display Server information in table format (Use \$_SERVER).

5) Write a script to create an XML file "University.xml". The elements details of "University.xml" are as follows:

```
<Univ> <Uname>-----</Uname>
<City>----- </City>
<Rank>----- </Rank>
</Univ>
```

1) Store the details of at least 3 universities.

2) Link the "University.xml" file to css and get well formatted output as given below,...

i) Uname: Color : black;

Font-family: copperplate Gothic Light;

Font-size: 16 pt

Font: Bold;

ii) City and Rank : Color : Yellow;

Font-family: Arial;

Font-size: 12 pt

Font: Bold;

Assignment 8

1) Write a PHP program to create a simple distance calculator that can accept distance in meters from the user. Convert it into centimeters or kilometers according to user preference. (use radio buttons and Self Processing form)

2) Write a PHP script to generate an XML in the following format.

```
<?xml version = " 1.0" ?>
<BookStore>
<Books>
<PHP>
<title>Programming PHP</title>
<publication>O 'RELLY</ publication>
<price>800</price>
</PHP>
<PHP>
<title>Beginners PHP</title>
<publication>WROX</publication>
<price>900</price>
</PHP>
</Books>
</BookStore>
```

Add more than 5 book details . Display details of the book by selecting the publication of the book from the user.

3) Write an Ajax program to get book details from an XML file when the user selects a book name. Create an XML file to store details of the book(name, author, year and price).

4) Create a XML file which gives details of movies available in "Venus CD Store" from following categories a) Classical b) Action c) Horror Elements in each category are in the following format

```
<Category>
<Movie Name>-----</Movie Name>
<Release Year>----- </Release Year>
```

<Actor Name> -----</Actor Name>

</Category>

Save the file with the name "movies.xml".

5) Write a simple PHP program which implements Ajax to check armstrong number.

Assignment 9

1) Write a script to create XML file named "Course.xml"

<Course>

<Computer Science>

<Student name>.</Student name>

<Class name >..... </Class name>

<percentage>..... </percentage>

</Computer Science>

</Course>

Store the details of 5 students who are in sy class

2) Create an XML file which gives details of books available in " Pragati Bookstore" from the following categories.

1) Yoga 2) Story 3) Technical

and elements in each category are in the following format

<Book>

<Book Title>----- </Book Title>

<Book Author> -----</Book Author>

<Book Price> ----- </Book Price>

</Book>

Save the file as " Bookcategory.xml"

3) Create an application that reads a "Sports.xml" file into a simple XML object. Display attributes and elements. (Hint: Use simple_xml_load_fileO function)

4) Write Ajax program to print Movie details by selecting an Actor's name. Create table MOVIE and ACTOR as follows with 1 : M cardinality MOVIE (mno, mname, release_yr) and ACTOR(ano, aname).

5) Write a script to create XML file named "College.xml" The element details of "College.xml" are:

<College >

<Cname> ----- </Cname>

<City>----- </City>

<Rank>----- </Rank>

</College>Display at least 3 college Information.

Assignment 10

1) Write a script to create "vehicle.xml" file with multiple elements as given below

<Vehicle>

<Type = Two Wheeler>

<Vehicler Name >----- </vehicle Name >

<Company > ----- </Company>

<Color>-----</Color>

<Average>----- </Average>

</Type>

<N vehicle>

Also add Type = " Four Wheeler" and its elements

2) Write a PHP program to implement Create, Read, Update and Display operations on the Teacher table with attributes (tid, tname, address, subject).

(UseRadioButtons)

3) Write a simple PHP program which implements Ajax for addition of two numbers.

4) Write a simple PHP program which implements Ajax for Factorial of a number.

5) Write a PHP script to read book.XML and print book details in tabular format using simple XML(Content of book.XML are book_code, book_name, author, year ,price).

Assignment 11

1) Write an Ajax program to display a list of games stored in an array on clicking the OK button

2) Write a PHP script using AJ AX concept, to develop user-friendly and interactive search engine (like a Google search engine)

3) Write a PHP Script to create a superclass Vehicle having members

Company and price. Derive 2 different classes:

LightMotorVehicle (members - mileage)

HeavyMotorVehicle (members - capacity-in-tons).

4) Derive a class Rectangle from class Square. Create one more class

Triangle. Create an interface with only one method called cal_area ().

Implement this interface in all the classes. Include appropriate data members and constructors in all classes. Write a program to accept details of a Rectangle, Square and Triangle and display the area.

5) Write a simple PHP program which implements Ajax for multiplication of two numbers.

Assignment 12

1) write a Ajax program to display list of games stored in an array on clicking OK button

2) Create a student table. Write an AJAX program to select the student name and print the details

of the selected student.

3) Write a PHP script to demonstrate the introspection for examining classes and objects.

4) Write a simple PHP program which implements Ajax to find leap year.

5) Write a PHP script for the following: Design a form to accept a number from the user. Perform the operations and show the results.

1) Fibonacci Series.

2) To find the sum of the digits of that number.

(Use the concept of a self processing page.)

Assignment 13

1) Write a PHP Script to create a superclass School having members Students and Teachers. Derive 2 different classes from them.

2) Write a simple PHP program which implements Ajax to find fibonacci series.

3) Write a PHP program to select a list of students from the list box and display the selected students' information on the next page. (Use sticky MultiValue parameter).

4) Write a PHP script to accept a string from user and then display the accepted string in Lowercase.(use concept of self processing form)

- 5) Write a PHP script using AJAX concept, to check if username and passwords are valid or Invalid (use a database to store username and password).
If valid then show users details(name,age,mobile num)

Assignment 14

- 1) Define a class Student having private members - id, name, department. Define parameterized constructors. Create a subclass called "Marks". Create 3 objects of the Marks class and display the details of the student having the maximum marks.
- 2) Write a php script to create a emp.xml file which contains empid, name, address, designation and salary. Print employee details of specific designation in tabular format after accepting the designation as input.
- 3) Write an Ajax program to get emp details from an XML file when the user selects a emp name. Create an XML file to store details of the emp(name,dept, dob and salary).
- 4) Create a form to accept student details and display it in the next page.(Use sticky form concept).
- 5) Write a simple PHP program which implements Ajax to check palindrome

Suggested Readings:

1. Web Technologies: HTML, JAVASCRIPT, PHP, JAVA, JSP, XML and AJAX, Black Book Kindle Edition,by Kogent Learning Solutions Inc.
2. HTML 5 Black Book, Covers CSS 3, JavaScript, XML, XHTML, AJAX, PHP and jQuery, 2ed Kindle Edition,by DT Editorial Services
3. Programming PHP: Creating Dynamic Web Pages, Third Edition, by Kevin Tatroe, O'REILLY
4. Introduction to JavaScript Object Notation: A To-the-Point Guide to JSON kindle Edition by Lindsay Bassett,O'REILLY
5. Bootstrap: Responsive Web Development by Jake Spurlock, Paperback