PROGRAMME SPECIFIC OUTCOMES, PROGRAMME OUTCOMES AND COURSE OUTCOMES

DEPARTMENT OF COMPUTER APPLICATIONS / BCA., / UCA45

BCA.,	
PSOs	**BCA., / UCA45 / PROGRAMME SPECIFIC OUTCOMES**
PSO1	Imparting the necessary technical, scientific as well as basic managerial and financial procedures to analyze and solve real world problems within their work domain
PSO2	Bringing in clarity on both conceptual and application oriented skills in commerce, Finance & Accounting and IT Applications in Business context.
PSO3	Improving communication and business management skills, especially in providing technical support.
PSO4	Creating awareness on ethics, values, sustainability and creativity aspects.
PSO5	Inculcating the ability and the mindset to continuously update and innovate
BCA., / UCA45 / PROGRAMMES OUTCOMES	
POs	**Description of POs**
PO1	To apply fundamental knowledge of mathematics and Principles of Computing techniques to solve the problems in computer science and application areas.
PO2	To analyse a computing requirement and apply programming principles for providing effective solutions.
PO3	To design an innovative interface method to bring the complete requirement and visualize the result for decision making.
PO4	To investigate and apply modern tools and technologies in the construction of software system
PO5	To practice team communication, effective management and Interpersonal skill for the successful computing professional and entrepreneur.
PO6	To apply contextual knowledge of professional, ethical, legal, and security to assess societal, health, legal and cultural issues.
PO7	To extend enthusiasm for self-improvement through continuous professional development and life-long learning.

BCA., / UCA45 / COURSE OUTCOMES		
	Description of COs	**Bloom's Taxonomy / Cognitive Domain**
UCAT11	**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)

UCAT12	**COMPUTER FUNDAMENTALS & PROBLEM SOLVING**	
CO1.	Acquiring knowledge of the concept of flow of control and program structures	Knowledge (Level – 1)
CO2.	Understanding the basic concepts involved in computing	Comprehension (Level – 2)
CO3.	Applying the knowledge in computer techniques to solve real world problems.	Application (Level – 3)
CO4.	Analysing and solving Programming problems using procedural approach.	Analysis (Level – 4)
CO5.	Activating the hardware and software skills required for a computation task	Synthesis (Level – 6)
UCAA11	**DIGITAL PRINCIPLES**	
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)
UCAT21	**PROGRAMMING USING 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)
UCAP21	**PROGRAMMING IN C & 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)
UCAA21	**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)
UCAT31	**RDBMS**	
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)
UCAA32	**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)
UCAE31	**STATISTICAL METHODS**	
CO1.	Gaining knowledge about the broad background in Statistics fundamentals and techniques.	Knowledge (Level – 1)
CO2.	Becoming familiar with a variety of examples where mathematics or statistics helps accurately explain abstract or physical phenomena.	Comprehension (Level – 2)
CO3.	Demonstrate proficiency in probability and statistical theory and methods.	Application (Level – 3)
CO4.	Creating confidence to have the versatility to work effectively in a broad range of analytic, scientific, government, financial, health, technical and other positions.	Synthesis (Level – 6)
CO5.	Identifying the importance and value of mathematical and statistical thinking, training, and approach to problem solving, on a diverse variety of disciplines.	Synthesis (Level – 6)
UCAN31	**BUSINESS AUTOMATION LAB**	
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)
UCAS31	**BUSINESS AUTOMATION LAB**	
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)
UCAT41	**PROGRAMMING IN JAVA**	
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)
UCAP42	**PROGRAMMING IN 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)
UCAA42	**TALLY LAB**	
CO1.	knowledge of the usefulness/importance of Tally ERP-9 software for simplifying the accounting methods & procedures.	Knowledge (Level – 1)
CO2.	Acquiring the computer skills of recording financial transactions, preparation of annual accounts and reports using Tally.	Comprehension (Level – 2)
CO3.	Applying the accounting knowledge to increase the job skill as Tally data entry operator.	Application (Level – 3)
CO4.	Becoming proficient in creating the accounting records and extract the financial statements and other statements related to inventory management, depreciation accounting and VAT procedure and records.	Synthesis (Level – 6)
CO5.	Creating/Loading the company, group, security control, back-up etc.	Synthesis (Level – 6)
UCAE42	**ACCOUNTING AND FINANCIAL MANAGEMENT**	
CO1.	Gaining knowledge of accounting procedures & preparation of final Accounts	Knowledge (Level – 1)
CO2.	Understanding the need of Accounts of an organization for decision making.	Comprehension (Level – 2)
CO3.	Analyzing the concept of fundamental financial concepts, especially time value of money.	Analysis (Level – 4)
CO4.	Analyzing the main ways of raising capital and their respective advantages and disadvantages in different circumstances.	Analysis (Level – 4)
CO5.	Integrating concepts and applying the financial concepts to calculate ratios and do the capital	Synthesis (Level – 6)

	budgeting.	
UCAN42	**DESK TOP PUBLISHING (DTP LAB)**	
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)
UCAS42	**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)
UCAT51	**COMPUTER ARCHITECTURE**	
CO1.	Identifying design levels for computer system development	Knowledge (Level – 1)
CO2.	Understanding the internal processing system and procedure of the Computer.	Comprehension (Level – 2)
CO3.	Analyzing some of the design issues in terms of speed, technology, cost, performance.	Analysis (Level – 4)
CO4.	Evaluating the historical development of computer systems	Evaluation (Level – 5)
CO5.	Recognizing and dealing with high performance architecture design	Synthesis (Level – 6)
UCAT52	**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)
UCAT53	**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	Comprehension (Level – 2)

	software	
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)
UCAT54	**SOFTWARE ENGINEERING CREDITS**	
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)
UCAT55	**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)
UCAE53	**PHP WITH MYSQL – LAB**	
CO1.	Gaining knowledge of the uses, features and syntax of PHP	Knowledge (Level – 1)
CO2.	Comprehending the methods of designing and developing a Web site using form controls for presenting web based content.	Comprehension (Level – 2)
CO3.	Analyzing the construction of a web page and relate how PHP and HTML combine to produce the web page	Analysis (Level – 4)
CO4.	Creating, translating and processing HTML information using the CGI.	Synthesis (Level – 6)
CO5.	Creating dynamic Website/ Web based Applications, using PHP, MySQL database	Synthesis (Level – 6)
UCAS53	**MOBILE APPLICATIONS – LAB**	
CO1.	Gaining knowledge about Android as new technology for developing mobile application	Knowledge (Level – 1)
CO2.	Identifying the different application programming interfaces that are available for the different mobile platforms and languages.	Comprehension (Level – 2)
CO3.	Applying Java programming concepts to Android application development	Application (Level – 3)
CO4.	Designing and developing user Interfaces for the Android platform	Synthesis (Level – 6)
CO5.	Becoming competent in designing and developing mobile applications using application development framework.	Synthesis (Level – 6)
UCAT61	**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)
UCAT62	**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)
UCAT63	**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)
UCAP63	**MULTIMEDIA LAB**	
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)
UCAP64	**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)
UCAS64	**SOFTWARE TESTING LAB**	

CO1.	Learning the functionality of automated testing tools to apply in the specialized environment	Comprehension (Level – 2)
CO2.	Applying various techniques to detect the errors in the software	Application (Level – 3)
CO3.	Distinguishing characteristics of structural testing methods.	Analysis (Level – 4)
CO4.	Demonstrating the integration testing which aims to uncover interaction and compatibility problems as early as possible.	Synthesis (Level – 6)
CO5.	Becoming capable of applying specific (automated) unit testing method to the projects.	Synthesis (Level – 6)