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**DEPARTMENT OF COMPUTER APPLICATION**

**PROGRAM OUTCOME**

**At the end of the BCA degree programme the students will be able to:**

**PO1:**Develop computer programs related to web design and networking for efficient design of computer based system.

**PO2:** Work in the IT company as software engineer, software tester, web developer, system administrator etc.

**PO3:**Apply standard software engineering practices and strategies in software project development .

**PO4 :** To improve them potentially rich in the field of computer applications.

**PO5 :**Pursue higher studies in the area of Computer Science/Applications.

**PO6:** Helps to choose self-employment in software market.

**PO7 :**Meet the necessities of the Industrial standards.

**PROGRAM SPECIFIC OUTCOME**

**I SEM**

The objective of I semester BCA is to impart knowledge in electronics circuits, semiconductor devices and application diodes, techniques used in digital electronics, various number systems and its application, understanding basic concepts of programming, tokens ,arrays, control statements, strings ,pointers band functions and also file handling concepts.

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PROGRAMME AND COURSE OUTCOME

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## **II SEMESTER**

The objective of II semester BCA is to impart knowledge in basic concepts of data structure like searching, sorting, stack ,queues, linked list and also many database management concepts like data records ,performing data modelling and normalization, query language to perform different transaction and also basic security concepts in DBMS.

## **III SEMESTER**

The objective of III semester BCA is to impart knowledge in basic concepts of operating system like structure of an operating system, analyzing scheduling algorithm ,process synchronization, working with different operating systems, basic features of OOPs and implementing the real world objects problem using OOPs

## **IV SEMESTER**

The objective of IV semester BCA is to impart knowledge in basic concepts of operations research like mathematical model (LPP) ,interpretation of CPM and PERT, project management techniques to plan, decision making rules in Game Theory, VB IDE, events , use of DLL ,database connection , VC++ concepts, understanding the multiuser operating systems, knowing the roles of system administrator and controlling the server and implementation of Shell scripts with Bash shell programming.

## **V SEMESTER**

The objective of V semester BCA is to impart knowledge in basic concepts of different models used in software development, system design, SRS, Testing ,Maintenance concept, basic architectural issues of a digital computer, various digital integrated circuits, DMA and input output processors, understanding essential elements of network architecture and computer network technology, OSI and TCP/IP model, understanding architecture and operations of 8085 Microprocessors, basic concepts of OOPs and to develop Applet programs.



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## VI SEMESTER

The objective of VI semester BCA is to impart knowledge in basic concepts of system software, machine language and assembly language, Macro processors, different phases of Compiler, Encrypt and decrypt data using symmetric key and public key ciphers, web and Email security, Automata theory, Turing machines and understanding basic concepts of web, CSS,DHTML,XML

## COURSE OUTCOME

### I SEMESTER

#### **BCA103T : PROBLEM SOLVING TECHNIQUES USING C**

- CO1:** To know about Software, Classification of Software, Structured Programming, Algorithms and Flowcharts with examples. Overview of C Language.
- CO2:** To understand how to manage Input and Output Operation and using branching and looping in programs.
- CO3:** Using Arrays in programs and how storage classes helps in programming.
- CO4:** How **Pointers** are **used** to store and manage the addresses of dynamically allocated blocks of memory.
- CO5:** File handling in C enables to create, update, read, and delete the files stored on the local file system through C program.

#### **BCA104T: DIGITAL ELECTRONICS**

- CO1:** To know about Ohm's law, Kirchhoff's law, Delta/star and star/Delta transformation, Need for application of network theorems, Thevenin's theorem: Statement etc.
- CO2:** Understanding of Semiconductor Devices, Semiconductor, properties, crystal structure of semiconductor, types, Intrinsic semiconductor, Extrinsic semiconductor, Semiconductor etc.



**CO3 :** To get the knowledge of Number Systems, how to convert one number system to another number system.

**CO4 :** Different gates pin diagram and how those ICs are used .

**CO5:** Study about different registers and flip flip-flops and also timing diagram and truth tables.

### **BCA105T: DISCRETE MATHEMATICS**

**CO1:** To study about sets ,relations and functions and use of Logical Equivalence – Standard Theorems, Switching Circuits.

**CO2:** To know about Matrices ,Determinant and also inverse of a matrix using Cayley Hamilton theorem.

**CO3:** To study about Logarithms and Permutation and Combination and different examples of these.

**CO4:** Learning about Binary operation, properties, problems , subgroup, theorems , problems and study on vectors, vector addition, dot and cross product, projection of a vector on the other and area of parallelogram.

**CO5:** To know about Analytical Geometry in Two Dimensions and using Coordinates, Distance formula, Section Formula, Area of the Triangle formula, Locus of point etc.

## **II SEMESTER**

### **BCA203T: DATA STRUCTURES**

**CO1:** Introduces on basic concepts of data structures and to learn on complexity of algorithm .

**CO2:** To familiar about different sorting and searching techniques and using in programs.

**CO3:** learning about list in data structure and to traversing list and working on lists

**CO4:** To learn about stack data structure, application of stack and implementation of recursive procedure by stack.

**CO5:** Study on Graph theory terminology, Sequential representation of Graphs and binary tree representation in memory.





**BCA204T : DATA BASE MANAGEMENT SYSTEMS**

- CO1:** Introduces on database and database Users, Characteristics of the Database Approach, and different database languages and their interfaces in DBMS.
- CO2:** Study on Data Modelling and Using the Entity-Relationship Model and using for different projects.
- CO3:** Learn about Functional Dependencies and Normalization for Relational Database and example on how normalisation is used in database
- CO4:** Introduction on SQL and different queries present in SQL and also applications of PL/SQL.
- CO5:** Learning on transaction processing concepts , Schedules and Recoverability, Serializability of Schedules, Transaction Support in SQL, Locking Techniques for Concurrency Control and Concurrency Control based on time stamp ordering.

**BCA205: NUMERICAL AND STATISCAL METHODS**

- CO1:** Introduces on Floating-point representation and errors-Normalized floating-point forms and about Roots of equations
- CO2:** Study on Interpolation and numerical differentiation-polynomial interpolation, Lagrange and Newton form of interpolating Polynomial.
- CO3:** Learning on System of linear equations, Jacobi and Gauss, Power method of obtaining largest eigenvalue and corresponding eigenvector.
- CO4:** Familiar about Basics concepts and definition of statistics.
- CO5:** Study on Discrete and continuous random variables, expectation of random variables, theorems on expectation and examples on the same.

**III SEMESTER**

**BCA303T: OBJECT ORIENTED PROGRAMMING USING C++**

- CO1:** Know about basic concepts of Oops and important features of OOPs



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**CO2:** Study on objects and classes and how helpful in different real time examples and projects and also constructor and destructor concepts.

**CO3:** To learn about Operator Overloading and how inheritance concept helps to reuse in programming and different types of inheritance.

**CO4:** To learn friend function is used in programming and how exception handling methods helps to resolve exceptions.

**CO5 :** To familiar on streams and different file functions.

### **BCA304T: ACCOUNTING AND FINANCIAL MANAGEMENT**

**CO1:** Introduces on history and development of Accounting ,Accounting-Book-keeping V/s Accounting and accounting principles .

**CO2:** Study on ledger and how it is used in accounting and how transactions are stored in subsidiary books.

**CO3:** Enable them to understand about bill of exchange.

**CO4:** Helps them to prepare final accounts.

**CO5:** Study on vouchers in Tally and Tally features in details.

### **BCA305T: OPERATING SYSTEMS**


**CO1:** To get idea on multiprogramming and time sharing and CPU scheduling.

**CO2:** Study on process synchronization and deadlocks in operating system.

**CO3:** learning about memory management ,segmentation and paging .

**CO4:** Study on file management and different scheduling methods and also disk management in detail.

**CO5:** Study on Protection and security and case study about Windows and Linux operating system.

  
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**IV SEMESTER**

**BCA403T: VISUAL PROGRAMMING**


- CO1:** Introduction about visual basic integrated development environment which helps to understanding interface of visual basic.
- CO2:** Helps to understand about variables and looping and branching usage in programs.
- CO3:** Study on how Inheritance and encapsulation ,dynamic link library concepts are used. DAO and ADO tables and queries for database programming.
- CO4:** To learn about Visual C++ programming .
- CO5:** Learn about MDI ,splitter windows and database applications.

**BCA404T : UNIX PROGRAMMING**

- CO1:** In detail study on Unix system Architecture.
- CO2:** Learn on secondary storage management and also about Unix system calls and library function.
- CO3:** Study on different shell commands and using it in different programs.
- CO4:** Learn about different conditional and control statements.
- CO5:** Study on Unix system Communication.

**BCA405T: OPERATIONS RESEARCH**

- CO1:** Practice on many Linear programming problems.
- CO2:** Learn about transportation problem like Vogel's approximation method, MODI method to find optimal solution.
- CO3:** Study on Hungarian method to solve Assignment Problem.
- CO4:** To know about Critical Path Method and PROJECT Evaluation and Review Techniques. Algorithm and flow chart for CPM and PERT.
- CO5:** Study on Theory of Games

  
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**V SEMESTER**

**BCA501T: DATA COMMUNICATIONS AND NETWORKS**

- CO1:** Introduction on communication network and services and also key factors in communication network evolution.
- CO2:** To learn on transmission system ,error detection and correction and routing control.
- CO3:** Study on sliding window flow control timing recovery in synchronous services .
- CO4:** In detail study on Local area Networks and medium access control protocols.
- CO5:** To know about LAN standards, packet switching networks.

**BCA502T : SOFTWARE ENGINEERING**

- CO1:** Study on software development life cycle and different models used for software development.
- CO2:** Learn on how prototyping helps during software development.
- CO3:** Learn about system design using object oriented and function oriented design method.
- CO4:** In detail study on system reliability and reusing the software modules during software development.
- CO5:** Learn about testing process and various verification and validation methods to check the software before releasing.

**BCA503T: COMPUTER ARCHITECTURE**

- CO1:** To study on logic gates, flip-flops and shift registers.
- CO2:** To enrich them about data representation and data transfer operation.
- CO3:** To impart knowledge on basic computer organisation and design.
- CO4:** Enable them to understand central processor organization.
- CO5:** To understand about input output organisation and memory organisation.

**BCA504T: OBJECT ORIENTED PROGRAMMING USING JAVA**





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- CO1:** Helps to understand introduction of java with java history and main features.
- CO2:** To study on classes ,arrays ,strings and vectors and also how inheritance helps in programming.
- CO3:** To understand about interfaces ,packages and multithreaded programming.
- CO4:** To know applet programming and work with many applet examples.
- CO5:** To impart knowledge on graphics classes and available methods and use in different graphic methods.

## **BCA505T : MICROPROCESSOR AND ASSEMBLY LANGUAGE**

- CO1:** Study on 8085 architecture and its operations.
- CO2:** Helps to write different assembly level language and overview of instruction sets of 8085
- CO3:**To impart knowledge on many operations, looping, counting and indexing in many 8085.
- CO4:** To get knowledge about memory and I/O mapping and interfacing concepts.
- CO5:** To study on Interfacing of peripherals and its applications.

## **VI SEMESTER**

### **BCA601T : THEORY OF COMPUTATION**

- CO1:** Introduction about finite automata and also application of finite automata.
- CO2:** Study on how regular expression are used in finite automata and its applications.
- CO3:** To impart knowledge on context free grammars an also languages like PDA ect.
- CO4:** Gives the clarity on deterministic pushdown automata.
- CO5:** Study on programming techniques for Turing Machines which helps to apply practically.

### **BCA602T: SYSTEM PROGRAMMING**

- CO1:** Study on evolution of components of a programming system, assemblers, loaders etc.
- CO2:** To impart knowledge on assemblers ,table processing and many search sorting techniques.



**CO3:** Learn about macro language and the macro processors.

**CO4:** Helps to understand about loaders in detail.

**CO5:** Helps to understand about compilers in that statement of problem, Recognizing basic elements, Recognizing Syntactic cutis & interpreting meaning, Storage Allocation, Code Generation and also about phases of compilers.

## **BCA603T : CRYPTOGRAPHY AND NETWORK SECURITY**

**CO1:** To study on security goals ,cryptographic attacks and mathematics of cryptography.

**CO2:** To get knowledge on traditional symmetric key Ciphers, data encryption standards and advanced encryption standards.

**CO3:** To know about Encipherment using Modern Symmetric-Key Ciphers, Mathematics of Asymmetric-Key Cryptography and also in detail about Asymmetric Key Cryptography

**CO4:** To study about Cryptography Hash Functions, Symmetric-Key Distribution, Kerberos, Symmetric-Key Agreement, Public-Key Distribution and Hijacking.

**CO5:** To impart knowledge on security at the application layer, transport layer, network layer etc.

## **BCA604T: WEB PROGRAMMING**

**CO1:** To learn about fundamentals of web ,XHTML and HTML

**CO2:** To impart knowledge on HTML and XHTML forms and differences between HTML and XHTML ,how CSS helps to creating attractive web pages.

**CO3:** To get knowledge on javascript , how to interact with screen and also handling different errors in scripts.

**CO4:** To learn how javascripts and html are used to create dynamic web pages with some programs.

**CO5:** To study on XML its introduction ,schema and also about XSLT style sheets.

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