DEPARTMENT OF COMPUTER APPLICATIONS

PROGRAMME OUTCOMES AND COURSE OUTCOMES OF UNDER GRADUATE & POST GRADUATE PROGRAMME (2022 ONWARDS)

NAME OF THE PROGRAMME: BCA – PROGRAMME OUTCOME	
PO1	Developing the student for roles pertaining to computer applications and IT industry.
PO2	Developing the student's skills to work as software programmer, system and network administrator, web designer.
PO3	Develop various real time applications using latest technologies and programming languages.
PO4	An ability to handle the skills like computer graphics, web development, trouble shooting, and both in hardware & software.
PO5	Develop practical skills to provide solutions to industry, society and business.
PO6	Develop the software projects by understanding the client requirement.
MCA– PROGRAMME OUTCOME	
PO1	Develop an ability to apply knowledge in the computing discipline.
PO2	Developing the students for respectable career in the Software Design, Development Testing. Also in Software Support, e-commerce, e-business, e-banking, eservices, e-governance etc. Or in business management domain where management is augmented by information communication technology.
PO3	To develop students as Cyber Security experts, Information System Auditors and faculty for computer science and computer applications.
PO4	Ability to place in various sectors like Government sector (UPSC CDSE, etc...), Public sector (NTPC, BHEL etc), Private sector and Freelancing
PO5	Ability to work as a member or leader in diverse teams in multidisciplinary environment.
PO6	Analyze and apply latest technologies to solve problems in the areas of computer applications.

NAME OF THE PROGRAMME: BCA – COURSE OUTCOMES	
SEMESTER I	
PROGRAMMING IN C	1. The Student will be able to understand the concepts of Constants, Variables, and Data Types, Operators and Expressions. 2. The Student will be able to understand the concepts of Managing Input and Output Operations, Decision Making and Branching, Decision Making and Looping. 3. The Student will be able to understand the concepts of Arrays, Character Arrays and Strings, User Defined Functions. 4. The Student will be able to understand the concepts of Structure and Unions, Pointers, File Management in C. 5. The Student will be able to understand the concepts of Fundamental Algorithms, Factoring Methods.
MATHEMATICAL FOUNDATIONS - I	1. The Student will be able to understand the concept of Logical operators, validity of arguments, set theory and set 2. The Student will be able to understand the concept of operations, relations and functions, Binary operations, Binary algebra, Permutations 3. The Student will be able to understand the concept of Combinations, Differentiation, Straight lines, pair of straight lines, Circles, Parabola, Ellipse, Hyperbola.
PROGRAMMING IN C – LAB	1. Enhance the analyzing and problem solving skills and use the same for writing programs in C. 2. Write diversified solutions, draw flowcharts and develop a well-documented and indented program according to coding standards. 3. Learn to debug a given program and execute the C program. 4. To have enough practice the use of conditional and looping statements. 5. To implement arrays, functions and pointers.
SEMESTER II	
C++ & DATA STRUCTURES	1. The Student will be able to understand the concepts of object oriented programming Apply structure and inline functions. 2. The Student will be able to understand the concepts of the types of inheritances and applying various levels of Inheritance for real time problems apply the OOPs concepts class and object. Understand Explain the file concept and exception handlings in C++ 3. The Student will be able to understand the concepts of Stacks and Queue using array and pointers. 4. The Student will be able to understand the concepts of Recursion, Binary Search Tree and graphs. 5. The Student will be able to understand the concepts of Sorting and

	Searching Algorithms.
C++ & DATA STRUCTURES LAB	1. Understand the Creating and Deleting the Objects with the Concepts of Constructors 2. and Destructors. 3. Demonstrate the Polymorphism Concepts and Operator Overloading. 4. Understand basic Data Structures such as Arrays, Linked Lists, Stacks, Queues, 5. Doubly Linked List and Infix to Postfix Conversion. 6. Apply Algorithm for solving problems like Sorting and Searching. Apply Algorithms and use Graphs and Trees as tools to visualize and simplify 7. Problems
MATHEMATICAL FOUNDATIONS II	1. The Student will be able to understand the concept of Matrix Operations, Symmetric, Skew Symmetric, Hermitian, Skew-Hermitian, Orthogonal, Unitary Matrices. 2. The Student will be able to understand the concept Rank of a Matrix Solutions of linear equations Consistency and Inconsistency, Characteristic roots and Characteristics 3. The Student will be able to understand the concept Vectors, Cayley - Hamilton Theorem, Integration of rational functions, Integration by parts, Reduction formulae, Area and volume using integration, Planes, Straight lines,Spheres, Curves, Cylinders.
SEMESTER III	
PROGRAMMING IN JAVA	1. Students are able to know about a General-purpose and Purely object-oriented programming language including data types, control statements, and classes. 2. Students are able to Secured, well-suited for internet programming using applets and GUI-based.
E-COMMERCE	1. The Student will be able to understand the concepts of E-commerce and its different types and describe the network infrastructure for E-commerce. 2. The Student will be able to understand the concepts of networks and fundamental of security concepts, security services to counter them, understand the fundamental properties of cryptography Techniques. 3. The Student will be able to understand the concepts of electronic payment systems, online security and understand the fundamentals of create a E-commerce web site. 4. The Student will be able to understand the concepts of the basic fundamentals of electronic document interchange EDI, supply chain management process. 5. The Student will be able to understand the concepts of internet trading relationships including inter organization and intra-

	organizations.
OPERATION RESEARCH	1. The Student will be able to understand the concepts of optimization and to formulate and Solve Linear Programming problems. 2. The Student will be able to understand the concepts of Transportation problem and Assignment problem. 3. The Student will be able to understand the concepts of sequencing problem. 4. The Student will be able to understand the concepts of PERT-CPM and their applications in product planning control. 5. The Student will be able to understand the concepts of Solve the Minimal Spanning Tree Problem, Shortest Route Problem, Maximal Flow Problem and Minimal Cost Capacitated Flow Problem.
FINANCIAL ACCOUNTING– I	1. To introduce the basic concepts and conventions to the students, this would help in development of accounting knowledge. 2. To understand the concept of Double entry system this helps in preparation of various books of accounts. 3. To develop the capability of students to prepare the Final Accounts of a Small Business Concern. 4. To enhance the Accounting Knowledge by introducing the practical uses of Average Due Date and Bank Reconciliation Statement. 5. To introduce the concept of Single entry system of Accounting which helps them to prepare the accounts from incomplete records
PROGRAMMING IN JAVA LAB	1. Able to write programs for solving real world problems using java collection frame work. 2. Able to write programs using abstract classes. 3. Able to write multithreaded programs. 4. Able to write GUI programs using swing controls in Java.
WEB TECHNOLOGY	1. The Student will be able to understand the concepts of HTML. 2. The Student will be able to understand the concepts of java scripts. 3. The Student will be able to understand the concepts of user defined functions. 4. The Student will be able to understand the concepts of Active Server Page. 5. The Student will be able to understand the concepts of – OLEDB connection class.
INTRODUCTION TO INFORMATION TECHNOLOGY	1. Students understand Major components of Computer System and its working principles. 2. Students learn and understand the Role of an Operating System and basic terminologies of networks. 3. Students understand how the Information Technology aids for the Current Scenario.

	4. Students understand the Computer Software. 5. Students understand internet applications
SEMESTER-IV	
RELATIONAL DATABASE MANAGEMENT SYSTEMS	1. Describe the database architecture and its applications Sketch the ER diagram for real world applications Uses various ER diagram for a similar concepts from various sources. 2. Discuss about the relational algebra and calculus Construct various queries in SQL and PL/SQL Compiles various queries in SQL, Relational Calculus and Algebra. 3. Describe the various normalization forms Apply the normalization concepts for a table of data Practices a table and implement the normalization concepts. 4. Explain the storage and accessing of data. 5. Illustrate the query processing in database management. Define the concurrency control and deadlock concept
ENTERPRISE RESOURCE PLANNING	1. Understanding the functionalities of Enterprise resource planning 2. Understanding Characterize the ERP implementation procedures 3. Understanding the elements of ERP 4. Understanding the available ERP packages 5. Understanding the models of ERP with other related technologies
WIRELESS DATA COMMUNICATION	1. To understand the concepts of basic OSI layers. 2. To understand the concepts of signals and transmission media. 3. To understand the basic concepts of error detection and DLC 4. To understand the Characterize of wireless transmission technologies. 5. To understand the concepts of Security.
RDBMS LAB	1. Design and Implement a database schema for a given problem domain. 2. Populate and Query a database using SQL, DDL/DML Commands. 3. Build well formed in String Date/Aggregate Functions. 4. Design and Implement a database query using Joins, Sub-Queries and Set Operations. 5. Program in SQL including Objects (Functions, Procedures, Triggers)
FINANCIAL ACCOUNTING - II	1. To Understand the concept of Branch Accounting and enable the students to prepare Accounts for various types of Branches. 2. To enhance the procedure for preparing Departmental Accounts. 3. To Develop the skill of the students in preparing Hire Purchase Accounting, both in the books of Hire Purchaser and Hire Vendor. 4. To Understand the Accounting procedure for Partnership in cases like Admission, Retirement, Death. 5. To Understand the Accounting procedure for Dissolution and Insolvency of a Partner.

INTERNET OF THINGS	1. Analyze various protocols for IoT 2. Develop web services to access/control IoT devices. 3. Design a portable IoT using Rasperry Pi 4. Deploy an IoT application and connect to the cloud. 5. Analyze applications of IoT in real time scenario
INTERNET TECHNOLOGY	1. Students understand the Fundamentals of Internet, Connectivity and its Resource Requirements. 2. Students understand the Internet Technology and its applications 3. Students understand the basis of WWW and Web Browsers. 4. Students learn how to Mailing system and applications of Internet. 5. Students understand relay chat that is how to read e- contents.
SEMESTER-V	
MOBILE APPLICATIONS DEVELOPMENT	**1.** To understand the basics of smart phones and android platforms**.** 2. To understand the basic concepts of user interface related to app development. 3. To understand the important of data persistence in mobile environment. 4. To understand the various services and network facilities provided by android platform. 5. To understand the various apps deployed and developed on by mobile platform.
OPERATING SYSTEM	1. To understand the structure and functions of operating systems. 2. To understand the principles of scheduler, scheduler algorithms and Deadlock. 3. To learn various memory management schemes. 4. To study I/O management, File system and Mass Storage Structure. 5. To learn the basics of UNIX, LINUX systems and perform administrative tasks on LINUX servers.
DESIGN AND ANALYSIS OF ALGORITHMS	1. Understanding various algorithm design techniques. 2. This technique is the basis of efficient algorithms for all kinds of problems. 3. This is a simple approach which tries to find the best solution at every step. 4. Providing a general insight into the dynamic programming approach. 5. Algorithm design paradigm for discrete and combinatorial optimization problems.
MOBILE APPLICATIONS	1. Apply OOPC to develop Mobile Applications. 2. Apply Layout Management and Multi layout definition techniques to create adaptable User Interface

DEVELOPMENT LAB	3. Develop user interface for mobile Application using widgets with event handling. 4. Design push notifications for incoming messages 5. 5. Deploy applications to the Android marketplace for distribution.
OPERATING SYSTEM LAB	1. Experiment with Unix commands and shell programming C. 2. Build 'C' program for process and file system management using system calls. 3. Choose the best CPU scheduling algorithm for a given problem instance. 4. Identify the performance of various page replacement algorithms. 5. Develop algorithm for deadlock avoidance, detection and file allocation strategies
DATA MINING	1. To understand about the basics of Data Mining and Data 2. To understand about the methods of Data Warehousing 3. To understand about the techniques of Data Mining 4. To understand about the importance of Cluster and outlier detection. 5. To improve the student's knowledge with recent trends and tools
INFORMATION SECURITY	1. To understand the basic concepts of Information Security 2. To understand the legal, ethical and professional issues in Information Security 3. To know about risk management 4. To understand the technological aspects of Information Security 5. To understand the concepts of Cryptography and Hacking methods
SOFTWARE TESTING	1. To understand the concept of software testing, and software quality 2. To learn to inspect and detect errors by going through each and every code segment 3. To gain knowledge of various functional and structural testing techniques 4. To understand basic concept of Software Management tools and object oriented testing 5. To understand basic concept of Software quality and software quality assurance
SEMESTER VI	
OPEN SOURCE SOFTWARE	1. To understand the concept of HTML, HTML5 and CSS. 2. To learn to inspect and detect errors by going through each and every code segment. 3. To understand basic concept of Java Script and MySQL. 4. To understand basic concept of PHP 5. To understand basic concept of PERL
	Upon completion of the course, students will be able: 1. To explore the fundamental concepts of Python

PYTHON PROGRAMMING	2. To understand Basics of Python programming language 3. To solve simple problems using Python 4. To acquire fundamental knowledge and skills on Python Programming 5. To understand the nuances of this language. 6. To know the usage of modules and packages in Python 7. To familiarize with file concepts in Python 8. To familiarize with web concepts using Python.
PYTHON PROGRAMMING LAB	1. Student should be able to understand the basic concepts scripting and the contributions of scripting language 2. Ability to explore python especially the object oriented concepts, and the built in objects of Python. 3. Ability to create practical and contemporary applications such as TCP/IP network programming, Web applications, discrete event simulations
OPEN SOURCE SOFTWARE LAB	1. Implement various applications using build systems 2. Understand the installation of various packages in open source operating systems 3. Create simple GUI applications using Gambas 3 4. Understand various version control sytems 5. Understand the kernel configuration and virtual environment
BIG DATA ANALYTICS	1. To explore the fundamental concepts of big data analytics. 2. To learn to use various techniques for mining data stream. 3. To learn the Big data Business Perspective 4. To understand the applications using Map Reduce Concepts. 5. To introduce programming tools HIVE in Hadoop echo system.
CRYPTOGRAPHY	1. Understand OSI security architecture and classical encryption techniques. 2. Understand the different cryptographic operations of symmetric cryptographic algorithms. 3. Understand the different cryptographic operations of Public key cryptographic algorithms. 4. To make use of application protocols to design and manage a secure system. 5. To learn the configuration and manage E–mail and WLAN Security
DIGITAL IMAGE PROCESSING	1. To know the basics of Digital image and techniques. 2. To understand various Image enhancement ideas. 3. To understand Image restoration techniques. 4. To understand degrees of image resolution and compression methods. 5. To understand concepts of image representation and recognition.

ARTIFICIAL INTELLIGENCE	1. To know the basics of Artificial Intelligence. 2. To Understand the Methods and algorithms in AI 3. To learn to represent knowledge in solving AI problems. 4. To Understand Statistical logics and know about Software agents. 5. To learn how Machine learning is related to AI.
SYSTEM SOFTWARE	1. To understand the basic concepts of system software 2. Ability to trace the path of a source code to object code and to executable file. 3. To design and implementation of loaders and linkers. 4. To understand the concepts of macro processor. 5. Ability to analyze the functions of compilers.
MOBILE COMPUTING	1. To understand basic concepts of mobile computing. 2. To learn the basics of mobile telecommunication system 3. To comprehend wireless LAN and cellular systems 4. To understand protocols at network and transport layer. 5. To learn development of applications in mobile computing platform.
OBJECT ORIENTED ANALYSIS AND DESIGN	1. Learn the UML analysis and design diagrams. 2. Apply appropriate object model and design patterns. 3. Create object code from design Patterns 4. Learn to map design to code, Compare and contrast various testing techniques. 5. At the end of the course, the student should be able to: Design and implement projects using OO concepts.
NAME OF THE PROGRAMME: MCA – COURSE OUTCOMES	
SEMESTER I	
PROGRAMMING IN C	1. Understanding a functional hierarchical code organization. 2. Ability to define and manage data structures based on problem subject domain. 3. Ability to work with textual information, characters and strings. 4. Ability to work with arrays, structures, pointers and files.
PROGRAMMING IN C LAB	1. Enhance the analyzing and problem solving skills and use the same for writing programs in C. 2. Write diversified solutions, draw flowcharts and develop a well-documented and indented program according to coding standards. 3. Learn to debug a given program and execute the C program. 4. To have enough practice the use of conditional and looping statements.

	To implement arrays, functions and pointers.
WEB DESIGN LAB	The students will be able to: 1. Analyze a web page and identify its elements and attributes. 2. Create web pages using XHTML and Cascading Style Sheets. 3. Build dynamic web pages using JavaScript (Client side programming). 4. Create XML documents and Schemas.
DATA STRUCTURES USING C LAB	1. Ability to analyze algorithms and a algorithm correctness. 2. Ability to summarize searching and sorting techniques 3. Ability to describe stack, queue and linked list operation. Ability to have knowledge e of tree and graphs concepts
WEB DESIGN	Upon successful completion of this course, the students should be able to: 1. Develop Website Accessibility. 2. Make detailed understanding of the structure of a page with the help of HTML. 3. Develop the innovative designing ability in designing web page. 4. Understand the basic of HTML List and Tables, frames elements and Forms elements. 5. Understand the basic of CSS syntax, Inclusion, Measurement units and various CSS Properties.
DATA STRUCTURES	Upon completion of this course, the students should be able: 1. To understand the performance of the implementations of basic linear data structures. 2. Understand the various operations of stack and queue. 3. Implement the linked data structures such as linked list and binary trees. 4. Familiarize with several sorting and searching algorithms. 5. Familiarize with some graph algorithms such as shortest path and minimum spanning tree.
ADVANCED JAVA PROGRAMMING LAB	1. Learn The Internet Programming, Using Java Applets 2. Create A Full Set Of UI Widgets And Other Components, Including Windows, Menus, Buttons, Checkboxes, Text Fields, Scrollbars And Scrolling Lists, Using Abstract Windowing Toolkit (AWT) & Swings 3. Apply Event Handling On AWT And Swing Components. 4. Learn To Access Database Through Java Programs, Using Java Data Base Connectivity (JDBC) 5. Create Dynamic Web Pages, Using Servlets And JSP. 6. Make A Resusable Software Component, Using Java Bean. 7. Invoke The Remote Methods In An Application Using Remote Method Invocation (RMI) 8. Understand The Multi-Tier Architecture Of Web-Based Enterprise Applications Using Enterprise Javabeans (EJB).

	9. Develop Stateful, Stateless And Entity Beans. 10. Use Struts Frameworks, Which Gives The Opportunity To Reuse The Codes For Quick Development. 11. Map Java Classes And Object Associations To Relational Database Tables With Hibernate Mapping Files.
ENTERPRISE JAVA PROGRAMMING LAB	1. The course covers Graphical User Interface (GUI) networking, and database manipulation. 2. Student will be able to use advanced technology in Java such as Internationalization, and Remote method Invocation. 3. Student will learn how to work with JavaBeans. 4. Student will be able to develop web application using Java Servlet and Java Server Pages technology.
PYTHON PROGRAMMING LAB	1. Student should be able to understand the basic concepts scripting and the contributions of scripting language 2. Ability to explore python especially the object oriented concepts, and the built in objects of Python. 3. Ability to create practical and contemporary applications such as TCP/IP network programming, Web applications, discrete event simulations
SEMSETER-II	
WEB APPLICATIONS USING C#	1. Understand the .NET framework. 2. Develop a proficiency in the C# programming language. 3. Proficiently develop ASP.NET web applications using C#. 4. Use ADO.NET for data persistence in a web application. 5. To understand the 3-tier software architecture (presentation/client tier, application tier, data tier) and develop multi-tier applications to understand and experiment with the deployment of enterprise applications. 6. To develop web applications using a combination of client-side (JavaScript, HTML, XML, WML) and server-side technologies (ASP.NET, ADO.NET)
UNIX AND SHELL PROGRAMMING	1. Upon completion of this course, the student will be able to: 2. You will be able to run various UNIX commands on a standard UNIX/LINUX Operating system (We will be using Ubuntu flavor of the Linux operating system). 3. You will be able to run C / C++ programs on UNIX. 4. You will be able to do shell programming on UNIX OS. 5. You will be able to understand and handle UNIX system calls.
DESKTOP APPLICATIONS USING C#	1. Display proficiency in C# by building stand-alone applications in the .NET framework using C#. 2. Create distributed data-driven applications using the .NET Framework, C#, SQL Server and ADO.NET 3. Create web-based distributed applications using C#, ASP.NET, SQL Server and ADO.NET 4. Utilize DirectX libraries in the .NET environment to implement

	2D and 3D animations and game related graphic displays and audio. 5. Utilize XML in the .NET environment to create Web Service-based applications and components. 6. Understand the concept of Web Applications.
DIGITAL LOGIC AND FUNDAMENTALS	Upon completion of the course, the students will be able to: 1. Perform conversions and arithmetic operations in various number systems 2. Simplify using laws of Boolean algebra and Karnaugh map method 3. Design various combinational and sequential circuits 4. Differentiate between various addressing modes 5. Trace the flow of execution of an instruction in a processor
COMPUTER ORGANIZATION AND ARCHITECTURE	Upon completion of this course, the students should be able: 1. Know the basic architecture of computer. 2. Understand the organization of a computer system in terms of its main components. 3. Understand different processor architectures and understand input/output mechanisms. 4. Understand the various parts of a system memory hierarchy. 5. Study the different ways of communicating with I/O devices and standard I/O interfaces.
FUNDAMENTALS OF MICROPROCESSORS	Upon completion of the course, the students will be able to: 1. Understand the architecture of 8085 and 8051 2. Impart the knowledge about the instruction set 3. Understand the basic idea about the data transfer schemes and its applications 4. To develop skill in simple program writing for 8051 & 8085 and applications 5. Easy to understand 8085 Programming using instruction set
E-COMMERCE	1. Demonstrate an understanding of the foundations and importance of E-commerce 2. Demonstrate an understanding of retailing in E-commerce by: analyzing branding and pricing strategies, using and determining the effectiveness of market research and assessing the effects of disintermediation. 3. Analyze the impact of E-commerce on business models and strategy 4. Describe Internet trading relationships including Business to Consumer, Business-to Business, Intra-organizational. 5. Describe the infrastructure for E-commerce

	6. Describe the key features of Internet, Intranets and Extranets and explain how they relate to each other.
INTRODUCTION TO COMPUTER APPLICATION	After the completion of the course the students will be able: 1. Know about computer and basic applications of computer. 2. knowledge about operating system 3. Aim at imparting a basic level appreciation Programme
PRINCIPLES OF INTERNET	On completion of this course students are able to: 1. To learn the basics of Internet. 2. To provide fundamental knowledge in WWW
SEMESTER-II	
PROGRAMMING WITH JAVA	1. Understand the basics of Object Oriented Programming concepts, Character Set, tokens, variables, data types, operators and control structure. 2. Understand the fundamental concept of Java like class and object, array, methods, constructors and inheritance. 3. Understand the concept of package, Exception Handling and Threading. 4. Understand the concepts of Applets and AWT. 5. Understand the concepts of JDBC connectivity.
RELATIONAL DATABASE MANAGEMENT SYSTEM	Upon successful completion of this subject students should be able to: 1. To make the student to know about the database schema and learn the basic terminologies used in database 2. To enable the student to learn the life cycle and development of database management systems 3. To facilitate the student to write SQL queries to manipulate data 4. To help the student to learn PL/SQL programming 5. To make the student to access database without query languages
OPEN SOURCE TECHNOLOGIES	On successful completion of the course students will be able to: 1. Understand the features of PHP 2. Develop the different applications using PHP 3. Demonstrate the applications using PHP with Mysql Understand the concepts of Perl 4. Develop the applications using Perl
OPERATION RESEARCH	Upon completion of the course, the students will be able to: 1. Basic knowledge of matrix, set theory, functions and relations concepts needed for designing and solving problems. Logical operations and predicate calculus needed for computing skill. 2. Design and solve Boolean functions for defined problems.

GRAPH THEORY	Upon completion of the course, the students will be able to: 1. Understand Graph theory principles and its applications. 2. Study of different Graph theory algorithms. 3. Gain to deploy Graph theory applications using a software development environment.
DISCRETE MATHEMATICS	Upon completion of the course, the students will be able to: 1. Analyze different techniques of sentential calculus, and write down truth tables. 2. Represent relations in various ways. Show whether a relation is of equivalence, of partial order or neither.
PROBLEM SOLVING TECHNIQUES	Upon Completing the Course, Students will be able to: 1. Develop programming techniques required to solve a given problem. 2. Develop problem solving skill using top – down design principles. 3. Design an algorithm for a problem. 4. Develop techniques to handle array structure 5. Develop techniques such as searching and sorting
OPEN SOURCE SOFTWARE	On successful completion of the course students will be able to: 1. Understand the features of PHP 2. Develop the different applications using PHP 3. Demonstrate the applications using PHP with Mysql 4. Understand the concepts of Perl 5. Develop the applications using Perl
PRINCIPLES OF WEB DESIGN	After the completion of the course the students will be able: 1. Able to learn how to combine basic HTML elements to create Web pages. 2. Understand the use of HTML tags and tag attributes to control a Web page's appearance. 3. Capable to learn how to add absolute URLs, relative URLs, and named anchors to Web pages. 4. Gain a good understanding of using tables and frames as navigational aids on a Web site. 5. Able to control appearance webpages by applying style sheet.
SEMESTER III	
ADVANCED JAVA PROGRAMMING	Upon completion of the course, students will be able to: 1. Develop Applet Programming using various techniques 2. Develop applications using Abstract Window Toolkit and Events 3. Update and retrieve the data from the databases using JDBC-ODBC 4. Develop server side programs in the form of Servlets 5. Build up Java Applications using collections and JSP Tags.

UNIX AND SHELL PROGRAMMING	Upon successful completion of this course, the students should be able to: 1. Learn to add and remove users. 2. Understand basic UNIX commands. 3. Use controls structures. 4. Understand loop structures. 5. Get familiarize with System calls concepts.
DESKTOP APPLICATION USING C#	After the completion of the course the students will be able: 1. To know the differences between desktop application and web application. 2. To construct classes, methods, and access modifier and instantiate objects. 3. To create and manipulate GUI components in C# for windows application. 4. To code solutions and compile C# projects within the .NET framework. 5. To build the desktop application with Database.
SOFTWARE TESTING	1. To know the basic structure for testing teams. 2. To expose the concept of test automation and test metrics. 3. To know the different types of testing.
SOFTWARE PROJECT MANAGEMENT	Upon completion of the course students will be able to: 1. Understand the activities during the project scheduling of any software application. 2. Learn the risk management activities and the resource allocation for the projects. 3. Apply the software estimation and recent quality standards for evaluation of the software Projects. 4. Acquire knowledge and skills needed for the construction of highly reliable software project. 5. Able to create reliable, replicable cost estimation that links to the requirements of project planning and managing.
OBJECT ORIENTED SOFTWARE	On successful completion of course, learners will be able to: 1. Understand and demonstrate basic knowledge in object oriented software 2. Identify requirements, analyze and prepare models. 3. Plan, schedule and track the progress of the projects. 4. Design & develop the software projects 5. Identify risks, manage the change to assure quality in software projects. 6. Apply testing principles on software project and understand the maintenance concepts.

INTRODUCTION TO C	After course completion the students will have the following learning outcomes: 1. Understanding a functional hierarchical code organization. 2. Ability to define and manage data structures based on problem subject domain. 3. Ability to work with textual information, characters and strings. 4. Ability to work with arrays, structures, pointers and files.
INTRODUCTION TO C#	After the completion of the course the students will be able: 1. To know the differences between desktop application and web application. 2. To construct classes, methods, and access modifier and instantiate objects. 3. To create and manipulate GUI components in C# for windows application. 4. To code solutions and compile C# projects within the .NET framework. 5. To build the desktop application with Database.
INTRODUCTION TO PYTHON	Upon completion of the course, students will be able: 1. To explore the fundamental concepts of Python 2. To understand Basics of Python programming language 3. To solve simple problems using Python 4. To acquire fundamental knowledge and skills on Python Programming 5. To understand the nuances of this language. 6. To know the usage of modules and packages in Python 7. To familiarize with file concepts in Python 8. To familiarize with web concepts using Python.
SEMSESTER-IV	
ENTERPRISE JAVA PROGRAMMING	Upon completion of the course, students will be able to: 1. Develop JSF page using various techniques 2. Develop applications using Java Beans 3. Working with Java API's for creating applications.
PYTHON PROGRAMMING	Upon completion of the course, students will be able: 1. To explore the fundamental concepts of Python 2. To understand Basics of Python programming language 3. To solve simple problems using Python 4. To acquire fundamental knowledge and skills on Python Programming 5. To understand the nuances of this language. 6. To know the usage of modules and packages in Python 7. To familiarize with file concepts in Python 8. To familiarize with web concepts using Python.

WEB APPLICATION USING C#	After the completion of the course the students will be able: 1. To know the differences between desktop application and web application. 2. To construct classes, methods, and access modifier and instantiate objects. 3. To create and manipulate GUI components in C# for windows application. 4. To code solutions and compile C# projects within the .NET framework. 5. To build the desktop application with Database.
INTERNET OF THINGS	By the end of the course, the student shall be able to 1. Design and Develop IOT based solution for real world applications 2. Realize the evolution of Internet in Mobile Devices, Cloud & Sensor Networks 3. Understand building blocks of Internet of Things and its characteristics. 4. Understand the concept of IOT and its application.
CLOUD COMPUTING	Upon Completion of the syllabus the students are able to know: 1. Introduce the broad perceptive of cloud architecture and model. 2. Understand the concept of parallel and distributed computing 3. Understand the different technologies. 4. Understand the features of virtualization. 5. Learn to design the trusted cloud Computing system with different cloud platform
BIG DATA ANALYTICS	Upon completion of the course, the students will be able to: 1. Learn about types of digital data and big data 2. Gain knowledge of various Big data analtics and its Technologies 3. Study about various NoSQL databases and management techniques 4. Work with NoSQL databases such as MongoDB and Cassendra 5. Design Big data queries using Hive and Pig.
INTRODUCTION TO DATABASE SYSTEM	On completion of this course students are able to: 1. Have a broad understanding of database concepts and database management system software 2. Have a high-level understanding of major DBMS components and their function 3. Model an application's data requirements using conceptual modeling tools like ER diagrams and design database schemas based on the conceptual model. 4. Write SQL commands to create tables and indexes, insert/update/delete data, and query data in a relational DBMS. 5. Program a data-intensive application using DBMS APIs.

INTRODUCTION TO IOT	By the end of the course, the student shall be able to 1. Design and Develop IOT based solution for real world applications 2. Realize the evolution of Internet in Mobile Devices, Cloud & Sensor Networks 3. Understand building blocks of Internet of Things and its characteristics. 4. Understand the concept of IOT and its application.
INTRODUCTION TO MOBILE APPLICATION	After the completion of the syllabus the student will be able to: 1. Know about the mobile application development environment 2. Develop interface and design 3. Use the techniques in Mobile Applications