

AC –  
Item No. –

## As Per NEP 2020



Parle Tilak Vidyalaya Association's  
**M. L. DAHANUKAR COLLEGE OF COMMERCE**  
**(AUTONOMOUS)**  
Vile Parle East, Mumbai  
Affiliated to University of Mumbai  
Accredited 'B+' Grade by NAAC



<b>Syllabus for Major / VSC / SEC / VEC / Basket of OE / Minor / AEC</b>	
<b>Board of Studies in Information Technology and Data Science</b>	
<b>UG First Year Programme</b>	
<b>Semester</b>	<b>I</b>
<b>Title of Paper</b>	<b>Credits</b>
<b>Fundamentals of Programming</b>	<b>02</b>
<b>From the Academic Year</b>	<b>2024-25</b>

Sr. No.	Heading	Particulars
1	<b>Description of the course:</b>  <b>Including but not limited to:</b>	The course is designed to provide a comprehensive understanding of the basics of programming using C language. It covers a wide range of topics, from the fundamental concepts of programming to more advanced topics such as pointers, structures and file handling.
2	<b>Vertical:</b>	Major
3	<b>Type:</b>	Theory
4	<b>Credit:</b>	2 credits (1 credit = 15 Hours of Theory Work in a Semester)
5	<b>Hours Allotted:</b>	30 Hours
6	<b>Marks Allotted:</b>	50 Marks
7	<b>Course Objectives:</b> 1. To develop logical ability. 2. To understand and apply basic programming concepts.	
8	<b>Course Outcomes:</b> <b>CO1:</b> Learners will be able write C programs using core syntax and structures. <b>CO2:</b> Learners will be able to solve programming problems and create basic C applications.	
9	<b><u>Module I:</u></b> <b><u>Unit I: C Programming Fundamentals</u></b> <b>Introduction to Programming:</b> What is Programming, Why C, Applications of C Programming, History of C  <b>C Programming Basics:</b> Program Structure, Character Set, Keywords, Identifiers, Variables, Datatypes, Constants, typedef, typecasting, Standard Input and Output, Formatted Input and Output  <b>Operators and Expressions:</b> Arithmetic, Relational, Logical, Assignment, Increment and decrement, Precedence and Associativity of Operators  <b>Control Flow Statements:</b> If-else, Switch Case, While Loops, Do-while Loops, For Loops, Break and Continue Statements, Nesting of Control Flow Statements, Goto and Labels  <b>Functions:</b> Defining and Calling Functions, Variable Scope, User Defined and Library Functions  <b>Arrays:</b> One-dimensional Arrays, Two-dimensional Arrays.	
	<b><u>Module II:</u></b> <b><u>Unit II: Pointers, Structures and File Handling in C:</u></b> <b>Pointers:</b> Pointer Basics, Pointer Arithmetic, Arrays and Pointers, Passing Arrays to Functions using Pointer, Dynamic Memory Allocation.  <b>Structures and Unions:</b> Defining Structures, Accessing Structure Members, Arrays of Structures, Unions.  <b>Strings:</b> String Basics, String Library Functions, String Manipulation Techniques.  <b>File Handling:</b> File I/O concept, Basic file operations, Random Access to Files.	

<b>10</b>	<b>Teacher's Material:</b> Study material prepared by the faculty members of P.T.V.A.'s M.L. Dahanukar College of Commerce (Autonomous), Vile Parle (E), Mumbai.					
<b>11</b>	<b>Reference Books:</b>					
	<b>Sr no</b>	<b>Title</b>	<b>Author</b>	<b>Publisher</b>	<b>Editor</b>	<b>Year</b>
	1.	Head First C	David Griffiths, Dawn Griffiths	O'Reilly Media	First	2012
	2.	C Programming in easy steps	Mike McGrath	In Easy Steps Limited	Sixth	2020
	3.	Programming in ANSI C	E. Balaguruswamy	Tata McGraw Hill	Seventh	1982
	4.	Let us C	Yashwant P. Kanetkar	BPB publication	Fifteen	2016
	5.	C Programming Absolute Beginner's Guide	Greg Perry, Dean Miller	Que Publishing	Fourth	2022
<b>12</b>	<b>Internal Continuous Assessment: 40%</b>			<b>External Semester End Examination: 60%</b>		
<b>Individual Passing in Internal and External Examination</b>						
<b>13</b>	<b>Continuous Evaluation through:</b>					
	1. Project Presentation / Case Study / Assignment / Viva / Active Participation					10 Marks
	2. Class Test					10 Marks
	Total					20 Marks
<b>14</b>	<b>Format of Question Paper:</b> For the semester end examination					
	Q1. Attempt any 3 (out of 5) (Based on Unit I)					15 Marks
	Q2. Attempt any 3 (out of 5) (Based on Unit II)					15 Marks
	Total					30 Marks

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<b>Board of Studies in Information Technology and Data Science</b>	
<b>UG First Year Programme</b>	
<b>Semester</b>	<b>I</b>
<b>Title of Paper</b>	<b>Credits</b>
<b>Data Organization</b>	<b>02</b>
<b>From the Academic Year</b>	<b>2024-25</b>

Sr. No.	Heading	Particulars
1	<b>Description of the course:</b> <b>Including but not limited to:</b>	This course provides a comprehensive introduction to fundamental components in the realm of data management – Database Management Systems (DBMS) and Relational Database Management Systems (RDBMS).
2	<b>Vertical:</b>	Major
3	<b>Type:</b>	Theory
4	<b>Credit:</b>	2 credits (1 credit = 15 Hours of Theory Work in a Semester)
5	<b>Hours Allotted:</b>	30 Hours
6	<b>Marks Allotted:</b>	50 Marks
7	<b>Course Objectives:</b>	<ol style="list-style-type: none"> <li>1. To understand the purpose, advantages and characteristics of Database Management Systems (DBMS).</li> <li>2. To develop proficiency in using Relational Database Management Systems (RDBMS) to store, retrieve and manipulate data efficiently.</li> </ol>
8	<b>Course Outcomes:</b>	<p><b>CO1:</b> Learners will have comprehensive understanding of purpose, advantages and key characteristics of Database Management Systems (DBMS).</p> <p><b>CO2:</b> Learners will be able to demonstrate the ability to design and implement Relational Database Management Systems (RDBMS), ensuring efficient data management in real-world scenarios.</p>
9	<p><b><u>Module I:</u></b> <b><u>Unit I: Introduction to Database Management Systems</u></b></p>	<p>Purpose and importance of databases, Advantages of using DBMS, Characteristics of DBMS, Three-layer architecture, Data independence, Basic building block of data model, Relational Model, ER model, Types of keys, Normalization (first, second and third normal form)</p>
10	<b>Teacher's Material:</b>	Study material prepared by the faculty members of P.T.V.A.'s M.L. Dahanukar College of Commerce (Autonomous), Vile Parle (E), Mumbai.

<b>11</b>	<b>Reference Books:</b>					
	<b>Sr no</b>	<b>Title</b>	<b>Author</b>	<b>Publisher</b>	<b>Editor</b>	<b>Year</b>
	1.	Database System Concepts	Abraham Silberschatz, Henry Korthand S. Sudarshan	McGraw-Hill Education	Seventh	2019
	2.	Fundamentals of Database Systems	Elmasri Ramez, Navathe Shamkant.	Pearson	Seventh	2015
	3.	Database Management Systems	Raghu Ramakrishnan, Johannes Gehrke,	McGraw Hill	Third	2003
	4.	Database Management Systems: Concepts, Design and Practice	Rajesh Narang	PHI Learning Pvt. Ltd.	First	2012
5.	Database System Concepts	S. K. Singh, Shabana Mansoor	Pearson	First	2017	
<b>12</b>	<b>Internal Continuous Assessment: 40%</b>			<b>External Semester End Examination: 60%</b>		
	<b>Individual Passing in Internal and External Examination</b>					
<b>13</b>	<b>Continuous Evaluation through:</b>					
	1. Project Presentation / Case Study / Assignment / Viva / Active Participation					10 Marks
	2. Class Test					10 Marks
	Total					20 Marks
<b>14</b>	<b>Format of Question Paper:</b> For the semester end examination					
	Q1. Attempt any 3 (out of 5) (Based on Unit I)					15 Marks
	Q2. Attempt any 3 (out of 5) (Based on Unit II)					15 Marks
	Total					30 Marks

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<b>Board of Studies in Information Technology and Data Science</b>	
<b>UG First Year Programme</b>	
<b>Semester</b>	<b>I</b>
<b>Title of Paper</b>	<b>Credits</b>
<b>Major Practical I</b>	<b>02</b>
<b>From the Academic Year</b>	<b>2024-25</b>

Sr. No.	Heading	Particulars
1	<b>Description of the course:</b>  <b>Including but not limited to:</b>	Hands-on practical sessions based on Fundamentals of Programming and Data Organization will enable learners to apply theoretical knowledge to real-world scenarios, fostering a deeper understanding of programming and data organization principles.
2	<b>Vertical:</b>	Major
3	<b>Type:</b>	Practical
4	<b>Credit:</b>	2 credits (1 credit = 30 Hours of Practical Work in a Semester)
5	<b>Hours Allotted:</b>	60 Hours
6	<b>Marks Allotted:</b>	50 Marks
7	<b>Course Objectives:</b> <ol style="list-style-type: none"> <li>1. To understand core C concepts like variables, data types and control flow.</li> <li>2. To illustrate the difficult concepts using programming examples.</li> <li>3. To understand various SQL statements for defining data in a database management system.</li> <li>4. To learn fundamental SQL statements for manipulating data in a database management system.</li> <li>5. To understand and apply various constraints and data manipulation techniques in SQL for effective data management and retrieval.</li> <li>6. To comprehend and apply aggregate and mathematical functions in SQL for data analysis and manipulation.</li> <li>7. To comprehend the concepts of views and joins in SQL and their application in database querying and management.</li> </ol>	
8	<b>Course Outcomes:</b> <b>CO1:</b> Learners will be able to solve programming problems and create basic C applications. <b>CO2:</b> Learners will be able to Debug the program. <b>CO3:</b> Learners will be able to effectively utilize SQL statements such as CREATE, ALTER, DROP, TRUNCATE and RENAME to define and manage database objects, facilitating efficient database design and maintenance. <b>CO4:</b> Learners will be proficient in using SQL statements such as INSERT, UPDATE, SELECT and DELETE to manipulate data within a database. <b>CO5:</b> Learners will effectively utilize SQL aggregate and mathematical functions to analyze data and perform precise calculations within a database environment. <b>CO6:</b> Learners will be able to design and implement database tables with appropriate constraints. Also demonstrate proficiency in retrieval and data manipulation. <b>CO7:</b> Learners will proficiently create and utilize views and employ various types of joins to combine data from multiple tables, facilitating streamlined data analysis and reporting in relational databases.	



**Module I:****Unit I: Fundamentals of Programming****List of Practical:****1. Basics of C Programming**

- a. Write a C program that prompts the user for their name and then prints a greeting message that includes their name.
- b. Write a C program to perform arithmetic operation of two numbers by taking input from user.
- c. Write a C program to Find the Size of int, float, double and char
- d. Write a C program to calculate the simple interest based on the principal amount, rate and time.
- e. Write a C program using goto statement.

**2. Conditional Statements and Loops**

- a. Write a C program to check entered character is vowel or consonant.
- b. Write a C program to calculate factorial of a number.
- c. Write a C program to generate different patterns.
- d. Write a C program to check whether number enter by user is even or odd.
- e. Write a C program to take input from the user and print the table of a number up to 10.
- f. Write a C program using switch case to perform add / subtract/ multiply / divide based on the user's choice.
- g. Write a C program that takes a person's age as input and prints the age group they belong to based on the following criteria:  
Child: 0-12 years  
Teenager: 13-19 years  
Adult: 20-59 years  
Senior: 60 years and above

**3. Functions and Arrays**

- a. Write a C program to add to matrix of size m\*n and display answer in matrix format.
- b. Write a C program to print roll no and names of 10 students using array.
- c. Write a C Program to create a function that finds the maximum element in an array of integers.
- d. Write a C program to sort the elements of array in ascending or descending order.
- e. Write a C program to swap two numbers using a function. Pass the values to be swapped to this function using call-by-value method and call-by reference method.
- f. Write a C program to print area of square using function.

**4. Strings and Pointers**

- a. Write a C program that checks if a given string is a palindrome or not palindrome.
- b. Write a C program to demonstrate use of string functions.
- c. Write a C program to perform addition and subtraction using pointer.
- d. Write a C program to swap two numbers using pointers.

**5. Structures and File Handling**

- a. Write a C program to print the structure using
  - Title
  - Author
  - Subject
  - Book ID

	Print the details of two students.
b.	Write a C program that reads the contents of a text file and prints them to the console.
c.	Write a C program that creates a simple text file and writes a message to it.
d.	Write a C program to copy the contents of the file from one file into other.

**Module II:**

**Unit II: Data Organization**

**List of Practical:**

**1. Defining Data**

- a. Using CREATE Statement.
- b. Using ALTER Statement.
- c. Using DROP Statement.
- d. Using TRUNCATE Statement.
- e. Using RENAME Statement.

**2. Manipulating Data**

- a. Using INSERT Statement.
- b. Using UPDATE Statement.
- c. Using SELECT Statement.
- d. Using DELETE Statement.
- e. Saving (commit) and undoing (rollback).

**3. Constraints, Restricting and Sorting data**

- a. Creating Table with Constraints: PRIMARY KEY, FOREIGN KEY, NOT NULL, UNIQUE, DEFAULT.
- b. Using DISTINCT, IN, AS, LIKE, IS NULL.
- c. Using Group By, Having Clause, Order By.
- d. Conceptual Designing using ER Diagrams (Identifying entities, attributes, keys and relationships between entities, cardinalities etc).

**4. Aggregate and Mathematical Functions**

- a. AVG(), MIN(), MAX(), SUM(), COUNT().
- b. ABS, SQRT, ROUND, TRUNCATE, SIGN, POWER, MOD, CEIL, FLOOR.

**5. Views and Joins**

- a. Creating view, dropping view.
- b. Illustrating types of views.
- c. Illustrating types of joins.
- d. With IN clause.
- e. With EXISTS clause.

<b>10</b>	<p><b>Teacher's Material:</b> Study material prepared by the faculty members of P.T.V.A.'s M.L. Dahanukar College of Commerce (Autonomous), Vile Parle (E), Mumbai.</p>
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<b>11</b>	<b>Reference Books:</b>					
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	1.	Head First C	David Griffiths, Dawn Griffiths	O'Reilly Media	First	2012
	2.	C Programming in easy steps	Mike McGrath	In Easy Steps Limited	Sixth	2020
	3.	Programming in ANSI C	E. Balaguruswamy	Tata McGraw Hill	Seventh	1982
	4.	Let us C	Yashwant P. Kanetkar	BPB publication	Fifteen	2016
	5.	C Programming Absolute Beginner's Guide	Greg Perry, Dean Miller	Que Publishing	Fourth	2022
	6.	Database System Concepts	Abraham Silberschatz, Henry Korthand S. Sudarshan	McGraw-Hill Education	Seventh	2019
	7.	Fundamentals of Database Systems	Elmasri Ramez, Navathe Shamkant.	Pearson	Seventh	2015
	8.	Database Management Systems	Raghu Ramakrishnan, Johannes Gehrke,	McGraw Hill	Third	2003
	9.	Database Management Systems: Concepts, Design and Practice	Rajesh Narang	PHI Learning Pvt. Ltd.	First	2012
10.	Database System Concepts	S. K. Singh, Shabana Mansoor	Pearson	First	2017	
<b>12</b>	<b>Internal Continuous Assessment: 40%</b>			<b>External Semester End Examination: 60%</b>		
<b>Individual Passing in Internal and External Examination</b>						
<b>13</b>	<b>Continuous Evaluation through:</b> Performing and Preparation of Journal (10 Hands-on Practical * 02 marks each)					20 Marks
<b>14</b>	<b>Format of Question Paper:</b> For the semester end examination 02 Questions (Hands-on Practical) + Viva					15 Marks each
	<b>OR</b> 03 Questions (Hands-on Practical) + Viva					10 Marks each

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<b>Board of Studies in Information Technology and Data Science</b>	
<b>UG First Year Programme</b>	
<b>Semester</b>	<b>II</b>
<b>Title of Paper</b>	<b>Credits</b>
<b>Object Oriented Programming</b>	<b>02</b>
<b>From the Academic Year</b>	<b>2024-25</b>

Sr. No.	Heading	Particulars
1	<b>Description of the course:</b>  <b>Including but not limited to:</b>	This course provides a comprehensive introduction to Object-Oriented Programming (OOP) concepts and C++ basics. Starting with an overview of OOP principles like encapsulation, inheritance and polymorphism, it gradually delves into C++ programming fundamentals including data types, control flow and operators. Additionally, it covers advanced topics such as inheritance, exception handling, file handling and the utilization of pointers and virtual functions in C++ programming. By the end, learners will have a solid understanding of OOP principles and be proficient in applying them using C++.
2	<b>Vertical:</b>	Major
3	<b>Type:</b>	Theory
4	<b>Credit:</b>	2 credits (1 credit = 15 Hours of Theory Work in a Semester)
5	<b>Hours Allotted:</b>	30 Hours
6	<b>Marks Allotted:</b>	50 Marks
7	<b>Course Objectives:</b> 1. To understand the core principles of OOP, including objects, classes, encapsulation, data abstraction, inheritance and polymorphism. 2. To apply basic C++ syntax and constructs for building OOP applications.	
8	<b>Course Outcomes:</b> <b>CO1:</b> Learners will be able to Design and implement simple classes with member variables and member functions to represent real-world entities. <b>CO2:</b> Learners will be able to Implement C++ code using basic syntax and control flow structures.	
9	<b><u>Module I:</u></b> <b><u>Unit I: Introduction to Object-Oriented Programming (OOP) Concepts and C++ Basics:</u></b> <b>Object Oriented Methodology:</b> Introduction, Advantages and Disadvantages of Procedure Oriented Languages, what is Object Oriented, Benefits and Application of OOPs.  <b>Principles of OOPs:</b> Objects and Classes, Encapsulation, Data Abstraction, Inheritance, Polymorphism.  <b>C++ Programming Basics:</b> Structure of a C++ Program, Character Set, Keywords, Identifiers, Variables, Datatypes, Constants, Control Flow Statements, Conditional Statements.  <b>Operators And References in C++:</b> Introduction, Scope Resolution Operator, Reference Variables, The Bool Data Type, The Operator New and Delete, Pointer Member Operators.  <b>Classes and Objects in C++:</b> Defining Classes, Creating Objects, Defining Member Variables, Defining and Calling Member Functions Definition, Access Specifiers, Constructors and Destructors.  <b>Polymorphism:</b> Concept of function overloading, overloaded operators, overloading unary and binary operators, friend functions.	

**Module II:****Unit II: Inheritance, Exception Handling and File Handling in C++:**

**Pointers to Objects and Virtual Functions:** Pointer to Objects, This Pointer, what is Binding in C++, Virtual Functions, Rules for Virtual Function, Pure Virtual Function, Abstract Class.

**Inheritance in C++:** Introduction, Types of Inheritance, Public, Private and Protected Inheritance.

**Exception Handling:** Introduction, Exception Handling Mechanism, Concept of throw & catch with example.

**Strings:** String Basics, String Library Functions, String Manipulation Techniques, Accessing Characters in Strings, Comparing and Swapping

**Templates:** Introduction, Function Template and examples, Class Template and examples

**File Handling:** File I/O concept, Basic file operations, Random Access to Files.

**10 Teacher's Material:**  
Study material prepared by the faculty members of P.T.V.A.'s M.L. Dahanukar College of Commerce (Autonomous), Vile Parle (E), Mumbai.

**11 Reference Books:**

Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Object-Oriented Programming in C++	Robert Lafore	Sams Publishing	Forth	2002
2.	C++ Primer	Stanley B. Lippman, Josée Lajoie and Barbara E. Moo	Addison-Wesley	Sixth	2021
3.	Object Oriented Programming with C++	E. Balaguruswamy	Tata McGraw Hill	Eighth	2020
4.	Let us C	Yashwant P. Kanetkar	BPB publication	Fifteen	2016
5.	A Tour of C++	Bjarne Stroustrup	Addison-Wesley Professional	Second	2018

**12 Internal Continuous Assessment: 40%**      **External Semester End Examination: 60%**

**Individual Passing in Internal and External Examination**

**13 Continuous Evaluation through:**

1. Project Presentation / Case Study / Assignment / Viva / Active Participation	10 Marks
2. Class Test	10 Marks
Total	20 Marks

**14 Format of Question Paper:** For the semester end examination

Q1. Attempt any 3 (out of 5) (Based on Unit I)	15 Marks
Q2. Attempt any 3 (out of 5) (Based on Unit II)	15 Marks
Total	30 Marks

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<b>Board of Studies in Information Technology and Data Science</b>	
<b>UG First Year Programme</b>	
<b>Semester</b>	<b>II</b>
<b>Title of Paper</b>	<b>Credits</b>
<b>Web Programming</b>	<b>02</b>
<b>From the Academic Year</b>	<b>2024-25</b>

Sr. No.	Heading	Particulars
1	<b>Description of the course:</b>  <b>Including but not limited to:</b>	This course provides a comprehensive introduction to web development with JavaScript and PHP, covering both client-side and server-side scripting. In Module I, learners will learn JavaScript fundamentals including variables, data types, functions and the Browser Object Model. Module II delves into server-side scripting with PHP, covering syntax, control structures, form handling and database interaction using MySQL. With a focus on practical skills, learners will gain the knowledge needed to create dynamic and interactive web applications.
2	<b>Vertical:</b>	Major
3	<b>Type:</b>	Theory
4	<b>Credit:</b>	2 credits (1 credit = 15 Hours of Theory Work in a Semester)
5	<b>Hours Allotted:</b>	30 Hours
6	<b>Marks Allotted:</b>	50 Marks
7	<b>Course Objectives:</b> <ol style="list-style-type: none"> <li>1. To explore JavaScript's role in enhancing the interactivity and dynamism of static HTML pages.</li> <li>2. To gain insights into the functionality of client-side and server-side scripting in web development.</li> <li>3. To acquire proficiency in utilizing PHP for establishing connections to databases, enabling storage and retrieval of data.</li> </ol>	
8	<b>Course Outcomes:</b> <b>CO1:</b> Learners will be able to demonstrate the skill to employ JavaScript effectively in transforming static HTML pages into dynamic and interactive web experiences. <b>CO2:</b> Learners will possess a comprehensive understanding of client-side and server-side scripting mechanisms and its significance in web development workflows. <b>CO3:</b> Learners will showcase proficiency in utilizing PHP effectively to interact with databases, enabling seamless data storage and retrieval functionalities in web applications.	
9	<b><u>Module I:</u></b> <b><u>Unit I: JavaScript</u></b> <b>Introduction:</b> Client-side and server-side scripting, JavaScript Variables and Constants, Data Types, Operators, Statements, Comments, Functions, Variable Scope, Dialog Boxes  <b>Statements:</b> Conditional Statements – if else, switch, Loops – while, do while, for, for in, for of, Loop Control – break, continue, labels  <b>JavaScript Objects:</b> User-defined Objects, with Keyword, Native Objects – Array, String, Date, Math, RegExp  <b>Browser Object Model:</b> Moving back and forward with History, Cookies  <b>Events and Event Handlers:</b> Keyboard, Mouse, Form, Document, Window	



**Module II:****Unit II: PHP**

**Introduction:** Server-side Scripting, PHP Syntax and Comments, Variables and Constants, Data Types, Control Structures, Looping, Loop Termination, Functions, PHP Form Handling, Superglobals

**PHP Advanced:** PHP Arrays, PHP Strings, PHP RegExp, PHP Math, Basic PHP Errors, PHP Date and Time, PHP Include, PHP Cookies, PHP Sessions

**PHP and MySQL:** Connect to MySQL, Creating Database and Tables, Inserting Single and Multiple Rows, Retrieving Last ID, MySQL Prepared, Selecting Data, Updating Data, Deleting Data, Limiting Data.

**10 Teacher's Material:**  
Study material prepared by the faculty members of P.T.V.A.'s M.L. Dahanukar College of Commerce (Autonomous), Vile Parle (E), Mumbai.

**11 Reference Books:**

Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Learning PHP, MySQL, JavaScript, CSS & HTML5	Robin Nixon	O'Reilly	Third	2018
2.	Learning Web Design A Beginner's Guide to Html, CSS, JavaScript and Web Graphics	Jennifer Niederst Robbins	O'Reilly	Fifth	2018
3.	The Complete Reference JavaScript	Thomas A. Powell & Fritz Schneider	McGraw Hill	Third	2012
4.	PHP: The Complete Reference	Steven Holzner	McGraw Hill Education	First	2017
5.	PHP & MySQL Novice to Ninja	Tom Butler	SPD	Seventh	2022

**12 Internal Continuous Assessment: 40%**      **External Semester End Examination: 60%**

**Individual Passing in Internal and External Examination**

**13 Continuous Evaluation through:**

1. Project Presentation / Case Study / Assignment / Viva / Active Participation	10 Marks
2. Class Test	10 Marks
Total	<u>20 Marks</u>

**14 Format of Question Paper:** For the semester end examination

Q1. Attempt any 3 (out of 5) (Based on Unit I)	15 Marks
Q2. Attempt any 3 (out of 5) (Based on Unit II)	15 Marks
Total	<u>30 Marks</u>

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<b>Semester</b>	<b>II</b>
<b>Title of Paper</b>	<b>Credits</b>
<b>Major Practical II</b>	<b>02</b>
<b>From the Academic Year</b>	<b>2024-25</b>

Sr. No.	Heading	Particulars												
1	<b>Description of the course:</b>  <b>Including but not limited to:</b>	Hands-on practical sessions based on Object Oriented Programming and Web Programming will enable learners to apply theoretical knowledge to implement various programming concepts and building interactive web applications.												
2	<b>Vertical:</b>	Major												
3	<b>Type:</b>	Practical												
4	<b>Credit:</b>	2 credits (1 credit = 30 Hours of Practical Work in a Semester)												
5	<b>Hours Allotted:</b>	60 Hours												
6	<b>Marks Allotted:</b>	50 Marks												
7	<b>Course Objectives:</b> <ol style="list-style-type: none"> <li>1. To understand fundamental OOP concepts like classes, objects, constructors, destructors and inheritance by applying them to real-world scenarios.</li> <li>2. To design, implement and test C++ programs using OOP principles, developing their ability to solve problems effectively through object-oriented design.</li> <li>3. To enhance the flexibility of web pages through the implementation of client-side scripting.</li> <li>4. To configure and operate a local web server to execute a basic web application.</li> <li>5. To utilize PHP to access and manipulate data stored in MySQL databases effectively.</li> </ol>													
8	<b>Course Outcomes:</b> <b>CO1:</b> Learners will be able to apply object-oriented design principles to solve real-world programming problems effectively. <b>CO2:</b> Learners will be able to develop well-structured, maintainable and reusable C++ programs using core OOPs concepts. <b>CO3:</b> Learners will be able to create dynamic and engaging web pages utilizing client-side scripting (JavaScript). <b>CO4:</b> Learners will demonstrate the capability to set up and manage local web servers, enabling them to deploy and execute simple web applications locally for testing and development purposes. <b>CO5:</b> Learners will be able to utilize PHP for efficient data storage and retrieval operations on a server.													
9	<b><u>Module I:</u></b>  <b><u>Unit I: Object Oriented Programming</u></b>  <table border="1" data-bbox="224 1612 1533 1982"> <thead> <tr> <th colspan="2" data-bbox="224 1612 1533 1654"><b>List of Practical:</b></th> </tr> </thead> <tbody> <tr> <td data-bbox="224 1654 302 1690"><b>1.</b></td> <td data-bbox="302 1654 1533 1690"><b>Class and Object</b></td> </tr> <tr> <td data-bbox="224 1690 302 1766">a.</td> <td data-bbox="302 1690 1533 1766">Write a C++ program using classes and object Student to print name of the student, roll_no. Display the same.</td> </tr> <tr> <td data-bbox="224 1766 302 1877">b.</td> <td data-bbox="302 1766 1533 1877">Write a C++ program to design an employee class for reading and displaying the employee information, the getInfo () and displayInfo () methods will be used respectively. Where getInfo () will be private method.</td> </tr> <tr> <td data-bbox="224 1877 302 1948">c.</td> <td data-bbox="302 1877 1533 1948">Write a C++ program to demonstrate function definition outside class and accessing class members in function definition.</td> </tr> <tr> <td data-bbox="224 1948 302 1982"></td> <td data-bbox="302 1948 1533 1982"></td> </tr> </tbody> </table>		<b>List of Practical:</b>		<b>1.</b>	<b>Class and Object</b>	a.	Write a C++ program using classes and object Student to print name of the student, roll_no. Display the same.	b.	Write a C++ program to design an employee class for reading and displaying the employee information, the getInfo () and displayInfo () methods will be used respectively. Where getInfo () will be private method.	c.	Write a C++ program to demonstrate function definition outside class and accessing class members in function definition.		
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<b>2.</b>	<b>Static, Friend Functions and Operator Overloading</b>
a.	Write a C++ program to design a class having static member function named showcount () which has the property of displaying the number of objects created of the class.
b.	Write a C++ program to find Maximum out of Two Numbers using friend function. (Note: Here one number is a member of one class and the other number is member of some other class).
c.	Write a C++ program to Overload the operator unary (-) for demonstrating operator overloading.
<b>3.</b>	<b>Constructor, Destructor and Pointers to Object</b>
a.	Write a C++ program to demonstrate use of constructor.
b.	Write a C++ program to demonstrate use of destructor.
c.	Write a C++ program to access members of a STUDENT class using pointer to object members.
<b>4.</b>	<b>Inheritance And Exception Handling</b>
a.	Write a C++ program to perform different types of inheritance.
b.	Write a C++ program to implement the exception handling.
c.	Write a C++ program illustrating the use of virtual functions in class.
<b>5.</b>	<b>File Handling, Template and String</b>
a.	Write a C++ program to copy the contents of the file from one file into other
b.	Write a C++ program to create Simple calculator using Class template
c.	Write a C++ program to demonstrate use of string functions

## **Module II:**

### **Unit II: Web Programming**

#### **List of Practical:**

##### **1. JavaScript Control Statements**

- Using JavaScript, design a web page to accept a number from the user and print its Factorial.
- Using JavaScript, a web page that prints Fibonacci series/any given series.
- Write a JavaScript program to display all the prime numbers between 1 and 100.
- Write a JavaScript program to accept a number from the user and display the sum of its digits.

##### **2. JavaScript Objects & Events**

- Using JavaScript, design a web page demonstrating different native objects of JavaScript.
- Write a program in JavaScript to accept a sentence from the user and display the number of words in it. (Do not use split () function).
- Write a JavaScript program to demonstrate different events and event handlers.
- Design a form and validate all the controls placed on the form using JavaScript.

##### **3. Basic PHP**

- Write a PHP code to find the greater of 2 numbers. Accept the no. from the user.
- Write a PHP program to accept a number from the user and print it factorial.
- Write a PHP program to accept a number from the user and print whether it is prime or not.
- Write a PHP program to display different pyramids

<b>4.</b>	<b>Advanced PHP</b>
a.	Write a PHP program to demonstrate different string functions.
b.	Write a PHP program to demonstrate different array functions.
c.	Write a PHP program to demonstrate use of sessions and cookies.
d.	Write a PHP program to demonstrate use of filters.
<b>5.</b>	<b>PHP and MySQL</b>
a.	Write a PHP program to create a database College with table Department (Dname, Dno, Number of faculty).
b.	Write a PHP program to create a database named “College”. Create a table named “Student” with following fields (sno, sname, percentage). Insert 3 records of your choice. Display the names of the students whose percentage is between 35 to 75 in a tabular format.
c.	Write a PHP program to update and delete rows in a table.
d.	Design a PHP page for authenticating a user.

**10 Teacher’s Material:**  
Study material prepared by the faculty members of P.T.V.A.’s M.L. Dahanukar College of Commerce (Autonomous), Vile Parle (E), Mumbai.

**11 Reference Books:**

Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Object-Oriented Programming in C++	Robert Lafore	Sams Publishing	Forth	2002
2.	C++ Primer	Stanley B. Lippman, Josée Lajoie and Barbara E. Moo	Addison-Wesley	Sixth	2021
3.	Object Oriented Programming with C++	E. Balaguruswamy	Tata McGraw Hill	Eighth	2020
4.	Let us C	Yashwant P. Kanetkar	BPB publication	Fifteen	2016
5.	A Tour of C++	Bjarne Stroustrup	Addison-Wesley Professional	Second	2018
6.	Learning PHP, MySQL, JavaScript, CSS & HTML5	Robin Nixon	O’Reilly	Third	2018
7.	Learning Web Design A Beginner’s Guide to Html, CSS, JavaScript and Web Graphics	Jennifer Niederst Robbins	O’Reilly	Fifth	2018
8.	The Complete Reference JavaScript	Thomas A. Powell & Fritz Schneider	McGrawHill	Third	2012
9.	PHP: The Complete Reference	Steven Holzner	McGraw Hill Education	First	2017
10.	PHP & MySQL Novice to Ninja	Tom Butler	SPD	Seventh	2022

<b>12</b>	<b>Internal Continuous Assessment: 40%</b>	<b>External Semester End Examination: 60%</b>
<b>Individual Passing in Internal and External Examination</b>		
<b>13</b>	<b>Continuous Evaluation through:</b> Performing and preparation of Journal (10 Hands-on Practical * 02 marks each) <span style="float: right;">20 Marks</span>	
<b>14</b>	<b>Format of Question Paper:</b> For the semester end examination 02 Questions (Hands-on Practical) + Viva <span style="float: right;">15 Marks each</span> <p style="text-align: center;"><b>OR</b></p> 03 Questions (Hands-on Practical) + Viva <span style="float: right;">10 Marks each</span>	