BACHELOR OF COMPUTER APPLICATIONS

COURSE OUTCOMES (COs)

On completion of the course students will be able to

COURSE COMPONENT	COURSE	COURSE OUTCOME
CORE PAPER –I	PROGRAMMING IN C	**CO1:** To learn the basic and introduction of computer, structure of c and control structure CO2: To know arrays, arrays types, string handling functions **CO3:** To understand user defined functions, categories of function and recursion, structures and Unions, pointers, file handling, input and output operations. **CO4:** To use software tools in the programming process. **CO5:** To apply good programming principles to the design and implementation of programs.
CORE PRACTICAL-I	**PROGRAMMING IN C LAB**	**CO1:** To Understand the basic concept of C Programming Structures, and its different modules that includes Conditional and Looping Expressions **CO2:** To Identify about the basic concept of writing a program using String manipulations. **CO3 :**To Apply the Function concepts. **CO4:** To Manipulate Array Elements and its uses. **CO5:** To Acquire knowledge about file concepts and Reference variables
CORE PRACTICAL-II	**WEB DESIGNING LAB**	**CO1:** To understand and apply the role of languages like HTML5, CSS, JavaScript, in the working of the web document and web applications. **CO2:** To analyse a web page and identify its elements and attributes. **CO3:** To understand the usage of HTML5, JavaScript and CSS concepts to develop WebPage. **CO4:** To implement the form designing and changes across the website can be done all at once using CSS. **CO5 :**Create dynamic web pages using JavaScript.

CORE PAPER –II	**OBJECT ORIENTED PROGRAMMING** **WITH C++**	**CO1:** To demonstrate a thorough understanding of the Principle and concept of object Oriented programming. Classify C++ features to program design and implementation. **CO2 :**To demonstrating the usage of control structures, functions, modularity and other standard language constructs. **CO3:** To describe classes and objects written by other programmers when constructing their system. **CO4:** To illustrate the object oriented de sign using inheritance and polymorphism concepts. **CO5 :**To understand File concepts and Error handling techniques.
CORE PRACTICAL-III	**OBJECT ORIENTED PROGRAMMING WITH C++ LAB**	**CO1:**To understand and use prototypes, arguments, and return values to design function. Learn how to write inline functions for efficiency and performance. **CO2 :**To design a class and instantiate objects and learn how to manipulate objects. **CO3:** To understanding concept of Inheritance and Polymorphism (knowing difference between function overloading and overriding). **CO4:** To declare a pointer and use indirect pointer. Implement virtual functions by using dynamic binding with polymorphism **CO5:** To manipulating file using ios class and operation. Declare and define class and function template.
CORE PRACTICAL-IV	**UNIX AND SHELL PROGRAMMING LAB**	**CO1:** To implement the file concepts and user logs **CO2:** To understand the function structure and directories concepts. **CO3:** To understand the sorting concept and file allocations methods. **CO4 :**To implements the string manipulation. **CO5 :**To implements the small scale problems.

CORE PAPER -III	**PYTHON PROGRAMMING**	**CO 1:** Explain the basic principles of Python programming. **CO 2:** Apply the concepts of functions, conditional and looping statements in programming. **CO 3:** Demonstrate the uses of Python String, lists, dictionaries and Tuples. **CO 4:** Identify the file handling operations, Classes and Inheritance concepts. **CO 5 :**Discuss the fundamental understanding of various applications of AI, Deep learning, neural networks and other machine learning models.
CORE PAPER -IV	**DATA STRUCTURES AND ALGORITHMS**	**CO 1:** Understanding the concepts of data structures and complexity of algorithms. **CO 2:** Implement operations like searching, insertion, and deletion, traversing mechanism of Stack and Queue. **CO 3:** Discuss about linked list, operations and its applications. **CO 4:** Identify the nonlinear data structure and indexing techniques. **CO 5:** Demonstrating the various algorithms of Sorting, Searching methods in Data structures
CORE PAPER - V	**COMPUTER ARCHITECTURE**	**CO 1:** Describe the major components of a digital components and microoperations. **CO 2:** To understand the concepts of stack organization, types of instructions Addressing modes,RISC architectures and program control. **CO 3:** Ability to understand the basic arithmetic operations. Understand the concept of Floating point on arithmetic operations. **CO 4:** Ability to understand the concept of I/O organization. To conceptualize the basics of interrupts, DMA and serial communications. **CO 5 :**Discuss about the concept of cache and virtual memory

CORE PRACTICAL-V	**PYTHON PROGRAMMING LAB**	**CO 1 :**Create, debug and execute simple Python programs. **CO2 :**mplement Python programs with branching and looping statements. **CO 3:** Develop Python programs using built-in and user defined functions. **CO 4:** Demonstrate the use of Python lists and dictionaries. **CO 5:** Apply classes, file and exception handling mechanism.
CORE PRACTICAL-VI	**DATA STRUCTURES USING C++ LAB**	**CO 1:** Implement the operations of stack using Arrays. **CO 2:** Implement the operations of queue using pointers. **CO 3:** Create program to implement the applications of stack. **CO 4:** Discuss the concept of doubly linked list. **CO 5:** Utilize the pointer concept to perform the tree traversal.
NME I	**INTRODUCTION TO CYBER SECURITY**	**CO 1:** Discuss the concept of Cyber Security **CO 2 :**To understand Malware functions. **CO 3 :**To understand the concept of Firewalls.
CORE PAPER -VI	**OPERATING SYSTEMS**	**CO 1:** Observe and Understand the fundamental components and different management functionalities of an operating system. **CO 2 :**Understand the Process Synchronization, deadlocks handling techniques along with examples. **CO 3:** Exploring the knowledge about Memory management techniques, Virtual Memory and segmentation schemes. **CO 4:** Understand the concepts like Demand paging and protection goals of the system. **CO 5:** Discuss the maintenances of file concepts and storage structure like disk scheduling.

CORE PAPER -VII	**DATA COMMUNICATION AND NETWORK**	**CO 1:** Understand the basic concepts of networks. **CO 2:** Analyse the types of transmission media and its performance. **CO 3:** Discuss about multiplexing and switching concepts. **CO 4 :**Identify the network layer and protocols. **CO 5 :**Understand the Routing, application layers of TCP/IP and its services
CORE PAPER -VIII	**RELATIONAL DATABASE MANAGEMENT SYSTEM(RDBMS)**	**CO 1:** Knowledge in basic Database concepts, Database Design and Normalization Techniques. **CO 2 :**Adequately explain how to work and handle the errors in SQL Working Environment. **CO 3 :**To apply various DDL, DML, DCL commands, Built-in function, Grouping function and clauses. **CO 4:** Understand the basic concepts, Embedded SQL and Exception handling in PL/SQL. **CO 5 :**Programming skill set in Advanced PL/SQL including procedures, functions, Triggers and Packages.
CORE PRACTICAL-VII	**RDBMS LAB**	**CO 1:** Understand the basic commands, operators and built-in functions in SQL. **CO 2:** To apply various key constraints and pattern matching in SQL. **CO 3 :**Developing simple programs using PL/SQL. **CO 4:** Implementing the techniques of Procedures and Functions using PL/SQL. **CO 5 :**Implementing the techniques of Package and Triggers in PL/SQL
CORE PAPER –IX	**PROGRAMMING IN JAVA**	**CO1:** To learn the basics of Java and Object Oriented concepts in Java. **CO2 :**To Understand the Constructors and Overloading ,Inheritance concepts. **CO3:** Demonstrate the concepts of package and Thread concepts. To Know Applets and File Streams. **CO5 :**To use various AWT Classes.

CORE PAPER -X	**PROGRAMMING IN PHP AND MYSQL**	**CO1:** To Understand the working functionality of dynamic webpage **CO2:** To Learn the syntax and semantics of PHP and Database basics **CO3:** To use MySql Database connectivity to PHP and Forms **CO4 :**To learn the various functions in PHP and Database **CO5 :**To Utilize Cookies and Sessions.
CORE PAPER - XI	**SOFTWARE ENGINEERING AND TESTING**	**CO1:** To understand the concepts of software engineering, Layered technology, Process framework and CMMI process. **CO2 :**Utilize the concept of Software process model and System Engineering. **CO3:** To Learn Software Requirement Engineering and Learn to design software and apply strategies of project management **CO4:** Identify the quality assurance of a developed software product. **CO5:** Apply the various testing strategies in the software system.
CORE PRACTICAL-IX	**JAVA PROGRAMMING LAB**	**CO1:** Apply the Bufferclass and BufferReader class in the program **CO2:** Utilize the Point class and Random class **CO3:** Create a Program using Vector class and Char Array **CO4:** Create a Program using Threads and Exception handling **CO5 :**Design Applet program using AWT controls
CORE PRACTICAL-X	**PHP AND MYSQL LAB**	**CO1:** Write the simple program using PHP **CO2 :**Utilize the Array and function concepts **CO3:** Design the forms using the controls **CO4 :**Write the program using GET and POST method **CO5:** Create the Cookies and session

ELECTIVE I	**RESOURCE MANAGEMENT TECHNIQUES**	**CO 1:** Define and formulate linear programming problems and appreciate their limitations **CO 2 :**Solve linear programming problems using appropriate techniques and optimization **CO 3 :**To Interpret the results obtained and translate solutions into directives for action **CO 4:** To solve game theory problems **CO 5:** Develop mathematical skills to analyse and solve network models
ELECTIVE I	**INTERNET OF THINGS**	**CO 1 :**To learn basic and introduction of IOT concepts **CO 2:** To learn the fuctional of IOT and its protocols. **CO 3:** To learn how to analysis the data in IOT. **CO 4 :** To develop IOT infrastructure for popular applications. **CO 5 :**To apply applications of IoT in real time scenario
ELECTIVE I	**ARTIFICIAL INTELLIGENCE**	**CO 1 :**To learn the basic principles and techniques of the artificial intelligence. **CO 2 :**To learn the basics of designing intelligent agents that can solve general purpose problems **CO 3:** To Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning **CO 4:** To have fundamental understanding of various applications of AI techniques in intelligent agents. **CO 5:** To learn AI current scope and limitations, and societal implications
ELECTIVE I	**SECURITY IN INFORMATION TECHNOLOGY**	**CO 1 :**To understand the need of Security. **CO 2 :**To learn about risk management and security policies. **CO 3 :**To learn Intrusion Detection and Firewall Protection **CO 4 :**To learn cryptography and Steganography. **CO 5:** Introduction, security management models, maintenance model.

ELECTIVE I	**COMPUTER GRAPHICS**	**CO 1:** To understand the fundamentals of computer graphics. **CO 2 :**To learn about line drawing algorithms. **CO 3 :**To learn transformations and viewing **CO 4 :**To understand three dimensional concepts. **CO 5:** To apply the concepts Parallel Projection, Perspective Projection
ELECTIVE I	**DATA MINING**	**CO 1:** To understand the basics of data mining. **CO 2:** To apply data preprocessing concepts. **CO 3:** To learn Data mining techniques. **CO 4:** To learn about classification algorithms. **CO 5 :**To analysis the clustering techniques.
CORE PAPER - XII	**WEB TECHNOLOGY**	**CO1:** Learn the various HTML Tags and structure of ASP.Net and server controls. **CO2:** Discuss about basic web server controls and data list web server controls **CO3:** Understand the Validation control and Request and response object **CO4:** Utilize the OLEDB connection **CO5:** Understand the Application and security issues
CORE PRACTICAL-X1	**WEB TECHNOLOGY LAB**	**CO1 :**Create the webpage using HTML tags **CO2:** Design a form using ASP.NET **CO3:** Create simple web Application using validation controls **CO4:** Apply the Calendar control in the web page **CO5:** Create Virtual directory in IIS
CORE PRACTICAL-XII	**KOTLIN LAB**	**CO1:** \Write, debug and execute simple Kotlin programs. **CO2:** Implement Array concept in Kotlin programs. **CO3:** Develop Kotlin programs with defining functions and passing parameters to function **CO4:** Implement class, constructor and inheritance in Kotlin Program. **CO5:** Develop Kotlin program using Collection concept.