MARUDHAR KESARI JAIN COLLEGE FOR WOMEN (AUTONOMOUS)

Vaniyambadi – 635 751

PG & Research Department of Computer Science

for

Undergraduate Programme

Bachelor of Science in Computer Science

From the Academic Year 2024-25

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1. **Preamble**

Bachelor of Computer Science is a 3 – Year Undergraduate programme spread over six semesters. The course is designed to achieve a high degree of technical skills in problem solving and application development. The course develops requisite professional skills and problem solving abilities for pursuing a successful career in software industry and forms the required basics for pursuing higher studies in Computer Science. The Bachelor of Science (B.Sc.) programme in Computer Science is established in the year 1994 is a 3 year Undergraduate programme spread over six semester.

PROGRAMME OUTCOMES (PO)

Programme	**B.Sc. Computer Science**
Programme Code	**US03**
Duration	**3 years [UG]**
Programme Outcomes	**PO1:** Acquire knowledge in Computer Science to apply the knowledge in their day-to-day life for betterment of self and society. **PO2:** Develop critical, analytical thinking and problem-solving skills. **PO3:** Develop research related skills in defining the problem, formulate and test thehypothesis, analysis, interpret, and draw conclusion from data. **PO4:** Address and develop solutions for societal and environmental needs of local, regionaland national development. **PO5:** Work independently and engage in life long learning and enduring proficient progress. **PO6:** Provoke employability and entrepreneurship among students along with ethics and communication skills. **PO7:** Understand the importance of ethical behavior in business contexts and be able to recognize and address ethical dilemmas they may encounter in their professional careers. **PO8:** Prepared for life long learning and professional development, including the ability to adapt to changes in technology, business practices, and economic conditions throughout their careers..

Programme Specific Outcomes:	**PSO1:Computer Science for Real-World Problem Solving** Demonstrate the ability to apply computer science principles, mathematical modeling, and computational techniques to analyze and solve complex real-world problems. **PSO2: Ethical and Responsible Computing** Exhibit professionalism and ethical responsibility in designing and developing computing solutions while ensuring compliance with cyber regulations, laws, and industry standards. **PSO3: Innovation and Entrepreneurship in Technology** Leverage creativity, innovation, and entrepreneurial skills to develop and implement technology-driven solutions for societal and business challenges.

Eligibility for Admission:

Candidate seeking admission to the first year of the UG Degree Course should have passed the Higher Secondary Course Examination (Academic or Vocational) conducted by the Govt. of Tamilnadu with Mathematics / Business Mathematics / Statistics / Computer Science as a subject or an Examination of any other University accepted as equivalent thereto by the Syndicate subject to such other conditions as may be prescribed. Such candidates shall be permitted to take the B.Sc. Degree Examination of this University after the completion of the Course of three Academic Years in this University / Colleges affiliated to this University and shall qualify for the B.Sc. Degree.

Methods of Evaluation and Assessment

Methods of Evaluation		
Internal Evaluation		25 Marks
External Evaluation	End Semester Examination	75 Marks
	Total	**100 Marks**
Methods of Assessment		
Recall (K1)	Simple definitions, MCQ, Recall steps, Concept definitions	
Understand / Comprehend (K2)	MCQ, True/False, Short essays, Concept explanations, short summary or overview	
Application (K3)	Suggest idea/concept with examples, suggest formulae, solve problems, observe, explain	
Analyze (K4)	Problem-solving questions, finish a procedure in many steps, Differentiate between various ideas, map knowledge	
Evaluate (K5)	Longer essay/Evaluation essay, Critique or justify with pros and cons	
Create (K6)	Check knowledge in specific or offbeat situations, Discussion, Debating or presentations	

Semester - I						
Code	**Course Title**	**Hours Distribution**				**C**
		L	**T**	**P**	**S**	
24UFTA11	Tamil – 1	4	1	1	0	3
24UFEN11	English – 1	4	1	1	0	3
24UCSC11	CC - 1 Programming in C	3	1	1	0	5
24UCSC12P	CC - 2 (Practical) Programming in C Lab	0	0	0	0	3
24UCSA11	EC - 1 AL Numerical Methods-I	3	1	1	0	3
24UCSS11	SEC – 1 NME Office Automation	1	0	0	0	2
24UCSS12	SEC – 2 Internet and Web Development	1	0	0	0	2
24UCSF11	FC Digital Computer Fundamentals	1	1	1	0	2
TOTAL					30	23

Semester - II						
Code	**Course Title**	**Hours Distribution**				**C**
		L	**T**	**P**	**S**	
24UFTA21	Tamil - 2	4	1	0	0	3
24UFEN21	English - 2	4	1	0	0	3
24UCSC21	CC - 3 Programming in C ++	3	1	2	0	5
24UCSC22P	CC - 4 (Practical) Programming in C ++ LAB	0	0	4	0	2
24UMAA25	EC - 2 AL Numerical Methods-II	3	1	0	0	4
24UMAA25P	EC - 3 AL Numerical Methods-I & II Practicals	0	0	2	0	2
24UCSS21	SEC – 3 PHP Programming	1	0	1	0	2
24UAEC21	AEC – 1 Life Skill through Yoga	1	1	0	0	2
TOTAL					30	23

L-Lecture **T-Tutorial** **P-Practical** **S-Seminar** **C-Credit**

Students must complete at least one online course (MOOC) from platforms like SWAYAM, NPTEL, or Nanmudalvan within the fifth semester. Additionally, engaging in a specified Self-learning Course is mandatory to qualify for the degree, and successful participation will be acknowledged with an extra credit of 2*.

1st YEAR: FIRST SEMESTER

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
24UCSC11	CC-1 Programming in C	Core	3	1	2	0	5	6	25	75	100

Learning Objectives	
LO1	To programming basics and the fundamentals of C.
LO2	To data types in C, Mathematical and logical operations, Using control statement and loops
LO3	To arranging data in arrays with algorithm
LO4	To learning the functions parameters Implementing
LO5	To pointers and file operations

Unit	Content	Hours
1	Introduction to Programming: Introduction to computers, Computer characteristics, Hardware vs software, Steps to develop a program, Software development life cycle, Structured programming, Types of programming languages, Introduction to c, Developing a c program, Console input and output functions, Error diagnostics, Debugging techniques.	18
2	Operators and Expressions: Identifiers and keywords, Data types, Constants, variables, Declarations, Expressions, Statements, Arithmetic operators, unary operators, Relational and logical operators, Assignment operators, conditional operator Branching, if- else statement, which statement, go to statement, Looping, while statement, do- while statement, for statement, nested control structures, break statement, continue statement.	18
3	Arrays and Strings: Defining an array, Processing an array, multidimensional arrays, Searching algorithm, Linear search, Sorting algorithm, Bubble sort algorithm, Strings, Defining a string, Initialization of strings, Reading and writing a string, Processing the strings.	18
4	Functions: Functions, Overview, Defining a function, Accessing a function, function prototypes, Passing arguments to a function, Passing arrays to functions, Recursion. Pointers and Structures: Fundamentals, Pointer declarations, Passing pointers to functions, Structure & Union	18
5	File system : Types of file, working with files, File Handling, file operation, sequential and Random Access Files. Standard I/O. Functions: fscanf(), fprintf(), fgets(), fputs(), Command Line Arguments.	18

CO	Course Outcomes
CO1	Understand basic Structure of the C-PROGRAMMING, declaration and usage of variable
CO2	Develop conditional and iterative statements to write C programs
CO3	Implement arrays and strings in your C program.
CO4	Apply code reusability with functions
CO5	Programs that use Pointers to access arrays, strings and functions.
Textbooks:	
1	Byron Gottfried, “Schaum's Outline of Programming with C”, 3rd edition, 2016, McGraw Hill Education (India), ISBN: 9780070145900
2	Let Us C: Authentic guide to C programming language - 19th Edition – 15 December 2022 by Yashavant Kanetkar
3	A Textbook of Basics of C Programming – 2020 - Vikash Kumar Gupta, ISBN: 978-93-87394-89-6
4	Programming in C KTU [EST 102] Paperback – 26 April 2022 by Vijitha Robinson (Kailas Sree Chandran
5	Byron Gottfried, “Schaum's Outline of Programming with C”, 3rd edition, 2016, McGraw Hill Education (India), ISBN: 9780070145900
Reference Books:	
1	C Programming Books for Beginners and Advanced By jasdeepbhatia| December 26, 2023
2	C Programming Language, 2nd Edition by Brian W. Kernighan, Dennis Ritchie Released 1988
3	Programming in C ,Stephen G. Kochan, Third Edition
4	C Programming Books for Beginners and Advanced By jasdeepbhatia| December 26, 2023
5	C Programming Language, 2nd Edition by Brian W. Kernighan, Dennis Ritchie Released 1988
Web resources:	
1	https://www.w3schools.com/c/
2	https://www.tpointtech.com/

Mapping with Programme Outcomes and Programme Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	3	3	3	3	3	3	3	2	2
CO2	3	3	3	3	2	3	3	2	2	3	3
CO3	3	2	3	3	3	3	3	3	3	2	2
CO4	3	3	3	3	2	3	3	2	2	3	3
CO5	3	2	3	3	3	3	3	3	3	2	2
Total	15	12	15	15	13	15	15	13	13	12	12
Average	3	2	3	3	3	3	3	3	3	2	2

3 – Strong, 2- Medium, 1- Low

1st YEAR: FIRST SEMESTER

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
24UCSC12P	**CC-2 C Programming Lab**	**Core**	**0**	**0**	**4**	**0**	**3**	**4**	**25**	**75**	**100**

Learning Objectives	
LO1	To introduce students to the basic knowledge of programming fundamentals of C language
LO2	To impart writing skill of C programming to the students and solving problems.
LO3	To impart the concepts like looping, array, functions, pointers, file, structure
LO4	To impart the concepts like looping, array, functions, pointers, file, structure
LO5	To impart the concepts like looping, array, functions, pointers, file, structure

Unit	Content	Hours
	1. Write a Program to calculate and display the volume of a CUBE having its height (h=10cm), width (w=12cm) and depth (8cm). 2. Write a program to take input of name, roll no and marks obtained by a student in 4 subjects of 100 marks each and display the name, roll no with percentage score secured. 3. Write a Program to perform the arithmetic expression using switch statement. 4. Write a program to generate all prime numbers up to nth number. 5. Program to print product of two matrices. 6. Program to concatenate two strings without using library functions. 7. Program to find factorial of a given number using function. 8. Find Square Root, numerical differentiation, numerical integration using functions and recursion. 9. Program to print the elements of array using pointers. 10. Implementation of Text Processing using Strings	60

CO	Course Outcomes
CO1	Understand the logic for a given problem. Write the algorithm of a given problem.
CO2	Recognize and understand the syntax and construction of C programming code.
CO3	Learn the methods of iteration or looping and branching
CO4	Make use of different data-structures like arrays, pointers, structures and files
CO5	Write programs to print output on the screen as well as in the files.
Textbooks:	
1	Byron Gottfried, "Schaum's Outline of Programming with C", 3rd edition, 2016, McGrawHill Education (India), ISBN: 9780070145900
2	Let Us C: Authentic guide to C programming language - 19th Edition – 15 December 2022by Yashavant Kanetkar
3	A Textbook of Basics of C Programming – 2020 - Vikash Kumar Gupta, ISBN: 978-93-87394-89-6
4	Programming in C KTU [EST 102] Paperback – 26 April 2022 by Vijitha Robinson (Kailas Sree Chandran
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Reference Books:	
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2	C Programming Language, 2nd Edition by Brian W. Kernighan, Dennis Ritchie Released March 1988
3	Programming in C ,Stephen G. Kochan, Third Edition
Web resources:	
1	https://www.w3schools.com/
2	https://www.tpointtech.com/

Mapping with Programme Outcomes and Programme Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	3	3	3	3	3	3	3	2	2
CO2	3	3	3	3	2	3	3	2	2	3	3
CO3	3	2	3	3	3	3	3	3	3	2	2
CO4	3	3	3	3	2	3	3	2	2	3	3
CO5	3	2	3	3	3	3	3	3	3	2	2
Total	15	12	15	15	13	15	15	13	13	12	12
Average	3	2	3	3	3	3	3	3	3	2	2

1st YEAR: FIRST SEMESTER

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
24UCSS12	SEC-2 Internet and Web Development	SEC	1	0	1	0	2	2	25	75	100

Learning Objectives	
LO1	To introduce the fundamentals of Internet and internet connections, networking.
LO2	To learning about internet technology and threats.
LO3	To introduce the fundamentals of HTML, and the principles of web design.
LO4	To learn how to apply CSS rules to HTML elements to control their appearance, such as color, size, font, spacing, and positioning.
LO5	To construct basic websites using HTML and Cascading Style Sheets.

Unit	Content	Hours
1	Introduction to Internet-How does internet works. -History of internet- Concept of WWW, Internet and WWW.Types of Internet connection (Dial Up connection, Direct Connection & Broad Band connection, VPN)- Internet vs Web, Web Servers, Webpage Addresses (URL's)-Use of the Internet and Benefits of Internet-Introduction to web technologies. Types of search engines-Difference between search engine and web browser.	6
2	Internet technology and threats : TCP/IP–internet technology and protocol. Packet switching technology, internet protocols: TCP/IP, router, internet addressing. Http protocol: request and response. Features of latest version of web. Introduction of internet threats: history of worms and virus - types of threats on internet. Issues of threats on internet. Protecting computer from virus firewall.	6
3	Introduction of HTML-HTML Basic Formatting Tags-Working with text organizing text in HTML Working with Links and URL. Creating tables working with Images. Working with Lists, Hyperlinks and frames. Working with Forms, Interactive Elements.	6
4	Introduction to CSS-Need for CSS, introduction to CSS, basic syntax and structure, using CSS, background images, colors and properties, manipulating texts, using fonts, borders and boxes, margins, padding lists, positioning using CSS, Overview and features of latest version of CSS. CSS lists,CSS tables.	6
5	Html & Css Exercises Practical sessions - To create login page - To create a hyperlink for web page navigation -Student table creation- student registration form-create a order and Un order list Create a dynamic navigation bar.	6

CO	Course Outcomes
CO1	The students will able to understand the concepts basic of internet.
CO2	The students will able to develop an understanding of internet technology and online threats.
CO3	To introduce the fundamentals of HTML, and the principles of web design.
CO4	The students will able to apply CSS rules to HTML elements such as color, size, font,spacing, and positioning.
CO5	The students will be able to construct basic web page design using HTML & CSS.
Textbooks:	
1	HTML and CSS Quick Start Guide: The Simplified Beginners Guide to Developing a Strong Coding Foundation, Building Responsive Websites, and Mastering ... of Modern Web Design (Quick Start Guides) 2021 by David Durocher (Author).
2	TEXTBOOK OF WEB DESIGN WITH HTML &CSS (Paperback, Nishant Katiyar, Dr.Kapil Saxena, Dr. Rakesh Kumar Bhujade, Dr. Sachin Kamley),2020.
3	Web Design With HTML &CSS : HTML & CSS Complete Beginner's Guide Paperback– 31 October 2021 by Prem Kumar (Author).
4	HTML and CSS Quick Start Guide: The Simplified Beginners Guide to Developing a Strong Coding Foundation, Building Responsive Websites, and Mastering ... of Modern Web Design (Quick Start Guides) 2021 by David Durocher (Author).
5	TEXTBOOK OF WEB DESIGN WITH HTML &CSS (Paperback, Nishant Katiyar, Dr.Kapil Saxena, Dr. Rakesh Kumar Bhujade, Dr. Sachin Kamley),2020.
Reference Books:	
1	HTML &CSS: THE COMPLETE REFERENCE fifth edition by Thomas Powell (Author).2017
2	Head First HTML and CSS by Elizabeth Robson and Eric Freeman published in 2012
Web resources:	
1	https://www.tutorialspoint.com/index.htm

Mapping with Programme Outcomes and Programme Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	3	3	3	3	3	3	3	2	2
CO2	3	3	3	3	2	3	3	2	2	2	2
CO3	3	3	3	3	3	2	2	2	3	3	3
CO4	3	3	3	3	3	2	2	2	3	3	3
CO5	3	3	3	3	3	2	2	3	3	3	2
Total	15	15	15	15	14	12	12	12	14	13	12
Average	3	3	3	3	3	2	2	2	3	3	2

1st YEAR: FIRST SEMESTER

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
24UCSF11	FC- Digital Computer Fundamentals	Foundation	1	1	0	0	2	2	25	75	100

Learning Objectives

LO1	To identify the logic gates and their functionality
LO2	To perform number conversions from one system to another system
LO3	To design basic electronic circuits (combinational circuits)
LO4	To perform a comparative analysis of the components of different memory units
LO5	To perform number conversions

Unit	Content	Hours
1	Divisibility, lcm, hcf- numbers, decimals, fractions, powers- profit, loss -simple interest and compound interest -speed, distance,time.	6
2	Coding, Decoding, Series-missing number, odd one out, Cause and Effect, Blood relations	6
3	Number system and codes: decimal numbers, binary numbers, decimal to binary conversions, binary arithmetic, 1's and 2's complements of binary numbers, signed numbers, arithmetic operations with signed numbers, hexadecimal numbers, octal numbers, digital codes, error detection codes	6
4	Logic gates: the inverter, the and gate, the or gate, the nand gate, nor gate, the exclusive–or gate and exclusive-nor gate; boolean algebra and logic simplification – boolean operations and expressions, de morgan's theorems, the karnaugh map, sop minimizations.	6
5	Factoring Methods: Finding the square root of a number, the smallest Divisor of an integer, the greatest common divisor of two integers, computing the prime factors of an integer, raising a number to a large power.	6

CO	Course Outcomes
CO1	Identify the logic gates and their functionality
CO2	Perform number conversions from one system to another system
CO3	Design basic electronic circuits (combinational circuits)
CO4	Perform a comparative analysis of the components of different memory units
CO5	Perform number conversions
Textbooks:	
1	R.G. Dromey, "How to Solve it by Computer", Pearson Education India, 2008.
2	Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, Clifford Stein,"Introduction to Algorithms",3rd Edition, The MIT Press Cambridge, Massachusetts London, England, 2008
3	Brain M. Kernighan, and Dennis M. Ritchie, "The C Programming Language", 2 nd edition, Princeton Hall Software Series, 2012
Reference Books:	
1	Steven S. Skiena, "The Algorithm Design Module", 2nd Edition, Springer-Verlag London Limited, 2008
2	Donald E. Knuth, The Art of Computer Programming", Volume 1: Fundamental Algorithms, 3rd Edition, Addison Wesley Longman, 1997
3	Donald E. Knuth, The Art of Computer Programming", Volume 2: Semi numerical Algorithms, 3 rd Edition, Addison Wesley Longman, 1998
4	Greg Perry and Dean Miller, "C programming Absolute Beginner's Guide", 3rd edition, Pearson Education, Inc, 2014
Web resources:	
1	https://www.britannica.com/technology/digital-computer
2	https://www.studocu.com/row/document/university-of-engineering-and-technology-lahore/digital-logic-design/digital-computer-fundamentals-205/4374222
3	https://archive.org/details/digitalcomputerf0006bart

Mapping with Programme Outcomes and Programme Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	3	3	3	3	3	3	3	2	2
CO2	3	3	3	3	2	3	3	2	2	2	2
CO3	3	3	3	3	3	2	2	2	3	3	3
CO4	3	3	3	3	3	2	2	2	3	3	2
CO5	3	3	3	3	3	2	2	3	3	3	3
Total	15	15	15	15	14	12	12	12	14	13	12
Average	3	3	3	3	3	2	2	2	3	3	2

2nd YEAR: SECOND SEMESTER

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
24UCSC21	**Programming in C++**	**Core**	**3**	**1**	**2**	**0**	**5**	**6**	**25**	**75**	**100**

Learning Objectives	
LO1	To be able to explain the difference between object-oriented programming and procedural programming.
LO2	To be able to apply object-oriented techniques to solve bigger computing problems.
LO3	To be able to program using C++ features such as composition of objects, operator overloading, inheritance and polymorphism, file I/O, etc.
LO4	To be able to build C++ classes using appropriate encapsulation and design principles.
LO5	To use File Handling and Standard Template Library (STL)

Unit	Content	Hours
1	Introduction to Object Oriented Programming-Basic Concepts of OOP, Basic Elements of C++: Tokens, Keywords, Identifiers, Variables, Basic Data Types in C++, Operators in C++.Decision and Control Structures:if Statement, if-else Statement, switch Statement, while, do-while, for.	18
2	Functions in C++: The Main Function, Function Prototyping, Call by Reference, Call by Value,Inline Function, Function Overloading- Classes and Objects:Specifying a Class, Defining Member functions, Nesting of Member Functions, Static Data Member and Member Function, Friend Function.	18
3	Constructors and Destructors: Constructors, Default Constructor, Parameterized Constructor, Constructor Overloading, Copy Constructor, and Destructor.Operator Overloading: Defining Operator Overloading, Overloading Unary Operators and Overloading Binary Operators.	18
4	Inheritance: Introduction, Defining Derived Class, Single Inheritance, Multilevel Inheritance, Multiple Inheritance, Hierarchical Inheritance, Hybrid Inheritance.Virtual Functions:Virtual Function, Pure Virtual Functions.	18
5	Working with Files: Introduction, Classes for File Stream Operations, Opening and Closing a File, Detecting end-of-file, Sequential Input and Output Operations, Updating a File: Random Access, Error Handling During File Operations, Command Line Arguments.	18

CO	Course Outcomes
CO1	Be able to explain the difference between object-oriented programming and procedural programming.
CO2	Be able to program using C++ features such as composition of objects, operator overloading, inheritance and polymorphism, file I/O, etc.
CO3	Be able to build C++ classes using appropriate encapsulation and design principles.
CO4	Be able to apply object-oriented techniques to solve bigger computing problems.
CO5	Be able to implement and debug efficient C++ programs to solve complex problems.
Textbooks:	
1	E. Balagurusamy - Object-Oriented Programming with C++ - Tata McGraw Hill Publishing Company Limited, 4th Edition.
Reference Books:	
1	Bjarne Stroustrup - The C++ Programming Language, Addison-Wesley, 4th Edition, 2013.
2	Robert Lafore - Object-Oriented Programming in C++, Sams Publishing, 4th Edition, 2002.
Web resources:	
1	https://cplusplus.com/doc/tutorial/#google_vignette

Mapping with Programme Outcomes and Programme Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3								2		2
CO2	2								2		2
CO3	3	2							3		3
CO4	2	3	2						2	2	3
CO5	2	2	2	3					2	3	3
Total	12	7	6	3					11	5	13
Average	2.4	1.4	1.2	0.6					2.2	1.0	2.6

2nd YEAR: SECOND SEMESTER

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
24UCSP22	**Programming in C++ Lab**	**Core Practical**	**0**	**0**	**4**	**0**	**2**	**4**	**25**	**75**	**100**

Learning Objectives	
LO1	To students will practice using switch statements for decision-making based on user input.
LO2	To the students will learn how to use pointers to manipulate variables directly in C++.
LO3	To students will learn how to create multiple functions with the same name but different parameter types, improving code readability and usability.
LO4	To students will learn about different types of inheritance in C++, enhancing their understanding of object-oriented programming (OOP) principles.
LO5	To students will learn how to use iterators with std::vector, which is crucial for traversing and manipulating elements in C++ STL containers.

Unit	Content	Hours
1	1. Write a C++ program to demonstrate Class and Objects. 2. Write a C++ program to demonstrate function overloading. 3. Write a C++ program to demonstrate the Friend Functions. 4. Write a C++ program to demonstrate Parameterized Constructor, Copy Constructor and Destructor. 5. Write a program to demonstrate operator overloading for Unary operator. 6. Write a program to demonstrate operator overloading for Binary operator. 7. Write a C++ program to demonstrate: a)Single Inheritance •Multilevel Inheritance • Multiple Inheritance b)Hierarchical Inheritance. 8. Write a C++ program to demonstrate Virtual Functions. 9. Write a C++ program to perform Sequential I/O Operations on a file. 10. Write a C++ program to find the Biggest Number using Command Line Arguments.	60

CO	Course Outcomes
CO1	Able to know concepts in operator overloading, function overloading & polymorphism.
CO2	Able to write, compile and debug programs in C++ language.
CO3	Design programs involving constructors, destructors.
CO4	Able to reuse of code using inheritance.
CO5	To implement the concept of files, templates and exceptions.
Textbooks:	
1	E. Balagurusamy - Object-Oriented Programming with C++ - Tata McGraw Hill Publishing Company Limited, 4th Edition.
Reference Books:	
1	Bjarne Stroustrup - The C++ Programming Language, Addison-Wesley, 4th Edition, 2013.
2	Robert Lafore - Object-Oriented Programming in C++, Sams Publishing, 4th Edition, 2002.
Web resources:	
1	https://cplusplus.com/doc/tutorial/

Mapping with Programme Outcomes and Programme Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3								2		2
CO2	2								2		2
CO3	3	2							3		3
CO4	2	3	2						2	2	3
CO5	2	2	2	3					2	3	3
Total	12	7	6	3					11	5	13
Average	2.4	1.4	1.2	0.6					2.2	1.0	2.6

2nd YEAR: SECOND SEMESTER

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
24UCSS21	PHP Programming	SEC	1	0	1	0	2	2	25	75	100

Learning Objectives	
LO1	To learn how to take a static website and turn it into a dynamic website run from a database using PHP and MySQL.
LO2	To analyze the basic structure of a PHP web application and be able to install and maintain the web server, compile, and run a simple web application
LO3	To PHP can generate dynamic page content and can create, open, read, write, delete, and close files on the server.
LO4	To understand the concepts of forms and files.
LO5	To create dynamic Web sites using PHP and MySQL.

Unit	Content	Hours
1	PHP : Introduction – installing & configuring PHP – Lexical structure – Basic syntax of PHP – programming in web environment - Common PHP Script Elements – Using Variables – Constants – Data types – Operators – Statements – Using Functions	6
2	Control structures: Decisions and Loop Making Decisions, Doing Repetitive task with looping, Mixing Decisions and looping with Html, PHP If, Else and Else if, PHP Switch, PHP While Loops, PHP For Loops.	6
3	Strings: String constant-printing strings-accessing individual's characters-comparing strings- concatenating strings-manipulating & searching strings-regular expressions. Array: Associative array – identifying elements of an array – storing data in arrays – multidimensional arrays – extracting multiple values – arrays and variable conversion – traversing- sorting.	6
4	Advanced PHP : Introduction to advanced PHP concept – Working With Forms –Processing Forms –Form Validation –Files: File and Directory Handling – Including Files – File Access	6
5	PHP and SQL database: PHP and LDAP – PHP Connectivity – Sending and receiving emails – Retrieving data from MySQL – Manipulating data in MySQL using PHP	6

CO	Course Outcomes
CO1	Describe about the basic concepts of PHP
CO2	Explain control structures.
CO3	Understand the concept of arrays and strings.
CO4	Understand the concepts of forms and files.
CO5	Create dynamic Web sites using PHP and MySQL.
Textbooks:	
1	PHP, a beginner guide
2	PHP and MYSQL Web development, Luke welling, 2003
Reference Books:	
1	Web Programming, Chris Bates, Wiley India, New Delhi, Third Edition, Reprint 2011
2	MySQL Bible: Steve Suchring, John Wiley sons, Mumbai, First Edition2002
3	Programming PHP, Rasmus Lerdorf and Levin Tatroe, O'Reilly Publications2002, Mumbai
Web resources:	
1	https://www.tutorialspoint.com/php/index.htm

Mapping with Programme Outcomes and Programme Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	3	3	-	1	2	-	1	3	-
CO2	2	3	3	3	-	-	2	-	1	3	-
CO3	1	3	3	3	-	1	2	-	1	3	1
CO4	1	3	3	3	-	-	1	-	_	3	1
CO5	1	3	3	3	-	1	1	-	_	3	2
Total	8	15	15	15	0	3	8	0	3	15	4
Average	1.6	3	3	3	0	0.6	1.6	0	0.6	3	0.8