



VIDHYA SAGAR WOMEN'S COLLEGE

(Affiliated to University of Madras)

Accredited at 'A' Grade by NAAC

DEPARTMENT OF COMPUTER SCIENCE

B.SC COMPUTER SCIENCE

PROGRAMME OUTCOME (PO):

Bachelor of Science offers theoretical as well as practical knowledge about different subject areas. This programme course is most beneficial for students who have a strong interest and background in Science and Mathematics. The course is also beneficial for students who wish to pursue multi and inter-disciplinary science careers in future. Following are the various programme outcomes:

PO1: Apply the knowledge of mathematics, science, and computing to the solution of complex scientific problems.

PO2: It helps to develop scientific temper and thus can prove to be more beneficial for the society as the scientific developments can make a nation or society to grow at a rapid pace.

PO3: After the completion of this course students have the option to go for higher studies i.e. M.Sc., MCA, MBA and B.Ed., then do some research for the welfare of mankind.

PO4: Science graduates can go to serve in industries or may opt for establishing their own industrial unit.

PO5: After the completion of the B.Sc., degree there are various other options available for the science students. Often, in some reputed universities or colleges in India and abroad the students are recruited directly by big MNC's after their completion of the course.

PROGRAMME SPECIFIC OUTCOME (PSO):

PSO1: Understanding of the principles and working of the hardware and software aspects of Computer systems.

PSO2: Able to communicate effectively and to improve their competency skills to solve real time problems using programming languages of C, C++, Java, DS, VB, .Net, DBMS, Web Technologies.

PSO3: Student will become a best Software developer, Software tester and Software designer through learning skills, practical skills and able to create apps, which will act as user friendly.

PSO4: The ability to employ modern computer languages and applications for their successful career, to create platforms to become an entrepreneur and a relish for higher studies.

PSO5: An ability to use innovative tools, techniques and skills necessary for developing multidisciplinary projects

COURSE OUTCOME (CO):

CO1: TAMIL-I- The course focuses on culture and traditional way of living, proverbs and folk songs. In addition to verbal literature, life style of ancient people and their culture, society and tradition were also been focussed. Finally, the subject motivates the students for creative writing, poetry making, and learning grammar are also included.

CO2: ENGLISH I – At the end of the course the students are able to read, interpret, and write about a diverse range of texts in English, for example prose, poetry, and drama. On the basis of careful and close reading, the students understand the text analytically and critically. The students can participate clearly and appropriately through spoken and written forms. Further, students develop abilities in grammar, oral skills, reading, writing and study skills.

CO3: MATHEMATICS-I - Upon successful completion of Mathematics students will be able to explain why mathematical thinking is valuable in daily life and Students will be able to known to solve differential calculus, algebra, trigonometry and Fourier series.

CO4: PROGRAMMING IN C - To provide the complete knowledge of C language. Students will be able to develop logic's which will help them to create programs, applications using C and also by learning the basic programming constructs they can easily switch over to any other language in future.

CO5: PROGRAMMING IN C LAB - On successful completion of this lab the students have the programming ability in C Language by understand fundamentals and basic concepts of C programming includes arrays, structures, function, strings, Exceptions, pointers and files.

CO6: NON- MAJOR ELECTIVE - HTML - To create static web pages using HTML Elements.

CO7: SOFT SKILL- I - ESSENTIALS OF LANGUAGE AND COMMUNICATION SKILLS - It helps the students to develop language acquisition and introduce them to range of vocabulary and helping them to communicate with ease and clarity.

CO8: TAMIL-II – The course focuses on anthropology, reign of kings, ancient literature, prose, poetry, mystery and contemporary literature. After completing the students can develop their nobility and humanity.

CO9: ENGLISH II – After successful completion of this course the students develop their skills in the areas of academic reading, writing, speaking, and listening. The students can apply reading and listening strategies to comprehend and evaluate a range of academic texts and talks. Identify relevant information from academic texts and talks, and utilise effective summarising techniques.

CO10: MATHEMATICS-II - To inculcate knowledge on triangle properties, vector calculus and Numerical Analysis concepts.

CO11: DIGITAL ELECTRONICS AND MICROPROCESSOR - To learn about integrated circuits, simplification of Boolean algebra and assembly language. Understand about 8085 microprocessor pin architecture, peripherals, programming model and hardware model.

CO12: DIGITAL ELECTRONICS AND MICROPROCESSOR LAB - Will be able to write programs and execute in Microprocessor Trainer Kit and to understand the IC's pin architecture by giving connection in digital kit using wires and power supply.

CO13: NON- MAJOR ELECTIVE: HTML LAB - To create web pages using different types of tags and its properties to understand the concept of web based.

CO14: SOFT SKILL- II - ESSENTIALS OF SPOKEN AND PRESENTATION SKILLS - It helps students to keep a presentation interesting. It also helps the presenter communicate with confidence and motivate them to create variety and speak with optimal audibility during presentation. It further helps the students to learn verbal and nonverbal gestures and posters.

CO15: TAMIL-III – The course mainly focuses on the importance of Religion and religious people. It spreads love, affection and self-confidence to all the people. It also focuses on life and life style of the ancient people like Kannagi, Madhavi and many epic stories.

CO16: ENGLISH III - After successful completion of this course the students develop their skills in the areas of academic reading, writing, speaking, and listening. The students can demonstrate and understand which helps an ability to produce the structure, conventions and characteristics of a range of short academic essays. Deliver structured academic oral and written presentations.

CO17: PROGRAMMING WITH C++ & DATA STRUCTURES - To gain knowledge about OOPS concepts such as polymorphism, inheritance, class, object and learn the data structure types and operations on data structures.

CO18: PROGRAMMING WITH C++ LAB - To gain practical knowledge about OOPS with data structures.

CO19: STATISTICAL METHODS & THEIR APPLICATIONS I - Students will formulate complete, concise, and correct mathematical proofs. Students will frame problems using multiple mathematical and statistical representations of relevant structures and relationships and solve using standard techniques. Students will create quantitative models to solve real world problems in appropriate context and will effectively use professional level technology tools to support the study of mathematics and statistics methods.

CO20: ENVIRONMENTAL STUDIES - To analyze the importance and influence of environment on the economy including the quality of manpower. To define the nature and classification of resource and energy within the context in India. To gain knowledge on environment awareness program.

CO21: PERSONALITY ENRICHMENT-LEVEL I - To learn the importance of improving their personality and learn about the components and need for personality development. Motivation, social and economic scenario imparted to the students. Rational decision making and nurturing creativity are the outcomes expected. Students understand the importance of Positive thinking and traits of positive thinkers and how to follow a positive life style.

CO22: TAMIL –IV: Ancient literature folks of inner and outer activities of the country are focussed in this course. It also focuses on noble culture, tradition and discipline spread among

the students through the historical plays. Students are also learning climate, seasons, atmosphere, agriculture and generosity. It also focuses on ancient moral and mythical values.

CO23: ENGLISH IV – This course develops English language skills in listening, speaking, reading and writing by having learners engage in a range of communicative tasks and activities. Further the course expands the learner's use of grammatically correct and appropriate language in speaking and writing for effective communication in a variety of interpersonal and academic situations.

CO24: PROGRAMMING IN JAVA – To gain knowledge about basic Java and fundamentals of OOPS. Use JDK environment to create a solution for problem and implement exception handling, Packages and multithreading concepts. Able to understand the use of OOPs concepts, solve real world problems using OOP techniques, understand the use of abstraction, understand the use of Packages and Interface in java, develop and understand exception handling, multithreaded applications with synchronization.

CO25: PROGRAMMING IN JAVA LAB– To gain practical knowledge about basic Java and Applets.

CO26: STATISTICAL METHODS & THEIR APPLICATIONS II: Analysing statistical data through statistical methods and demonstrates the concepts of time series and its applications in different areas.

CO27: STATISTICAL METHODS & THEIR APPLICATIONS II (PRACTICAL): students will gain and able to understand the practice of statistical methods, with specific reference to problems of standard deviation, measures of central tendency, parametric and non-parametric test, analysis of variance and skewness.

CO28: ENVIRONMENTAL STUDIES – To analyze the importance and influence of environment on the economy including the quality of manpower. To define the nature and classification of resource and energy within the context in India. To gain knowledge on environment awareness program. To illustrate about the International environment assessment program.

CO29: PERSONALITY ENRICHMENT-II - To learn the importance of improving their personality and learn about the components and need for personality development. Motivation, social and economic scenario imparted to the students. Rational decision making and nurturing

creativity are the outcomes expected. Students understand the importance of Positive thinking and traits of positive thinkers and how to follow a positive life style.

CO30: DBMS - At the end of this subject, the student will have a broad understanding of database concepts and database management system software have a high-level understanding of major DBMS components and their function able to model an application's data requirements using conceptual modelling tools like ER diagrams and design database schemas based on the conceptual model.

CO31: VISUAL PROGRAMMING- Students might learn about the user interface, language syntax and overall GUI programming structure to design form and establish connection with the back end.

CO32: OPERATING SYSTEM – To learn the fundamentals and mechanisms of operating system to handle processors, thread and memory management to gain knowledge on distributed operating system concepts that includes architecture, mutual exclusion algorithms, deadlock.

CO33: COMPUTER ARCHITECTURE - Understand the theory and architecture of central processing unit and memory management, I/O system, pipelining, micro and arithmetic operations.

CO34: RDBMS LAB- Design and implement a database schema for given problem. Capable to design and build a GUI application. Apply the normalization techniques for development of application software to realistic problems. Formulate queries using SQL DML/DDDL/DCL commands.

CO35: VALUE EDUCATION - To learn the importance of values which acts as guiding factor in day to day life. Personal values like affection, compassion, gratitude, courage, optimism are taught to the students to improve their mind and personality. Family values and importance of family bonding are understood by the students. Students understand the difference between self-esteem and ego and the harmful effects of Anger.

CO35: DATA COMMUNICATION AND NETWORKING - Provides basic concepts of data communications and networking. Explores network topologies, communication protocols, network design, switching, management, security and standards with emphasis on the TCP/IP protocol suite. Troubleshoot simple business network design errors. Design simple business local, metropolitan and wide area networks using appropriate architectures, hardware and security.

CO36: WEB TECHNOLOGY – Analyse a web page and identify its elements and attributes, create web page using HTML, built dynamic web page using JavaScript, VB Script and ASP.NET.

CO37: WEB APPLICATION LAB- The objective of this lab is to develop an ability to design and implement static and dynamic website. At the end of the course, students should be able to design and implement dynamic websites with good aesthetic sense of designing and latest technical skills.

CO38: OBJECT ORIENTED ANALYSIS & DESIGN - Understanding importance of Object Orientation in Software engineering, components of Unified Modelling Language, techniques and diagrams related to structural modelling and behavioural modelling.

CO39: SOFTWARE ENGINEERING - Software Metrics and Project Management covers skills that are required to ensure successful medium and large-scale software projects. Student learn to select and apply project management techniques for process modelling, planning, estimation, process metrics and risk management; perform software verification and validation using inspections, design and execution of system test cases.

BACHELOR OF COMPUTER APPLICATION

PROGRAMME OUTCOMES (PO):

Bachelor of Computer Application (BCA) inculcates the ability to analyse, identify, formulate and develop computer applications using modern computing tools and techniques. The course is also beneficial for students to apply cross-functional business knowledge and technologies in solving real-world business problems. Following are the various programme outcomes:

PO1: Able to design and develop reliable software applications for social needs and excel in IT enabled services.

PO2: Able to analyse and identify the customer requirements in multidisciplinary domains, create high level design and implement robust software applications using latest technological skills.

PO3: Proficient in successfully designing innovative solutions for solving real life business problems and addressing business development issues with a passion for quality, competency and holistic approach

PO4: After the completion of this course students have the option to go for higher studies and become employable in various IT companies and government jobs.

PO5: Perform professionally with social responsibility as an individual as well as in multifaceted teams with positive attitude.

PROGRAMME SPECIFIC OUTCOMES (PSO):

PSO1: Ability to understand the structure and development methodologies of software systems. Possess professional skills and knowledge of software design process.

PSO2: Student creates applications in the area related to web designing and standalone applications, they enable to face the modern-day Challenges in real time and change them to industrial expectation

PSO3: An ability to apply mathematical foundations, algorithmic principles, and accounting principles in the design of computational systems.

PSO4: Apply problem solving skills and the knowledge of computer science to solve real world problems.

PSO5: Understand how technological advances impact society and the social, legal, ethical and cultural ramifications of computer technology and their usage.

COURSE OUTCOME(CO):

CO1: TAMIL-I- The course focuses on culture and traditional way of living, proverbs and folk songs. In addition to verbal literature, life style of ancient people and their culture, society and tradition were also been focussed. Finally, the subject motivates the students for creative writing, poetry making, and learning grammar are also included.

CO2: ENGLISH I – At the end of the course the students are able to read, interpret, and write about a diverse range of texts in English, for example prose, poetry, and drama. On the basis of careful and close reading, the students understand the text analytically and critically. The

students can participate clearly and appropriately through spoken and written forms. Further, students develop abilities in grammar, oral skills, reading, writing and study skills.

CO3: MATHEMATICS-I — Upon successful completion of Mathematics students will be able to explain why mathematical thinking is valuable in daily life and students will be able to know to solve differential calculus, algebra, trigonometry and Fourier series.

CO4: FUNDAMENTALS OF DIGITAL COMPUTER — Understand binary, hexadecimal and octal number systems and their arithmetic, understand how logic circuits and Boolean algebra forms as the basics of digital computer, demonstrate the building up of Sequential and combinational logic from basic gates, Design basic electronic Circuits (combinational circuits)

CO5: PC SOFTWARE LAB — Demonstrate the various Menus and its operating usage in MS- Word, Write up MS-Excel along with practical usage like preparation of financial accounts by using formulae and different types of charts, Creation of various slides with different formats with the help of MS-PowerPoint, Formation of payroll for employee and creation of forms and reports by using MS-Access.

CO6: NON-MAJOR ELECTIVE: HTML — Calculate a capital budgeting, Preparation of resume using HTML Tag. Creation of customer survey, formatting and alignment of sales letter, Preparation of frame and display of multiform document.

CO7: SOFT SKILLS- I - ESSENTIALS OF LANGUAGE AND COMMUNICATION SKILLS - It helps the students to develop language acquisition and introduce them to range of vocabulary and helping them to communicate with ease and clarity

CO8: TAMIL-II – The course focuses on anthropology, reign of kings, ancient literature, prose, poetry, mystery and contemporary literature. After completing the students can develop their nobility and humanity.

CO9: ENGLISH II – After successful completion of this course the students develop their skills in the areas of academic reading, writing, speaking, and listening. The students can apply reading and listening strategies to comprehend and evaluate a range of academic texts and talks. Identify relevant information from academic texts and talks, and utilise effective summarising techniques.

CO10: MATHEMATICS II — To inculcate knowledge on triangle properties; vector calculus and Numerical Analysis concepts.

CO11: PROGRAMMING IN C — This course aims to provide exposure to problem solving through programming. It aims to train the student to the basic concepts of the C-programming language. This course involves a lab component which is designed to give the student hands-on experience with the concepts.

CO12: PROGRAMMING IN C LAB — Read, understand and trace the execution of programs written in C language. Write the C code for a given algorithm. Implement Programs with arrays and pointers, perform pointer arithmetic, and use the pre-processor. Write programs that perform operations using derived data types.

CO13: SOFT SKILL- II - ESSENTIALS OF SPOKEN AND PRESENTATION SKILLS - It helps students to keep a presentation interesting. It also helps the presenter communicate with confidence and motivate them to create variety and speak with optimal audibility during presentation. It further helps the students to learn verbal and nonverbal gestures and posters.

CO14: NON-MAJOR ELECTIVE: HTML LAB—Insert a graphic within a web page, create a link within a web page, create a table within a web page, insert heading levels within a web page, Insert ordered and unordered lists within a web page.

CO15: MICROPROCESSOR & ITS APPLICATION: Assess and solve basic binary math operations using the microprocessor and explain the microprocessor's and Microcontroller's internal architecture and its operation within the area of manufacturing and performance. Apply knowledge and demonstrate programming proficiency using the various addressing modes and data transfer instructions of the target microprocessor and microcontroller.

CO16: PROGRAMMING IN C++ AND DATA STRUCTURES -To gain knowledge about OOPS concepts such as polymorphism, inheritance, class, object and learn the data structure types and operations on data structures.

CO17: FINANCIAL ACCOUNTING: To develop future managers for offices and/or software developers, support professionals, who would meet, the dynamic needs of the industry in a competitive and challenging environment. The program aims at providing expertise to students in different Office support system and software development area.

CO18: NUMERICAL & STATISTICAL METHODS: To learn advanced features of the numerical calculations, the measures of central tendency, the measures of dispersions' and mathematical properties of variance

CO19: PROGRAMMING IN C++ LAB: To gain practical knowledge about OOPS with data structures.

CO20: SOFT SKILL- III: PERSONALITY ENRICHMENT LEVEL I- To learn the importance of improving their personality and learn about the components and need for personality development. Motivation, social and economic scenario imparted to the students. Rational decision making and nurturing creativity are the outcomes expected. Students understand the importance of Positive thinking and traits of positive thinkers and how to follow a positive life style.

CO21: OPERATING SYSTEM: To learn the fundamentals and mechanisms of operating system to handle processors, thread and memory management to gain knowledge on distributed operating system concepts that includes architecture, mutual exclusion algorithms, deadlock.

CO22: COMPUTER GRAPHICS: To learn the basic concepts used in computer graphics, to implement various algorithms to scan, convert the basic geometrical primitives, transformations, Area filling, clipping, to describe the importance of viewing and projections, to define the fundamentals of animation.

CO23: PROGRAMMING IN JAVA – To gain knowledge about basic Java and fundamentals of OOPS. Use JDK environment to create a solution for problem and implement exception handling, Packages and multithreading concepts. Able to understand the use of OOPs concepts, solve real world problems using OOP techniques, understand the use of abstraction, understand the use of Packages and Interface in java, develop and understand exception handling, multithreaded applications with synchronization.

CO24: COST AND MANAGEMENT ACCOUNTING: On completion of this course, students should be able to identify, use and interpret the results of costing techniques appropriate to different activities and decisions; formulate and use standards and budgets for planning and control purposes; understand the role of responsibility accounting and performance measurement; understand the behavioural implications of performance measurement and transfer pricing systems in defictionalized businesses; appreciate the need to

relate management accounting systems to contemporary thinking about organisational planning and control.

CO25: PROGRAMMING IN JAVA LAB: To gain practical knowledge about basic Java and Applets.

CO26: SOFT SKILL- IV: PERSONALITY ENRICHMENT LEVEL II: To learn the importance of improving their personality and learn about the components and need for personality development. Motivation, social and economic scenario imparted to the students. Rational decision making and nurturing creativity are the outcomes expected. Students understand the importance of Positive thinking and traits of positive thinkers and how to follow a positive life style.

CO27: ENVIRONMENTAL STUDIES: To analyse the importance and influence of environment on the economy including the quality of manpower. To define the nature and classification of resource and energy within the context in India. To gain knowledge on environment awareness program. To illustrate about the International environment assessment program.

CO28 : DATABASE MANAGEMENT SYSTEM : At the end of this class, the successful student will have a broad understanding of database concepts and database management system software have a high-level understanding of major DBMS components and their function be able to model an application's data requirements using conceptual modelling tools like ER diagrams and design database schemas based on the conceptual model and be able to write SQL commands to create tables and indexes, insert/update/delete data, and query data in a relational DBMS.

CO29: VISUAL PROGRAMMING: Students might learn about the user interface, language syntax, program structure, and implementation of the programming language. The objective of such a course is to learn to create, use applications and learn to build user interfaces, manipulate and organize data, and manage the flow of programs.

CO30: RESOURCE MANAGEMENT TECHNIQUES: Upon Completion of the course, the students should be able to solve optimization problems using simple method. Apply integer programming and linear programming to solve real-life applications. Use PERT and CPM for problems in project management

CO31: SOFTWARE ENGINEERING: The basic objective of software engineering is to develop methods and procedures for software development that can scale up for large systems and that can be used consistently to produce high-quality software at low cost and with a small cycle of time.

CO32: RDBMS LAB: Students might learn about the user interface, language syntax, program structure, and implementation of the programming language. The objective of such a course is to learn to create, use applications and learn to build user interfaces, manipulate and organize data, and manage the flow of programs

CO33: VALUE EDUCATION: To learn the importance of values which acts as guiding factor in day today life. Personal values like affection, compassion, gratitude, courage, optimism are taught to the students to improve their mind and personality. Family values and importance of family bonding are understood by the students. Students understand the difference between self- esteem and ego and the harmful effects of Anger.

CO34: DATA COMMUNICATION AND NETWORKING: Provides basic concepts of data communications and networking. Explores network topologies, communication protocols, network design, switching, management, security and standards with emphasis on the TCP/IP protocol suite. Troubleshoot simple business network design errors. Design simple business local, metropolitan and wide area networks using appropriate architectures, hardware and security.

CO35: WEB TECHNOLOGY: Analyse a web page and identify its elements and attributes, create web page using HTML, built dynamic web page using JavaScript, VB Script and ASP.NET.

CO36: WEB TECHNOLOGY LAB: The objective of this lab is to develop an ability to design and implement static and dynamic website. At the end of the course, students should be able to design and implement dynamic websites with good aesthetic sense of designing and latest technical.

CO37: MULTIMEDIA: Students can gain knowledge on Multimedia, the field concerned with the computer-controlled integration of text, graphics, drawings, stills and moving images (Video), animation, audio, and any other media where every type of information can be represented, stored, transmitted and processed digitally. Students will understand multimedia

in respect to many applications including business, schools, home, education, and virtual reality.

CO38: SOFTWARE TESTING: Students will learn about testing phase of software development life cycle, covers verification and validation. Different types of testing such as unit, integration, white and black box testing and also help to learn about maintenance phase of software product.

CO39: OBJECT ORIENTED ANALYSIS & DESIGN: Understand the importance and basic concepts and of object-oriented modelling, Specify, analyse and design the use case driven requirements for a particular system. Model the event driven state of object and transform them into implementation specific layouts. Identify, analyse the subsystems, various components and collaborate them interchangeably.

M.SC INFORMATION TECHNOLOGY

PROGRAMME OUTCOMES (PO):

The Master of Science programme provides the candidate with knowledge, general competence, and analytical skills on an advanced level needed in industry, consultancy, education, and research.

PO1: Improve their computer literacy, their basic understanding of operative systems and a working knowledge of software commonly used in academic and professional environments.

PO2: Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

PO3: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO4: Demonstrate knowledge understanding of the scientific and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments

PO5: Apart from the research jobs, students can also work or get jobs in Business & Other technical fields. Science graduates also recruited in the bank sector to work as customer service executives. Students can also find employment in government sectors.

PROGRAMME SPECIFIC OUTCOMES (PSO):

PSO1: Apply standard Software Engineering practices and strategies in real-time software project development using open-source programming environment deliver quality product for the organization.

PSO2: Design and develop computer programs/computer-based systems in the areas related to algorithms, networking, web design, cloud computing, IoT and data analytics of varying complexity.

PSO3: Acquaint with the contemporary trends in industrial/research settings and thereby innovate novel solutions to existing problems

PSO4: Understand how technological advances impact society and the social, legal, ethical and cultural ramifications of computer technology and their usage.

PSO5: To Enhance skills and adapt new computing technologies for attaining professional excellence and carrying research.

COURSE OUTCOME:

CO1: C++ AND DATA STRUCTURES - A student acquire an understanding of the concepts of inheritance and polymorphism and an ability to overload operators in C++. To design and implement various data structure algorithms. To introduce various techniques for representation of the data in the real world. To Determine and analyze the complexity of given Algorithms.

CO2: DATABASE MANAGEMENT SYSTEM- Gain a good understanding of the architecture and functioning of database management systems as well as associated tools and techniques, principles of data modelling using entity relationship and develop a good database design and normalization techniques to normalize a database. Acquire a good understanding of database systems concepts and to be in a position to use and design databases for different applications.

CO3: COMPUTER ARCHITECTURE- Study basic computer organization, design and micro-operations. Acquire a good understanding of CPU functioning and computer arithmetic and learn various methods and techniques of memory organization.

CO4: VISUAL PROGRAMMING-Students will be able to learn visual programming basics and its components. To make the students familiar with Socket Programming and Window Programming. The students learn visual programming skills needed for modern software development.

CO5: DATA STRUCTURE USING C++ LAB- Identify the appropriate data structures and algorithms for solving real world problems. Implement various kinds of searching and sorting techniques. Implement data structures such as stacks, queues, Search trees, and hash tables to solve various computing problems

CO6: RDBMS LAB- Design and implement a database schema for given problem. Capable to design and build a GUI application. Apply the normalization techniques for development of application software to realistic problems. Formulate queries using SQL DML/DDDL/DCL commands.

CO7: SOFT SKILLS- I - ESSENTIALS OF LANGUAGE AND COMMUNICATION SKILLS - It helps the students to develop language acquisition and introduce them to range of vocabulary and helping them to communicate with ease and clarity

CO8: OPERATING SYSTEM- Analyze the structure of OS and basic architectural components involved in OS design. Analyze and design the applications to run in parallel either using process or thread models of different OS. Analyze the various device and resource management techniques for timesharing and distributed systems. Understand the Mutual exclusion, Deadlock detection and agreement protocols of Distributed operating system. Interpret the mechanisms adopted for file sharing in distributed Applications.

CO9: SOFTWARE ENGINEERING- Understand and demonstrate basic knowledge in software engineering. Identify requirements, analyze and prepare models. To Plan, schedule and track the progress of the projects. To Design & develop the software projects. Identify risks and to manage the change to assure quality in software projects. Apply testing principles on software project and understand the maintenance concepts.

CO10: PROGRAMMING IN JAVA- Able to use an integrated development environment to write, compile, run and test simple object-oriented Java programs. Read and make elementary modifications to java program that solve real-world problems. Identify and fix defects and common security issues in code.

CO11: PROGRAMMING IN JAVA LAB- Implement Object Oriented programming concept using basic syntaxes of control Structures, strings and function for developing skills of logic building activity. Demonstrates how to achieve reusability using inheritance, interfaces and packages and describes faster application development can be achieved. Identify and describe common abstract user interface components to design GUI in Java using Applet & AWT along with response to events.

CO12: INTERNET TECHNOLOGY- Implement interactive web pages using HTML, CSS and JavaScript. To Build Dynamic web site using server side ASP.NET Programming and Database connectivity. Describe and differentiate between various Web Extensions and Web Services

CO13: INTERNET TECHNOLOGY LAB- Integrate front-end and back-end web technologies in distributed systems. Debug, test and deploy web applications in different web servers. Migrate the web applications to the other platforms like .Net

CO14: SOFT SKILL II –ESSENTIALS OF SPOKEN AND PRESENTATION SKILLS- It helps students to keep a presentation interesting. It also helps the presenter communicate with confidence and motivate them to create variety and speak with optimal audibility during presentation. It further helps the students to learn verbal and nonverbal gestures and posters.

CO15: COMPUTER NETWORKS- Study the basic taxonomy and terminology of the computer networking and enumerate the layers of OSI model and TCP/IP model. Acquire knowledge of Application layer and Presentation layer paradigms and protocols. Study Session layer design issues, Transport layer services, and protocols. Gain core knowledge of Network layer routing protocols and IP addressing. Study data link layer concepts, design issues, and protocols. Read the fundamentals and basics of Physical layer, and will apply them in real time applications.

CO16: DESIGN AND ANALYSIS OF ALGORITHM- Students will learn fundamental concepts of asymptotic notations of an algorithm, Space & Time Complexity, Searching & Sorting Algorithms, Divide and Conquer techniques. Students will know various design and analysis techniques such as greedy algorithms, dynamic programming and understand the techniques used for designing of different graph algorithms. Students will learn how to apply

backtracking, branch and bound techniques for real time problems and will know the concepts of P, NP and NP-Complete problems.

CO17: ADVANCED JAVA PROGRAMMING-The course covers Graphical User Interface (GUI) networking, and database manipulation. Student will be able to use advanced technology in Java such as Internationalization, and Remote method Invocation. Student will learn how to work with Java Beans. Student will be able to develop web application using Java Servlet and Java Server Pages technology.

CO18: INFORMATION SECURITY- Identify information security goals, classical encryption techniques and acquire fundamental knowledge on the concepts of finite fields and number theory. Understand, compare and apply different encryption and decryption techniques to solve problems related to confidentiality and authentication. Apply the knowledge of cryptographic checksums and evaluate the performance of different message digest algorithms for verifying the integrity of varying message sizes. Apply different digital signature algorithms to achieve authentication and create secure applications. Apply network security basics, analyze different attacks on networks and evaluate the performance of firewalls and security protocols like SSL, IPsec, and PGP. Apply the knowledge of cryptographic utilities and authentication mechanisms to design secure applications

CO19: MOBILE COMPUTING- Student will be able to get familiar with various generations of mobile communications. Understand the concept of cellular communication. Understand the basics of wireless communication. Get the Knowledge of GSM mobile communication standard, its architecture, logical channels, advantages and limitations. Ability to develop Android Application.

CO20: ADVANCED JAVA PROGRAMMING LAB- Enhanced Java Programming Skills such as Abstract Windows Toolkit, Java Input Output, Networking, Develop applications using JDBC, RMI, Java Beans. Develop applications using servlets, JSP and spring-hibernate.

CO21: SOFT SKILL III: LIFE AND MANAGERIAL SKILLS- Understand what is meant by management and managerial effectiveness and identify the roles which are fulfilled while working as a manager and identify managerial activities that contribute to managerial effectiveness. To identify a cause of stress in managerial life from a range covering mismatches

between capabilities and role, player-manager tension and everyday stressors. understand time pressures and the need for time management.

CO22: SOFT SKILL IV: QUANTITATIVE APTITUDE- Apply mathematical techniques and reasoning skills to solve problems. Solve problems related to numeric, verbal comprehension and reasoning. Examine the available information and logically draw fact-based conclusions. Evaluate the assumptions in analysing quantitative data.

CO23: PROJECT VIVA-VOCE-To offer students a glimpse into real world problems and challenges that need IT based solutions. To enable students to create very precise specifications of the IT solution to be designed. To introduce students to the vast array of literature available of the various research challenges in the field of IT. To create awareness among the students of the characteristics of several domain areas where IT can be effectively used. To enable students to use all concepts of IT in creating a solution for a problem. To improve the team building, communication and management skills of the students.