PROGRAMME SPECIFIC OUTCOMES, PROGRAMME OUTCOMES AND COURSE OUTCOMES

PG & RESEARCH DEPARTMENT OF COMPUTER SCIENCE / B.Sc., (CS), M.Sc., (CS) & M.Phil., (CS)

B.Sc., COMPUTER SCIENCE		
PSOs	**B.Sc., Computer Science / UCS26 / PROGRAMME SPECIFIC OUTCOMES**	
PSO1	Acquiring basic knowledge on core concepts of Computer Science.	
PSO2	Ability to solve problems using programming languages and software tools.	
PSO3	Capable of analyzing, designing, developing, testing and implementing software systems.	
PSO4	Ability to communicate the technical aspects of systems with peers and customers.	
PSO5	Acquiring employability and entrepreneurship skills.	
B.Sc., Computer Science / UCS26 / PROGRAMMES OUTCOMES		
POs	**Description of POs**	
PO1	Designing and implementing software systems that meet specified design and performance requirements	
PO2	Applying advanced algorithmic and mathematical concepts to the design and analysis of software.	
PO3	Adhering to do higher studies or progress as an entrepreneur.	
PO4	Gaining confidence to survive and get succeed in IT industry.	
PO5	Acquiring proficiency in the practice of computing, and to prepare them for continued professional development.	
PO6	Applying sound principles to the synthesis and analysis of computer systems	
PO7	Being capable of managing databases and developing web pages.	
B.Sc., Computer Science / UCS26 / COURSE OUTCOMES		
	Description of COs	**Bloom's Taxonomy / Cognitive Domain**
UCST11	**PROGRAMMING IN C**	
CO1.	Gaining complete knowledge of C Language.	Knowledge (Level – 1)
CO2.	Understanding and developing well-structured programs using C language.	Comprehension (Level – 2)
CO3.	Acquiring problem solving skills through computer programming.	Application (Level – 3)
CO4.	Developing logics which will help them to create programs, applications in C.	Analysis (Level – 4)
CO5.	Dealing with different memory allocation & input/output methods.	Synthesis (Level – 6)
UCST12	**DIGITAL PRINCIPLES & COMPUTER ORGANIZATION**	
CO1.	Gaining knowledge of multiprocessor organization and parallel processing	Knowledge (Level – 1)
CO2.	Understand the theory and architecture of central processing unit.	Comprehension (Level – 2)
CO3.	Exemplify in a better way the I/O and memory organization.	Application (Level – 3)

CO4.	Analyzing some of the design issues in terms of speed, technology, cost, performance	Analysis (Level – 4)
CO5.	Defining different number systems, binary addition and subtraction, 2's complement representation and operations with this representation	Synthesis (Level – 6)
UCSA11	**DISCRETE MATHEMATICS**	
CO1.	Comprehending the Boolean algebra	Comprehension (Level – 2)
CO2.	Applying logical notation and determining the validity of the argument	Application (Level – 3)
CO3.	Applying counting principles to determine probabilities	Application (Level – 3)
CO4.	Evaluating Boolean functions and simplify expressions using the properties of Boolean algebra	Evaluation (Level – 5)
CO5.	Demonstrating an understanding of relations and functions and be able to determine their properties	Synthesis (Level – 6)
UCST21	**PROGRAMMING IN C++**	
CO1.	Comprehending the Templates, Files and Exception Handling	Comprehension (Level – 2)
CO2.	Applying the concepts of class, method, constructor, instance, data abstraction, function abstraction, inheritance, overriding, overloading, and polymorphism	Application (Level – 3)
CO3.	Analyzing problems and implementing simple C++ applications using an object-oriented software approach.	Analysis (Level – 4)
CO4.	Analyzing, writing, debugging and testing basic C++ codes using the approaches introduced in the course	Analysis (Level – 4)
CO5.	Demonstrating the use of virtual functions to implement polymorphism.	Synthesis (Level – 6)
UCSP21	**PROGRAMMING IN C and C++ LAB**	
CO1.	Understanding and applying Object oriented features and C++ concepts.	Comprehension (Level – 2)
CO2.	Applying the concept of polymorphism and inheritance, exception handling and templates.	Application (Level – 3)
CO3.	Implementing different functions for input and output, various data types, basic operators, files and functions	Application (Level – 3)
CO4.	Analysing the concepts and principles of the programming language to the real-world problems and solve the problems through project-based learning.	Analysis (Level – 4)
CO5.	Demonstrating basic object oriented and structured programming concepts.	Synthesis (Level – 6)
UCSA21	**WEB DESIGN LAB**	
CO1.	Gaining knowledge of user interfaces, with graphics, textual components, and navigation systems.	Knowledge (Level – 1)
CO2.	Comprehending various HTML tags for designing a static web page.	Comprehension (Level – 2)
CO3.	Designing and applying XML to create a mark-up language for data and document centric application	Application (Level – 3)

CO4.	Being capable of writing a server side java application called JSP to catch form data sent from client and store it on database.	Analysis (Level – 4)
CO5.	Creating personal and/or business websites following current professional and/or industry standards	Synthesis (Level – 6)
UCST31	**FUNDAMENTALS OF DATA STRUCTURES**	
CO1.	Gaining in-depth knowledge in dealing with Data and its Structures	Knowledge (Level – 1)
CO2.	Understanding the concepts of Stack & Queue, tree & its traversal techniques & Graphs and its components	Comprehension (Level – 2)
CO3.	Applying searching and sorting techniques	Application (Level – 3)
CO4.	Analyzing the algorithms and algorithm correctness	Analysis (Level – 4)
CO5.	Describing stack, queue and linked list operation	Synthesis (Level – 6)
UCSA32	**OPERATION RESEARCH**	
CO1.	Understanding the Mathematical Formation of L.P.P	Comprehension (Level – 2)
CO2.	Understanding the usage of game theory and Simulation for Solving Business Problems	Comprehension (Level – 2)
CO3.	Formulating and solving problems as networks and graphs using special solution algorithms.	Application (Level – 3)
CO4.	Analyzing the transportation Problem and Assignment Problem	Analysis (Level – 4)
CO5.	Solving Linear Programming Problems	Synthesis (Level – 6)
UCSE31	**FUNDAMENTALS OF COMPUTER ALGORITHMS**	
CO1.	Knowing the standard comparison based sorts and their strengths and weaknesses	Comprehension (Level – 2)
CO2.	Comprehending stacks, queues, linked lists, rooted trees; their standard implementations; and the analysis of these implementations	Comprehension (Level – 2)
CO3.	Applying important algorithmic design paradigms and methods of analysis.	Application (Level – 3)
CO4.	Analyzing the complexities of various problems in different domains	Analysis (Level – 4)
CO5.	Using the standard linear-time sorts and the trade-offs involved in using them Data Structures and their analysis	Synthesis (Level – 6)
UCSS31	**OFFICE AUTOMATION**	
CO1.	Gaining knowledge of documentation	Comprehension (Level – 2)
CO2.	Comprehending the performance of accounting operations	Comprehension (Level – 2)
CO3.	Applying the gained knowledge and preparing Documents Using Formatting options	Application (Level – 3)
CO4.	Analyzing the various innovative techniques of Slide show animation	Analysis (Level – 4)
CO5.	Being capable of handling Basic Data Processing Work in Working Environment	Synthesis (Level – 6)
UCST41	**RELATIONAL DATA BASE MANAGEMENT SYSTEMS**	
CO1.	Gaining knowledge of the database concepts and structures and query language	Comprehension (Level – 2)

CO2.	Comprehending the overview of Data Base systems & Data Models	Comprehension (Level – 2)
CO3.	Analyzing the principles of storage structure and recovery management	Analysis (Level – 4)
CO4.	Executing various advance SQL queries and Understand query processing and techniques.	Analysis (Level – 4)
CO5.	Performing PL/SQL programming using concept of Cursor Management, Error Handling, Package and Triggers	Synthesis (Level – 6)
UCSP42	**RELATIONAL DATA BASE MANAGEMENT SYSTEMS LAB**	
CO1.	Knowing the connectivity of databases with controls (DAO,ADO & RDO)	Knowledge (Level – 1)
CO2.	Becoming familiar with SQL fundamental Concepts.	Comprehension (Level – 2)
CO3.	Applying Normalization techniques to normalize a database	Application (Level – 3)
CO4.	Evaluating the underlying concepts of database technologies	Evaluation (Level – 5)
CO5.	Designing and implementing a database scheme for a given problem-domain	Synthesis (Level – 6)
UCSA42	**DESK TOP PUBLISHING LAB (DTP)**	
CO1.	Acquiring knowledge of typography e.g. font size, style, kerning, alignment, hyphenation and line spacing	Knowledge (Level – 1)
CO2.	Comprehending the difference between DTP and how it differs from word processing procedures	Comprehension (Level – 2)
CO3.	Identifying desktop publishing terminology and concepts	Application (Level – 3)
CO4.	Developing the Visiting card,advertisement through various application	Synthesis (Level – 6)
CO5.	Creating and printing a multi-page document which incorporates a variety of visual elements	Synthesis (Level – 6)
UCSE42	**NUMERICAL METHODS**	
CO1.	Gaining knowledge of Newton's Formulae, Gaussian Quadrature and Euler's method	Knowledge (Level – 1)
CO2.	Understanding Numerical Computations and direct and iterative method	Comprehension (Level – 2)
CO3.	Applying numerical methods to obtain approximate solutions to mathematical problems.	Application (Level – 3)
CO4.	Being capable of working effectively in a broad range of numerical computations	Synthesis (Level – 6)
CO5.	Demonstrating understanding of common numerical methods their use in obtaining approximate solutions to otherwise intractable mathematical problems.	Synthesis (Level – 6)
UCSS42	**LINUX / UNIX LAB**	
CO1.	Gaining knowledge of the concepts, design, and structure of the UNIX/LINUX operating system.	Knowledge (Level – 1)
CO2.	Comprehending and handling UNIX system calls	Comprehension (Level – 2)
CO3.	Applying various UNIX commands on a standard UNIX/LINUX Operating system	Application (Level – 3)
CO4.	Mastering various process management concepts including scheduling, synchronization and semaphores.	Synthesis (Level – 6)

CO5.	Being capable of doing shell programming on UNIX OS	Synthesis (Level – 6)
UCST51	**SYSTEM SOFTWARE**	
CO1.	Gaining knowledge of the historical development of system software	Knowledge (Level – 1)
CO2.	Understanding the difference between Operating Systems software and Application Systems software	Comprehension (Level – 2)
CO3.	Knowing and applying the "boot" process	Application (Level – 3)
CO4.	Working out the system programs like editors, compiler, assembler, linker, loader, interpreter and debugger.	Synthesis (Level – 6)
CO5.	Describing Microcomputer Structure & Memory management requirements	Synthesis (Level – 6)
UCST52	**DATA MINING**	
CO1.	Being aware of the functionalities, patterns, of operating system	Knowledge (Level – 1)
CO2.	Understanding the concept of classification for the retrieval purposes	Comprehension (Level – 2)
CO3.	Working out the applications of data mining	Application (Level – 3)
CO4.	Discovering interesting patterns from large amounts of data to analyze and extract patterns to solve problems	Synthesis (Level – 6)
CO5.	Designing and deploying appropriate classification techniques	Synthesis (Level – 6)
UCST53	**SOFTWARE ENGINEERING**	
CO1.	Gaining knowledge of the processes of software development	Knowledge (Level – 1)
CO2.	Comprehending and developing software design and modules for real time system	Comprehension (Level – 2)
CO3.	Analyzing verification & validation techniques	Analysis (Level – 4)
CO4.	Developing software design and modules for real time system	Synthesis (Level – 6)
CO5.	Identifying, formulating and solving engineering problems	Synthesis (Level – 6)
UCST54	**COMPUTER NETWORKS**	
CO1.	Gaining knowledge of the networking concepts and basic communication model	Knowledge (Level – 1)
CO2.	Understanding the working principles of various application protocols	Comprehension (Level – 2)
CO3.	Analyzing the basic terminology and Topology of the computer networking area	Analysis (Level – 4)
CO4.	Evaluating the working principles of various application protocols	Evaluation (Level – 5)
CO5.	Mastering the working with routing algorithms	Synthesis (Level – 6)
UCST55	**MULTIMEDIA AND ITS APPLICATIONS**	
CO1.	Gaining knowledge of the importance of Internet in multimedia	Knowledge (Level – 1)
CO2.	Understanding Multimedia Architecture & Audio System	Comprehension (Level – 2)
CO3.	Analyzing and designing Authoring Tools	Analysis (Level – 4)
CO4.	Working out Graphics file and Application Formats	Application (Level – 3)

CO5.	Trying out Graphics in Multimedia Applications.	Synthesis (Level – 6)
UCSE53	**VISUAL BASIC LAB**	
CO1.	Exploring Visual Basic's Integrated Development Environment (IDE)	Knowledge (Level – 1)
CO2.	Understanding the concept of Visual Basic	Comprehension (Level – 2)
CO3.	Applying fundamental skills in utilizing the tools of a visual environment such as command, menus, and toolbars.	Application (Level – 3)
CO4.	Creating one and two dimensional arrays for sorting, calculating, and displaying of data.	Synthesis (Level – 6)
CO5.	Demonstrating knowledge of programming terminology and how applied using Visual Basic (e.g., variables, selection statements, repetition statements, etc.)	Synthesis (Level – 6)
UCSS53	**PYTHON LAB**	
CO1.	Gaining knowledge of the data from & files in python and develop Application using Pygame	Knowledge (Level – 1)
CO2.	Developing a basic understanding of Python programming language.	Comprehension (Level – 2)
CO3.	Solving problems requiring the writing of well-documented programs in the Python language, including use of the logical constructs of that language.	Application (Level – 3)
CO4.	Becoming fluent in the use of procedural statements — assignments, conditional statements, loops, method calls — and arrays.	Synthesis (Level – 6)
CO5.	Being able to design, code, and test small Python programs that meet requirements expressed in English. This includes a basic understanding of top-down design.	Synthesis (Level – 6)
UCST61	**JAVA AND INTERNET PROGRAMMING**	
CO1.	Gaining knowledge of the Package and Interfaces	Knowledge (Level – 1)
CO2.	Understanding the object-oriented paradigm in the Java programming language	Comprehension (Level – 2)
CO3.	Applying Java in a variety of technologies and on different platforms	Application (Level – 3)
CO4.	Managing Input Output in Files in Java	Synthesis (Level – 6)
CO5.	Mastering Java script, Data types, Variables, Operators, and controlling windows.	Synthesis (Level – 6)
UCST62	**WEB TECHNOLOGY**	
CO1.	Gaining knowledge of solving web client/server problems	Knowledge (Level – 1)
CO2.	Comprehending the concept of Tables, Forms, Files, Basic Web server Controls	Comprehension (Level – 2)
CO3.	Understanding the concepts of Tables, Forms, Files. Basic Web server Controls	Comprehension (Level – 2)
CO4.	Describing the complete overview of HTML & Java Script	Synthesis (Level – 6)
CO5.	Mastering Error handling. Security, Authentication, IP Address, Secure by SSL and Client Certificates	Synthesis (Level – 6)
UCST63	**COMPUTER GRAPHICS**	
CO1.	Gaining in-depth knowledge about the current 3D graphics	Knowledge (Level – 1)

CO2.	Understanding computational development of graphics	Comprehension (Level – 2)
CO3.	Analyzing the Line attribute & curve attribute	Analysis(Level – 4)
CO4.	Designing animation with rotation, translation and scaling	Synthesis (Level – 6)
CO5.	Working out 3D Display Techniques, 3D representation & 3D transformations.	Synthesis (Level – 6)
UCSP63	**JAVA AND INTERNET PROGRAMMING LAB**	
CO1.	Gaining knowledge about basic Java language syntax and semantics	Knowledge (Level – 1)
CO2.	Understanding the fundamentals of object-oriented programming in Java, including defining classes, objects, invoking methods etc and exception handling mechanisms.	Comprehension (Level – 2)
CO3.	Analysing the principles of inheritance, packages and interfaces	Analysis(Level – 4)
CO4.	Becoming capable of writing Java programs and using concepts such as variables, conditional and iterative execution methods etc.	Synthesis (Level – 6)
CO5.	Developing software in the Java programming language	Synthesis (Level – 6)
UCSP64	**WEB TECHNOLOGY LAB**	
CO1.	Understanding the role of mark-up languages in the workings of the web and web applications.	Comprehension (Level – 2)
CO2.	Applying the knowledge of the internet and related internet concepts that are vital in understanding web application development	Application (Level – 3)
CO3.	Analyzing the insights of internet programming to implement complete application over the web	Analysis (Level – 4)
CO4.	Becoming capable of choosing the best technologies for solving web client/server problems.	Synthesis (Level – 6)
CO5.	Automating the real time problems by developing & analyzing a web project and identifying its elements and attributes in comparison to traditional projects.	Synthesis (Level – 6)
UCSS64	**COMPUTER GRAPHICS LAB**	
CO1.	Gaining in depth knowledge in developing the Computer graphics	Knowledge (Level – 1)
CO2.	Understanding the basic principles of implementing computer graphics primitives	Comprehension (Level – 2)
CO3.	Applying Translation Techniques	Application (Level – 3)
CO4.	Becoming familiar with key algorithms for modelling and rendering graphical data.	Synthesis (Level – 6)
CO5.	Developing the skill in computer graphics work	Synthesis (Level – 6)
UENS64	**HTML LAB**	
CO1.	Gaining knowledge in using formatting tags	Knowledge (Level – 1)
CO2.	Comprehending the method of inserting the Image file in web pages.	Comprehension (Level – 2)
CO3.	Applying the procedure of navigating through web pages.	Application (Level – 3)
CO4.	Becoming skilful in creating Web pages	Synthesis (Level – 6)
CO5.	Becoming skilful in using basic HTM tags	Synthesis (Level – 6)
PHOTOSHOP LAB		

CO1.	Gaining knowledge of the Photoshop Laboratory techniques	Knowledge (Level – 1)
CO2.	Understanding the Layers and Masking	Comprehension (Level – 2)
CO3.	Becoming skilful in navigating Photoshop's Workspace, Create & setup documents	Application (Level – 3)
CO4.	Becoming capable of working with effects, filters and adjustments	Synthesis (Level – 6)
CO5.	Gaining proficiency in a broad range of design skills pertaining to publication & web design.	Synthesis (Level – 6)
FUNDAMENTALS OF COMPUTER		
CO1.	Gaining knowledge of the history of computers	Knowledge (Level – 1)
CO2.	Getting a comprehensive knowledge of I/O Devices	Comprehension (Level – 2)
CO3.	Analysing the types of software system	Analysis (Level – 4)
CO4.	Becoming skilful in handling programming languages	Synthesis (Level – 6)
CO5.	Becoming skilful in working with windows	Synthesis (Level – 6)
PRINCIPLES OF INFORMATION TECHNOLOGY		
CO1.	Gaining knowledge of Database	Knowledge (Level – 1)
CO2.	Getting a comprehensive knowledge of Multimedia.	Comprehension (Level – 2)
CO3.	Analysing the types of Internet services	Analysis (Level – 4)
CO4.	Becoming skilful in handling Multimedia tools	Synthesis (Level – 6)
CO5.	Becoming skilful in application of ICT tools	Synthesis (Level – 6)

M.Sc., COMPUTER SCIENCE

M.Sc., (CS) / PCS26 / PROGRAMMES OUTCOMES

POs	Description of POs
PO1	Apply knowledge of computing and mathematics to solve problems.
PO2	Survive in today's interconnected world with the knowledge earned through critical thinking and fundamental core concepts.
PO3	Become women entrepreneurs such as web designer, database developer , programmer and multimedia designer.
PO4	Design and implement software applications for social, economic, health , safety and ethical issues.
PO5	Activate their sufficient knowledge in hardware and software to meet the current industry requirements.
PO6	Work in the areas of programming, database, multimedia, web designing, networking by acquiring knowledge in various domain based electives.
PO7	Design and develop computer applications to solve certain challenges met by the world.

M.Sc., (CS) / PCS26 / COURSE OUTCOMES

	Course Outcomes	Bloom's Taxonomy / Cognitive Domain
PCST11	**ADVANCED JAVA PROGRAMMING**	
CO1.	Gaining knowledge how to import user defined package, to create thread program and string	Knowledge (Level – 1)

	methods.	
CO2.	Understanding the Basic Programming Concepts of Java.	Comprehension (Level – 2)
CO3.	Evaluating the integrated development environment to create, debug and multi-tier enterprise level applications.	Evaluation (Level – 5)
CO4.	Analysing the Input/output and Networking package classes and methods	Analysis (Level – 4)
CO5	Gaining ability to design console based, GUI and web based applications	Synthesis (Level – 6)
PCST12	**DATASTRCTURES AND ALGORITHMS**	
CO1.	Gaining knowledge of programming and system networking	Knowledge (Level – 1)
CO2.	Comprehending the Software development and networking system	Comprehension (Level – 2)
CO3.	Evaluating the software development, data manipulation and technology re-engineering	Evaluation (Level – 5)
CO4.	Analysing the maintenance of software network to handle the technological challenges	Analysis (Level – 4)
CO5	Becoming capable of handling digital commerce, software development and can achieve organizational goals objectives.	Synthesis (Level – 6)
PCST13	**MATHEMATICAL FOUNDATIONS ON COMPUTER SCIENCE**	
CO1.	Gaining knowledge of the basic set theory	Knowledge (Level – 1)
CO2.	Comprehending the basic concept of Permutations and combinations.	Comprehension (Level – 2)
CO3.	Evaluating the Mathematical Foundation of computer science	Evaluation (Level – 5)
CO4.	Analysing the basic search algorithms to find the shortest path	Analysis (Level – 4)
CO5	Becoming familiar with different mathematical structures.	Synthesis (Level – 6)
PCSP11	**ADVANCED JAVA LAB**	
CO1.	Gaining knowledge about basic Java language syntax and semantics	Knowledge (Level – 1)
CO2.	Understanding the fundamentals of object-oriented programming in Java, including defining classes, objects, invoking methods etc and exception handling mechanisms.	Comprehension (Level – 2)
CO3.	Analysing the principles of inheritance, packages and interfaces	Analysis(Level – 4)
CO4.	Becoming capable of writing Java programs and using concepts such as variables, conditional and iterative execution methods etc.	Synthesis (Level – 6)
CO5	Developing software in the Java programming language	Synthesis (Level – 6)
PCSE11	**COMPUTER GRAPHICS**	
CO1.	Gaining knowledge about hardware system architecture for computer graphics	Knowledge (Level – 1)
CO2.	Understanding the fundamentals of the current 3D graphics API	Comprehension (Level – 2)
CO3.	Discussing future trends in computer graphics	Analysis(Level – 4)
CO4.	Mastering future computer graphics concepts and APIs.	Synthesis (Level – 6)
CO5	Being familiar with key algorithms for modelling and rendering	Synthesis (Level – 6)

PCSE11	**SOFT COMPUTING**	
CO1.	Gaining knowledge of soft computing theories fundamentals	Knowledge (Level – 1)
CO2.	Applying artificial neural networks, fuzzy sets and fuzzy logic and Genetic algorithms in problem solving	Application (Level – 3)
CO3.	Analysing the use of heuristics based on human experience	Analysis(Level – 4)
CO4.	Familiarizing with genetic algorithms and random search procedure useful while seeking global optimum in self-learning situations.	Synthesis (Level – 6)
CO5	Having clear practical knowledge of the fundamentals of non-traditional technologies and approaches to solve hard real-world problems.	Synthesis (Level – 6)
PCST21	**ADVANCED OPERATING SYSTEM**	
CO1.	Gaining knowledge of the concepts of operating system	Knowledge (Level – 1)
CO2.	Comprehending the various issues in operating system	Comprehension (Level – 2)
CO3.	Analysing the emerging trends in operating system	Analysis(Level – 4)
CO4.	Gaining mastery over the Modern Operating Systems	Synthesis (Level – 6)
CO5	Becoming familiar with the important mechanisms in operating systems	Synthesis (Level – 6)
PCST22	**RELATIONAL DATABASE MANAGEMENT SYSTEM**	
CO1.	Gaining knowledge of Database Systems and Data Models	Knowledge (Level – 1)
CO2.	Comprehending the needs of Database processing	Comprehension (Level – 2)
CO3.	Modifying and maintaining the Database Structure	Analysis(Level – 4)
CO4.	Practising the techniques for controlling the consequences of concurrent access	Synthesis (Level – 6)
CO5	Becoming capable of handling the Database.	Synthesis (Level – 6)
PCST23	**COMPUTER NETWORKS**	
CO1.	Gaining knowledge of the networking concepts and basic communication model	Knowledge (Level – 1)
CO2.	Understanding the working principles of various application protocols	Comprehension (Level – 2)
CO3.	Analyzing the basic terminology and Topology of the computer networking area	Analysis (Level – 4)
CO4.	Evaluating the working principles of various application protocols	Evaluation (Level – 5)
CO5	Mastering the working with routing algorithms	Synthesis (Level – 6)
PCSP22	**RDBMS LAB**	
CO1.	Knowing the connectivity of databases with controls (DAO,ADO & RDO)	Knowledge (Level – 1)
CO2.	Becoming familiar with SQL fundamental Concepts.	Comprehension (Level – 2)
CO3.	Applying Normalization techniques to normalize a database	Application (Level – 3)
CO4.	Evaluating the underlying concepts of database technologies	Evaluation (Level – 5)
CO5	Designing and implementing a database scheme for a given problem-domain	Synthesis (Level – 6)

PCSE22	**CRYPTOGRAPHY AND NETWORK SECURITY**	
CO1.	Knowing about the Finite Fields and Number Theory	Knowledge (Level – 1)
CO2.	Comprehending the concept of Public key cryptography	Comprehension (Level – 2)
CO3.	Applying the working procedure of Digital Signature and authentication protocols	Application (Level – 3)
CO4.	Evaluating the Internet Firewall System	Evaluation (Level – 5)
CO5	Mastering and updating knowledge in Internet Security: Cryptographic Principles.	Synthesis (Level – 6)
PCSE22	**DATA WAREHOUSING AND DATA MINING**	
CO1.	.Being aware of the functionalities, patterns, of operating system	Knowledge (Level – 1)
CO2.	Understanding the concept of classification for the retrieval purposes	Comprehension (Level – 2)
CO3.	Working out the applications of data mining	Application (Level – 3)
CO4.	Discovering interesting patterns from large amounts of data to analyze and extract patterns to solve problems.	Synthesis (Level – 6)
CO5	Designing and deploying appropriate classification techniques	Synthesis (Level – 6)
PCST31	**COMPILER DESIGN**	
CO1.	Acquiring knowledge of the various parsing and different levels of translation.	Knowledge (Level – 1)
CO2.	Understanding the working of compile	Comprehension (Level – 2)
CO3.	Analysing the specific object code from source language.	Analysis (Level – 4)
CO4.	Evaluating the Code Scheduling Constraints	Evaluation (Level – 5)
CO5	Knowing to optimize the code and schedule for optimal performance.	Synthesis (Level – 6)
PCST32	**SOFTWARE ENGINEERING**	
CO1.	Gaining knowledge of the processes of software development	Knowledge (Level – 1)
CO2.	Comprehending and developing software design and modules for real time system	Comprehension (Level – 2)
CO3.	Analyzing verification & validation techniques	Analysis (Level – 4)
CO4.	Developing software design and modules for real time system	Synthesis (Level – 6)
CO5	Identifying, formulating and solving engineering problems	Synthesis (Level – 6)
PCST33	**WEB PROGRAMMING**	
CO1.	Understanding the role of mark-up languages in the workings of the web and web applications.	Comprehension (Level – 2)
CO2.	Applying the knowledge of the internet and related internet concepts that are vital in understanding web application development	Application (Level – 3)
CO3.	Analyzing the insights of internet programming to implement complete application over the web	Analysis (Level – 4)
CO4.	Becoming capable of choosing the best technologies for solving web client/server problems.	Synthesis (Level – 6)
CO5	Automating the real time problems by developing & analyzing a web project and identifying its elements and attributes in comparison to traditional projects.	Synthesis (Level – 6)

PCSP33	**WEB PROGRAMMING LAB**	
CO1.	Understanding the role of mark-up languages in the workings of the web and web applications.	Comprehension (Level – 2)
CO2.	Applying the knowledge of the internet and related internet concepts that are vital in understanding web application development	Application (Level – 3)
CO3.	Analyzing the insights of internet programming to implement complete application over the web	Analysis (Level – 4)
CO4.	Becoming capable of choosing the best technologies for solving web client/server problems.	Synthesis (Level – 6)
CO5	the real time problems by developing & analyzing a web project and identifying its elements and attributes in comparison to traditional projects.	Synthesis (Level – 6)
PCSE33	**SOFTWARE PROJECT MANAGEMENT**	
CO1.	Gaining in depth knowledge about software development standards	Knowledge (Level – 1)
CO2.	Understanding how to manage people and organization of teams	Comprehension (Level – 2)
CO3.	Estimating the cost associated with a project	Analysis (Level – 4)
CO4.	Planning and monitoring projects for the risk management	Synthesis (Level – 6)
CO5	Exploring the process of monitoring and controlling	Synthesis (Level – 6)
PCSE33	**BIG DATA ANALYTICS**	
CO1.	Gaining knowledge of the fundamental concepts of big data and analytics	Knowledge (Level – 1)
CO2.	Comprehending the research that requires the integration of large amounts of data	Comprehension (Level – 2)
CO3.	Exploring tools and practices for working with big data	Analysis (Level – 4)
CO4.	Acquiring in depth knowledge in stream computing research that requires the integration	Synthesis (Level – 6)
CO5	Mastering Business Intelligence: Tools-skills- applications	Synthesis (Level – 6)
PCST41	**DIGITAL IMAGE PROCESSING**	
CO1.	Knowing about the basic concepts of digital image processing	Knowledge (Level – 1)
CO2.	Understanding the image enhancement technique	Comprehension (Level – 2)
CO3.	Applying a broad range of image processing techniques	Application (Level – 3)
CO4.	Becoming skilful in image restoration and segmentation	Synthesis (Level – 6)
CO5	**CO5:** Creating Image Classification, retrieval, Image fusion, Digital compositing & Video motion analysis	Synthesis (Level – 6)
PCST42	**MOBILE COMPUTING**	
CO1.	Knowing about the satellite system	Knowledge (Level – 1)
CO2.	Understanding the mobile communications environment	Comprehension (Level – 2)
CO3.	Analysing the mobile computing system	Analysis (Level – 4)
CO4.	Mastering interaction with servers and database systems.	Synthesis (Level – 6)
CO5	Interfacing a mobile computing system to hardware and networks	Synthesis (Level – 6)

M.Phil., COMPUTER SCIENCE	
M.Phil., (CS) / MCS26 / PROGRAMMES OUTCOMES	
POs	**Description of POs**
PO1	Demonstrating basic knowledge in Computer Science.
PO2	Using research tools in their chosen area of specialization.
PO3	Exhibiting ability in the critical evaluation of research techniques and methodologies.
PO4	Acquiring basic knowledge of research and skills to solve problems, analyze data and interpret the results.
PO5	Gaining fundamental strength in analyzing, designing and solving research and industry related problems.
PO6	Attaining holistic development towards a successful career in academic and research institutes.
PO7	Becoming capable of communicating effectively and demonstrating professional and ethical responsibilities.

M.Phil., (CS) / MCS26 / COURSE OUTCOMES		
	Course Outcomes	**Bloom's Taxonomy / Cognitive Domain**
MCST11	**Research Methodology**	
CO1.	Gaining knowledge to use tools related to research in Computer Science.	Knowledge (Level 1)
CO2.	Comprehending the concepts of Logic and Natural Deduction Systems.	Comprehension (Level 2)
CO3.	Applying the gained knowledge to calculate the computing time of algorithms and ideas related to NP Completeness.	Application (Level 3)
CO4.	Gaining mastery over the formal language of Computer Science, its grammar and its applications	Synthesis (Level 6)
CO5	Using probability and applications of probability in areas such as System Reliability	Synthesis (Level 6)
MCST12	**High Performance Computing**	
CO1.	Understanding of basic ideas of Data Science and capacity to analyze big data sets.	Comprehension (Level 2)
CO2.	Understanding the Cloud Computing as an emerging area of public and scientific use and applications of Cloud Computing in the current social and research contexts.	Comprehension (Level 2)
CO3.	Gaining knowledge of Virtualization and its various uses for practical applications.	Knowledge (Level 1)
CO4.	Appreciating IoT as a fast growing paradigm of Computer Science and it suses in research.	Synthesis (Level 6)
CO5	Appreciating Cryptography as a tool of security in the areas of Database, Program and Computer Networks and to pursue further learning of the same.	Synthesis (Level 6)
MCST13	**Professional Skills**	
CO1.	Acquiring knowledge of communication skills with special reference to its elements, types, development and styles.	Knowledge (Level 1)

CO2.	Understanding the terms like Communication technology, Computer Mediated Teaching	Comprehension (Level 2)
CO3.	Developing skills in ICT and applying them in teaching, learning contexts and research.	Synthesis (Level 6)
CO4.	Developing Multimedia/E-contents in their respective subjects.	Synthesis (Level 6)
CO5	Integrating Technology into Teaching and Learning	Synthesis (Level 6)