# SANATAN DHARMA COLLEGE, AMBALA CANTT

NAAC Accredited Grade 'A+' with CGPA 3.51 in the third cycle.

College with Potential for Excellence - UGC, New Delhi

## DEPARTMENT OF COMPUTER SCIENCE AND APPLICATIONS

## PROGRAM OUTCOMES (PO), PROGRAM SPECIFIC OUTCOMES (PSO), COURSE OUTCOMES (CO)

## PROGRAM: BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

| PO No | Program Outcome (PO)<br>After completing the three-year degree program, student will be able to: |
|---|---|
| PO1 | Attain employability skills to serve Software, IT industry and government sector. |
| PO2 | Attain entrepreneurship skills to open their own venture in the area of hardware, software and networking. |
| PO3 | Obtain analytical and problem-solving skills to understand, analyze and develop real life applications for the benefit of society. |
| PO4 | Develop effective communication skills. |
| PO5 | Attain ability to apply knowledge of computer science, applications and mathematics in practice. |
| PO6 | Attain strong base to pursue higher education in the field of Computer Applications, Computer Science, IT and Management. |
| PO7 | Become civilized citizen bundled with human values, professional ethics, environment consciousness and sensitive to societal issues. |
| PO8 | Attain skill to use modern computing tools and techniques for learning and developing software solutions. |
|  | Program Specific Outcome (PSO)<br>After Completing Bachelor of Computer Applications, the student will be equipped to : |
| PSO1 | Attain skills to work in latest technologies and programming languages. |
| PSO2 | Attain technical skills for software development, testing, problem analysis,hardware troubleshooting, web designing, web development project management, database management, network management and office support. |
| PSO3 | Attain communication and personality development skills. |
| PSO4 | Attain knowledge of open-source technology. |

| Course Outcomes | |
|---|---|
| **Semester-I    Course: BCA-111 Computer and Programming Fundamentals**<br>**At the end of the course student should be able to :** | |
| CO-1 | Understand the basic fundamentals of Computer System |
| CO-2 | Classify different types of computer memories |
| CO-3 | Establish relationship between hardware and software |
| CO-4 | Classify different types of software |
| CO-5 | Explain operating system, its functions, types and working |
| CO-6 | Solve various problems using problem solving techniques like Flowcharting, algorithms, pseudo code, decision table, Structured programming concepts. |
| CO-7 | Differentiate top-down and bottom-up programming methodologies. |
| CO-8 | Understand various types of Computer virus. |
| CO-9 | Explain various types of computer languages. |
| CO-10 | Differentiate and implement linear and binary search |
| CO-11 | Differentiate various sorting techniques |
| CO-12 | Implement Bubble, Selection, and Insertion Sorting |
| CO-13 | Explain Merging |
| **Semester-I  Course: BCA-112 Windows and PC Software**<br>**At the end of the course student should be able to :** | |
| CO-1 | Explain Windows and its Features, Using CD, DVD, Pen Drive, Burning CD. Windows Accessories. Entertainment- Media Players, Sound Recorder, Volume Control. |
| CO-2 | Explain Hardware Requirements of Windows. Windows Concepts, Windows Structure |
| CO-3 | Work efficiently with Desktop, Taskbar, Start Menu, My Pictures, My Music, My Documents, Recycle Bin. |
| CO-4 | Manage Files, Folders and Disk |
| CO-5 | Explain working of windows explorer |
| CO-6 | Access and store data on  CD, DVD, Pen Drive |
| CO-7 | Ability to burn CD |
| CO-8 | Ability to work on Media Players, Sound Recorder, Volume Control. |
| CO-9 | Installation of Hardware & Software |
| CO-10 | Work on Scanner, Web Camera, Printers |
| CO-11 | Use System Tools - Backup, Character Map, Clipboard Viewer, Disk Defragmenter, Drive Space, Scandisk, System Information, System Monitor, Disk Cleanup. |
| CO-12 | Update Windows |

| CO-13 | Browse the Web with Internet Explorer, |
|-------|----------------------------------------|
| CO-14 | Explain Multiple User Features of Windows, |
| CO-15 | Create and Delete User, Apply security features |
| CO-16 | Share Folders and Drives, |
| CO-17 | Browse the Entire Network, Use Shared Printers. |
| CO-18 | Use Control Panel & its components |
| CO-19 | Explain Toolbars, Menus and Keyboard Shortcuts, concepts of Workbook & Worksheets. |
| CO-20 | Explain various data types in Excel |
| CO-21 | Use Wizards |
| CO-22 | Use different features with Data, Cell and Texts |
| CO-23 | Inserting, Removing & Resizing of Columns & Rows |
| CO-24 | Work with Data & Ranges |
| CO-25 | Explain Different Views of Worksheets, |
| CO-26 | Implement Column Freezing, Labels, Hiding, Splitting .. |
| CO-27 | Use different features with Data and Text, Cell Formatting including Borders &Shading |
| CO-28 | Multiple Worksheets: Concept, Creating and Using Multiple Worksheets; |
| CO-29 | Use of Formulas, Calculations & Functions, |
| CO-30 | Various types of Functions, Cell Referencing, Absolute and Relative Addressing, |
| CO-31 | Use of various types of Charts |
| CO-32 | Print Workbook & Worksheets with various options, |
| CO-33 | Database: Creation, Sorting, Query and Filtering a Database; |
| CO-34 | Creating and Using Macros; Pivot table & Pivot chart |
| **Semester-I** <br> **Course: BCA-113 Mathematical Foundations – I** <br> **At the end of course student should be able to:** | |
| CO-1 | Apply Set, subsets and operations on sets, |
| CO-2 | Apply Venn diagram of sets. Power set of a set. |
| CO-3 | Apply Equivalence relation on a set and partition of a set, |
| CO-4 | Apply Permutation and combinations, |
| CO-5 | Apply Partially ordered sets, Lattices (definition and examples). |
| CO-6 | Boolean algebra (definition and examples) |
| CO-7 | Apply Epsilon and delta definition of the continuity of a function of a single variable, |
| CO-8 | Explain Basic properties of limits, |
| CO-9 | Explain Continuous functions and classifications of discontinuities |

| CO-10 | Use Derivative of a function, Derivatives of Logarithmic, exponential, trigonometric, inverse trigonometrical and hyperbolic functions. Higher order derivatives. |
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| CO-11 | Explain Formation of differential equations order and degree of the differential equation, |
| CO-12 | Explain Geometrical approach to the existence of the solution of the differential equation dy/dx=f (x,y). |
| CO-13 | Apply Ordinary differential equations of first degree and the first order, exact differential equations. |
| CO-14 | Apply Linear differential equations of higher order with constant coefficients, |
| CO-15 | Apply Homogeneous linear differential equations and linear differential equations reducible to homogenous differential equations, |
| CO-16 | Applications of differential equations to geometry. |
| **Semester-I Course: BCA-114 Logical Organization of Computers-I** **At the end of course student should be able to:** |
| CO-1 | Identify, understand and apply Number Systems, Binary Arithmetic, Fixed-pointand Floating point representation of numbers, BCD Codes, Error detecting and correcting codes, Character Representation – ASCII, EBCDIC. |
| CO-2 | Apply Binary Logic: Boolean Algebra, Boolean Theorems, Boolean Functions andTruth Tables, Canonical and Standard forms of Boolean functions, Simplification of Boolean Functions – Venn Diagram, Karnaugh Maps. |
| CO-3 | Design Digital Logic: Basic Gates – AND, OR, NOT, Universal Gates – NAND, NOR,Other Gates – XOR, XNOR etc. implementations of digital circuits, Combinational Logic – Characteristics, Design Procedures, analysis procedures |
| CO-4 | Design Combinational Circuits: Half-Adder, Full-Adder, Half-Subtractor, Full-Subtractor, Encoders, Decoders, Multiplexers, Demultiplexers, Comparators, Code Converters. |
| **Semester-I** **Course: BCA-115 Communicative English** **At the end of course student should be able to:** |
| CO-1 | Compose Faxes, e-mails, and text messages |
| CO-2 | Develop vocabulary and improve the accuracy in grammar |
| CO-3 | Produce words with right pronunciation |
| CO-4 | Improve LSRW- listening, speaking, reading and writing skills and the related sub-skills. |
| CO-5 | Accuracy and fluency in producing and understanding spoken and written English. |
| CO-6 | Writing Official letters / applications |

| CO-7 | Accuracy in using English in situations (for example: greetings, in the post office,catching a train, at a bank, making a telephone call, buying vegetables, at the hospital, on the bus etc. |
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| CO-8 | Explain Right to Information Act, 2005 : Definition, Meaning, Nature and Scope of Right to Information, |
| CO-9 | Explain Obligations and functioning of PIO's (Public Information Officers), Information, which cannot be disclosed, |
| CO-10 | Explain Functioning of Appellate Authorities(State Information Commission(s) and Central Information Commission), Terms and conditions of appointment of members in State Information Commission(s) and Central Information Commission. |

### Semester-I
### Course: BCA-116 Programming in C
### At the end of course student should be able to:

| CO-1 | Explain Structure of a C Program. |
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| CO-2 | Explain tokens in C |
| CO-3 | Explain Data types, Constants and Variables, |
| CO-4 | Design algorithms for simple problems |
| CO-5 | Design Simple Programs using formatted and unformatted input output functions |
| CO-6 | Write C program for simple applications |
| CO-7 | Differentiate various types of operators |
| CO-8 | Design Programs using arithmetic, logical and bitwise operators |
| CO-9 | Design applications using control statements |
| CO-10 | Design programs using functions, functions with & without parameters |
| CO-11 | Apply recursion to solve problems |
| CO-12 | Explain use and working of storage classes in c |
| CO-13 | Design applications using single dimensional and two-dimensional arrays |
| CO-14 | Design programs using strings. |

### Semester-II  Course: BCA – 121 Advanced Programming in C
### At the end of course student should be able to:

| CO-1 | Design applications using string functions. |
|---|---|
| CO-2 | Design simulation of string functions |
| CO-3 | Design Applications using arrays of strings |
| CO-4 | Design applications using structures and unions |
| CO-5 | Differentiate Structure and union |
| CO-6 | Explain enumeration |
| CO-7 | Understand memory management using pointers. |

| CO-8 | Design programs using the concept of dynamic memory allocation using pointer and pointer to pointer. |
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| CO-9 | Create files and perform file operations using C |
| CO-10 | Apply Random-access I/O in files |
| CO-11 | Explain preprocessors |
| CO-12 | Design applications using command line arguments. |

**Semester-II**
**Course: BCA-122 Logical Organization of Computers – II**
**At the end of course student should be able to:**

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| CO-1 | Understand and Apply Flip-Flops, Clocked RS, D type, JK, T type and Master Slave flip-flops. State table, state diagram. Flip-flop excitation tables |
| CO-2 | Understand and design Sequential Circuits, registers, counters |
| CO-3 | Understand and explain Memory & I/O Devices: Semiconductor RAM, ROM,Magnetic and Optical Storage devices, Flash memory, I/O Devices and their controllers. |
| CO-4 | Understand and apply Machine instruction, Instruction set selection, Instruction cycle, Instruction Format and Addressing Modes |
| CO-5 | Explain I/O Interface, Interrupt structure, Program-controlled, Interrupt-controlled & DMA transfer, I/O Channels, IOP. |

**Semester- II**
**Course: BCA – 123 Mathematical Foundations - II**

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| CO-1 | Understand and apply Propositions and logical operators, Truth tables and propositions generated by a set. |
| CO-2 | Understand Equivalence and implications, Laws of logic, Mathematical system, Proposition over a universe, Mathematical induction, Quantifiers |
| CO-3 | Understand and apply Binary operations on a non empty set, Groups, Subgroups, Normal Subgroups, Cosets, Factor groups, Rings, Sub rings, Ideals, Factor rings, Prime ideals, Minimal ideal, Fields, direct product of groups, Isomorphism of groups and rings |
| CO-4 | Perform Addition and multiplication of matrices, Laws of matrix algebra, Singularand non-singular matrices, Inverse of a matrix, Rank of a matrix, Rank of the product of two matrices, Systems of linear equations i.e. AX=0 and AX=B |
| CO-5 | Understand and apply Characteristic equations of a square matrix, Cayley- Hamilton Theorem, Eigen values and eigen vectors, Eigen values and eigen vectors of symmetric skew symmetric, Hermitian and skew –Hermitan matrices, Diagonalization of a square matrix |

**Semester –II Course: BCA 124 Office Automation Tools**
**At the end of course student should be able to:**

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| CO-1 | Differentiate different DTP packages |

| CO-2 | Design publication in Page maker |
|---|---|
| CO-3 | Editing publication in Page maker |
| CO-4 | Design, Edit & format Document in MS Word |
| CO-5 | Proofing Document |
| CO-6 | Creating Bookmarks |
| CO-7 | Write letters using mail merge |
| CO-8 | Design tables |
| CO-9 | Perform File Management |
| CO-10 | Printing Document |
| CO-11 | Using Styles, linking and embedding object. |
| CO-12 | Designing effective and automated presentations using MS Power point |
| CO-13 | Making use of Animations, Sounds and animated pictures in presentations. |
| **Semester-II**<br>**Course: BCA – 125 Structured System Analysis and Design** ||
| CO-1 | Identify Characteristics, Elements of system, Physical and abstract system, open and closed system, man-made information systems. |
| CO-2 | Explain System Development Life Cycle: Various phases of system development, Considerations for system planning and control for system success. |
| CO-3 | Demonstrate knowledge on the different phases of Systems Development Life Cycle (SDLC) |
| CO-4 | Explain Role of system analyst. |
| CO-5 | Demonstrate the use of systems design techniques, methodologies, and tools. |
| CO-6 | Understand System Planning: Bases for planning in system analysis: Dimensions of Planning. |
| CO-7 | Understand and Explain Initial Investigation: Determining user's requirements and analysis, fact finding process and techniques. |
| CO-8 | Demonstrate use of Tools of structured Analysis: Data Flow diagram, data dictionary, IPO and HIPO charts, Gantt charts, pseudo codes, Flow charts, decision tree, decision tables. |
| CO-9 | Apply Feasibility study: Technical, Operational & Economic Feasibilities in designing the system |
| CO-10 | Explain Cost/Benefit Analysis: Data analysis cost and benefit analysis of a system |
| CO-11 | Explain Input/ Output and Form Design, |
| CO-12 | Perform File Organization and database design in designing systems |
| CO-13 | Perform System testing and demonstrate test planning, testing techniques. |
| CO-14 | Explain Quality assurance: Goal of quality assurance, levels of quality assurance System implementation |
| CO-15 | Explain software maintenance |

| | **Semester-II**<br>**Course: BCA- 126 Personality Development**<br>**At the end of course student should be able to:** |
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| CO-1 | Develop and exhibit and accurate sense of self |
| CO-2 | Develop an understanding of and practice personal and professional responsibility. |
| CO-3 | Develop Personal hygiene, Social, Business and Dining Etiquettes, |
| CO-4 | Develop and understand sense of Body language use and misuse, Art of good Conversation, Art of Intelligent Listening. |
| CO-5 | Develop Interpersonal Skills: Dealing with seniors, colleagues, juniors, customers, suppliers, contract workers, owners etc. at work place |
| CO-6 | Develop and demonstrate presentation and seminar skills |
| CO-7 | Develop interview skills |
| CO-8 | Develop skill to write winning resume |
| CO-9 | Develop skill to understand company profiles |
| CO-10 | Develop skill to keep update on current affairs |
| CO-11 | Develop time management skill |
| | **Semester-III**<br>**BCA – 231 OBJECT ORIENTED PROGRAMMING USING 'C++'**<br>**At the end of course student should be able to:** |
| CO-1 | Articulate the principles of object-oriented problem solving and programming. |
| CO-2 | Outline the essential features and elements of the C++ programming language. |
| CO-3 | Develop simple applications using class, objects, constructors |
| CO-4 | Develop applications using console I/O |
| CO-5 | Understanding and implementing concepts of dynamic memory allocation using pointers |
| CO-6 | Design application using friend functions and friend class. |
| CO-7 | Understand and use manipulators |
| CO-8 | Developing applications using Arrays, Array of Objects, Passing and Returning Objects to Functions, |
| CO-9 | Developing applications using String Handling in C++, |
| CO-10 | Developing applications using Concepts of Polymorphism, Function Overloading, Inline Functions. |
| CO-11 | Use C++ language to solve problems |
| | **Semester-III**<br>**BCA – 232 DATA STRUCTURES**<br>**At the end of course student should be able to:** |
| CO-1 | Identify applications and categories of Data Structure |

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|---|---|
| CO-2 | Understand and explain Algorithms complexity and time-space tradeoff, Big-O notation |
| CO-3 | Applying String operations, Pattern matching algorithms |
| CO-4 | Identify the appropriate data structures and algorithms for solving real world problems |
| CO-5 | Applying various kinds of searching and sorting techniques |
| CO-6 | Understanding and implementing algorithms using various data structures like Arrays, stacks, queues, Deques, Priority Queues, linked list, trees, graphs. |
| CO-7 | Understanding and implementing applications of all data structures studies in due course. |
| **Semester-III**<br>**Course: BCA – 233 COMPUTER ARCHITECTURE**<br>**At the end of course student should be able to:** |
| CO-1 | Understand and explain the basic architecture and design of computer |
| CO-2 | Understand and apply Register Transfer Language (RTL), register transfer, Bus and Memory Transfers |
| CO-3 | Understand and apply Arithmetic Microoperations, Logic Microoperations, Shift Microoperations, Arithmetic Logic Shift Unit |
| CO-4 | Understand and explain Microprogrammed Control |
| CO-5 | Understand and explain Central Processing Unit |
| CO-6 | Understand and explain Memory Organization. |
| **Semester-III**<br>**Course: BCA – 234 SOFTWARE ENGINEERING**<br>**At the end of course student should be able to:** |
| CO-1 | Understand and explain Programming paradigms |
| CO-2 | Differentiate Program and Software |
| CO-3 | Explain Phases in Software Development Process |
| CO-4 | Explain and apply various models: Waterfall, Prototype, Evolutionary and Spiral models |
| CO-5 | Understand and apply feasibility Study |
| CO-6 | Design SRS |
| CO-7 | Understand and apply Structured Analysis and Tools: Data Flow Diagram, Data Dictionary, Decision table, Decision tress, Structured English, Entity-Relationship diagrams, Cohesion and Coupling. Gantt chart, PERT Chart |
| CO-8 | Understand and explain Software Maintenance: Type of maintenance,Management of Maintenance, Maintenance Process, maintenance characteristics. . |
| CO-9 | Explain Software Project Planning |

| Semester-III  Course: BCA – 235 FUNDAMENTALS OF DATABASE SYSTEM | |
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| **At the end of course student should be able to:** | |
| CO-1 | Explain traditional file system |
| CO-2 | Differentiate Traditional file system and Database approach. |
| CO-3 | Explain DBMS Functions and Components |
| CO-4 | Understand and explain various roles in Database Environment |
| CO-5 | Understand and explain Database System Architecture |
| CO-6 | Understand and Explain Data Independence – Logical and Physical Data Independence, |
| CO-7 | Classify Database Management System, Centralized and Client Server architecture to DBMS. |
| CO-8 | Understand and explain various Data Models |

| Semester-III<br>Course: BCA- 236 COMPUTER-ORIENTED NUMERICAL METHODS<br>At the end of course student should be able to: | |
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| CO-1 | Understand and perform Computer Arithmetic: Floating-point representation of numbers, arithmetic operations with normalized floating-point numbers and theirconsequences, significant figures. Error in number representation-inherent error, truncation, absolute, relative, percentage and round-off error |
| CO-2 | Understand and apply Iterative Methods |
| CO-3 | Understand and explain Solution of simultaneous linear equations and ordinary differential equations |
| CO-4 | Understand and apply Interpolation and Approximation |
| CO-5 | Understand and explain Numerical Differentiation and integration |

| Semester-IV<br>Course: BCA – 241 ADVANCED DATA STRUCTURE<br>At the end of course student should be able to: | |
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| CO-1 | Understand and apply operations on Binary search Tree, General trees |
| CO-2 | Perform Huffman's algorithm |
| CO-3 | Understand and apply operations on Graph |
| CO-3 | Implement Warshall's algorithm for shortest path, Dijkstra algorithm for shortest path |
| CO-4 | Perform Sorting and Searching using various techniques. |
| CO-5 | Differentiate different Sorting and Searching techniques |
| CO-6 | Implement all types of File organization |
| CO-7 | Implementing Hashing |
| CO-8 | Understand and explain Collision Resolution |

| Semester-IV Course: BCA – 242 Advanced PROGRAMMING USING C++ | |
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| **At the end of course student should be able to:** | |
| CO-1 | Apply Dynamic Polymorphism with Function Overriding, Virtual Function & Abstract Class, |
| CO-2 | Apply Data type Conversions |
| CO-3 | Develop applications using inheritance |
| CO-4 | Apply Function templates |
| CO-5 | Develop generic classes using class templates |
| CO-6 | Perform Exception Handling |
| CO-6 | Implement operations on Text and Binary files |
| Semester-IV  Course: BCA-243 E-Commerce | |
| **At the end of course student should be able to:** | |
| CO-1 | Demonstrate understanding of Business operations |
| CO-2 | Understand and describe Features of E-Commerce, |
| CO-3 | Differentiate Types of Ecommerce Systems, |
| CO-4 | Demonstrate Management Issues relating to e-commerce. |
| CO-5 | Differentiate E-commerce practices vs. traditional business practices |
| CO-5 | Differentiate concepts of b2b, b2c, c2c, b2g, g2h, g2c |
| CO-6 | Demonstrate understanding of Elements and principles  of E-Commerce |
| CO-7 | Apply Operations of E-commerce: Credit card transaction; Secure HypertextTransfer Protocol (SHTP); Electronic payment systems; Secure electronic transaction (SET); SET`s encryption; Process; Cybercash; Smart cards; Indian payment models. |
| CO-8 | Demonstrate understanding of Applications of E-Governance |
| CO-9 | Demonstrate understand of Applications of E-commerce in B2C |
| CO-10 | Describe  Impact on disinter mediation and re-intermediation |
| CO-11 | Analyze Products in b2c model; |
| CO-12 | Describe success factors of e-brokers; Broker-based services on-line; Online travel tourism services; |
| CO-13 | Explain Benefits and impact of e-commerce ontravel industry; Deal estate market; online stock trading and it benefits; Online banking and its benefits; Online financial services and their future; |
| CO-14 | Describe E-auctions – benefits, implementation and impact. |
| CO-15 | Describe Applications in B2B |

| CO-16 | Describe Emerging Business models: |
|---|---|
| CO-17 | Describe Internet & E-Commerce scenario in India |
| CO-18 | Describe Internet security Issues |
| CO-19 | Describe Legal aspects of E-commerce |

| **Semester-IV Course: BCA – 244 RELATIONAL DATABASE MANAGEMENT SYSTEM**<br>**At the end of course student should be able to:** ||
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| CO-1 | Describe Relational Model Concepts & Codd's Rules for Relational Model |
| CO-2 | Describe and apply Relational Algebra |
| CO-3 | Understand and apply Relational Calculus |
| CO-4 | Understand and describe Functional Dependencies and Normalization |
| CO-5 | Understand and perform SQL commands and operations |
| CO-5 | Differentiate Basic DDL, DML and DCL commands in SQL |
| CO-6 | Apply Simple Queries, Nested Queries, |
| CO-7 | Understand and describe PL/SQL architecture |
| CO-8 | Describe and use Tables, Views, Indexes, Aggregate Functions, Clauses |
| CO-9 | Understand and describe The Generic PL/SQL Block: PL/SQL Execution Environment, |
| CO-10 | Understand and describe PL/SQL Character set and Data Types, |
| CO-11 | Demonstrate working of Control Structure in PL/SQL |
| CO-12 | Demonstrate working of Cursors in PL/SQL, |
| CO-13 | Design Triggers in PL/SQL |
| CO-14 | Develop Basic programs using PL/SQL |

| **Semester –IV  Course: BCA – 245 COMPUTER-ORIENTED STATISTICAL METHODS**<br>**At the end of course student should be able to:** ||
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| CO-1 | Understand and perform Basic Statistics: Preparing Frequency Distribution Table and Cumulative frequency, |
| CO-2 | Demonstrate Measure of Central Tendency, Types: Arithmetic mean, Geometric Mean, Harmonic Mean, Median, Mode. |
| CO-3 | Demonstrate Measure of Dispersion: Range, Quartile Deviation, mean deviation, Coefficient of mean Deviation, Standard Deviation |
| CO-4 | Demonstrate Moments: Moments About mean, Moments about any point, Moment about origin, Moment about mean in terms of moment about any point, Moment about any point in terms of Moment about mean. |
| CO-5 | Demonstrate Probability Distribution |
| CO-5 | Demonstrate Mathematical Expectation Types: Binomial, Poisson, Normal Distribution, Mean and Variance of Binomial, Poisson, and Normal Distribution |

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| CO-6 | Demonstrate. Correlation: Introduction, Types, Properties, Methods of Correlation: Karl Pearson's Coefficient of Correlation, Rank Correlation and Concurrent Deviation method, Probable error. |
| CO-7 | Demonstrate  Regression |
| CO-8 | Compare regression with Correlation |
| CO-9 | Demonstrate Curve Fitting: Straight Line, Parabolic curve, Geometric Curve and Exponential Curve Bayes' Theorem in Decision Making, Forecasting Techniques |
| CO-10 | Demonstrate Sampling: Meaning, methods of Sampling, |
| CO-11 | Demonstrate Statistical Inference |
| CO-12 | Demonstrate Types of test of Significance |
| **Semester-IV**<br>**Course: BCA – 246 MANAGEMENT INFORMATION SYSTEM**<br>**At the end of course student should be able to:** ||
| CO-1 | Describe system and Basic System Concepts, |
| CO-2 | Understand and describe Types of Systems, |
| CO-3 | Understand and describe Information System. |
| CO-4 | Understand and describe  Role of Information in Decision Making, |
| CO-5 | Describe Sub-Systems of an Information system: EDP and MIS management levels, EDP/MIS/DSS. |
| CO-5 | Describe overview of Management Information System |
| CO-6 | Describe Simon's Model of decision-Making, Structured Vs Un-structured decisions, Formal vs. Informal systems. |
| CO-7 | Develop Information Systems |
| CO-8 | Describe Analysis & Design of Information Systems: Implementation & Evaluation, Pitfalls in MIS Development. |
| CO-9 | Demonstrate Functional MIS |
| **Semester-V**<br>**Course- BCA-352: Operating System-I**<br>**At the end of course student should be able to:** ||
| CO-1 | Describe and explain the fundamental components of a computer operating system |
| CO-2 | Describe and explain the fundamental components of a computer operating system |
| CO-3 | Define, restate, discuss, and explain the policies for scheduling, deadlocks |
| CO-4 | Describe and extrapolate the interactions among the various components of computing systems. |

| CO-5 | Design and construct the following OS components: System calls, Schedulers, Memory management systems, Virtual Memory and Paging systems. |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| CO-6 | Define, restate, discuss, and explain the policies for memory management |
| CO-7 | Define, restate, discuss, and explain the policies for synchronization, system calls, and file systems |
| CO-8 | Know about different page replacement techniques |
| CO-9 | Understand various memories |

**Semester-V**
**Course- BCA-353: Artificial Intelligence**
**At the end of course student should be able to:**

| CO-1 | Understand different types of AI agents |
|------|------------------------------------------|
| CO-2 | Know various AI search algorithms |
| CO-3 | Understand the fundamentals of knowledge representation (logic-based, frame-based, semantic nets), inference and theorem proving |
| CO-4 | Know how to build simple knowledge-based system. |
| CO-5 | Demonstrate working knowledge of reasoning in the presence of incomplete and/or uncertain information |
| CO-6 | Ability to apply knowledge representation, reasoning, and machine learning techniques to real-world problems. |
| CO-7 | Ability to carry out independent (or in a small group) research and communicate it effectively in a seminar setting. |
| CO-8 | Know about the different searching process techniques |
| CO-9 | Know about the NLP |
| CO-10 | Know about the Robotics |

**Semester-V**
**Course- BCA-354: Computer Networks**
**At the end of course student should be able to:**

| CO-1 | Describe the general principles of data communication. |
|------|---------------------------------------------------------|
| CO-2 | Describe how computer networks are organized with the concept of layered approach. |
| CO-3 | Describe how signals are used to transfer data between nodes. |
| CO-4 | Implement a simple LAN with hubs, bridges and switches. |
| CO-5 | Describe how packets in the Internet are delivered. |
| CO-6 | Analyze the contents in a given data link layer packet, based on the layer concept. |
| CO-7 | Design logical sub-address blocks with a given address block. |
| CO-8 | Decide routing entries given a simple example of network topology |
| CO-9 | Explain various transmission media. |

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|---|---|
| CO-10 | Describe how routing protocols work. |
| CO-11 | Explain routing algorithm. |
| CO-12 | Know about the various network security issues |
| | **Semester-V**<br>**Course- BCA-355: Programming Using Visual Basic**<br>**At the end of course student should be able to:** |
| CO-1 | Students list the visual programming concepts. |
| CO-2 | Explain basic concepts and definitions. |
| CO-3 | Express constants and arithmetic operations. |
| CO-4 | Distinguish variable and data types. |
| CO-5 | Students code visual programs by using Visual Basic work environment. |
| CO-6 | Distinguish and compose events and methods. |
| CO-7 | Recognize and arrange control structures. |
| CO-8 | Design a complete program using visual programming concepts. |
| CO-9 | Students prepare various projects by helping visual programming. |
| CO-10 | Manage and analyse prepared project with programs. |
| CO-11 | Interpret and report obtaining results. |
| CO-12 | Explain basic concepts and definitions. |
| CO-13 | Express constants and arithmetic operations. |
| CO-14 | Distinguish variable and data types. |
| CO-15 | Students code visual programs by using Visual Basic work environment. |
| CO-16 | Distinguish and compose events and methods. |
| | **Semester-V**<br>**Course- BCA-356: Multimedia Tools**<br>**At the end of course student should be able to:** |
| CO-1 | Describe the types of media and define multimedia system. |
| CO-2 | Describe the process of digitizing (quantization) of different analog signals (text, graphics, sound and video). |
| CO-3 | Use and apply tools for image processing, video, sound and animation. |
| CO-4 | Apply methodology to develop a multimedia system. |
| CO-5 | Apply acquired knowledge in the field of multimedia in practice and independently continue to expand knowledge in this field. |
| CO-6 | Describe the types of media and define multimedia system. |
| CO-7 | Explain different audio and video compression techniques. |
| CO-8 | Explain quantization and transmission of audio. |

| | Semester-VI<br>Course- BCA-361: Web Designing Using Advanced Tools<br>At the end of course student should be able to: |
|---|---|
| CO-1 | Understand the major areas and challenges of web programming. |
| CO-2 | Distinguish web-related technologies. |
| CO-3 | Use advanced topics in HTML5, CSS3, JavaScript ,DHTML |
| CO-4 | Use a server-side scripting language, PHP |
| CO-5 | Use a relational DBMS, MySQL |
| CO-6 | Use PHP to access a MySQL database |
| CO-7 | Design and implement o typical static web pages and interactive web applications. o dynamic web applications. |
| CO-8 | Working with Macromedia flash player and other interactivity tools |
| CO-9 | Explain how to make website on frontpage. |
| CO-10 | Explain XML |
| | Course Outcomes |
| | Semester-VI<br>Course- BCA-362: Operating System II<br>At the end of course student should be able to: |
| CO-1 | To study the process management and scheduling. |
| CO-2 | To understand various issues in Inter Process Communication (IPC) and the role of OS in IPC. |
| CO-3 | To understand the concepts and implementation Memory management policies and virtual memory. |
| CO-4 | To understand the working of an OS as a resource manager, file system manager,process manager, memory manager and I/O manager and methods used to implement the different parts of OS |
| CO-5 | To study the need for special purpose operating system with the advent of new emerging technologies |
| CO-6 | Study different disk scheduling algorithms |
| CO-7 | Study network and distributed operating systems. |
| CO-8 | Identify and use UNIX/Linux utilities to create and manage simple file processingoperations, organize directory structures with appropriate security, and        develop shell scripts to perform more complex tasks.. |
| CO-9 | Effectively use the UNIX/Linux system to accomplish typical personal, office, technical, and software development tasks. |
| CO-10 | Monitor system performance and network activities. |

| CO-11 | Effectively use software development tools including libraries, preprocessors,compilers, linkers, and make files. Collaborate in teams on system tasks |
|---|---|
| CO-12 | Comprehend technical documentation, prepare simple readable user documentation and adhere to style guidelines. |

| | **Semester-VI**<br>**Course- BCA-363: Computer Graphics**<br>**At the end of course student should be able to:** |
|---|---|
| CO-1 | To introduce the use of the components of a graphics system and become familiar with building approach of graphics system components and algorithms related with them. |
| CO-2 | To learn the basic principles of 3- dimensional computer graphics. |
| CO-3 | Provide an understanding of how to scan convert the basic geometrical primitives, how to transform the shapes to fit them as per the picture definition. |
| CO-4 | Provide an understanding of mapping from a world coordinate to device coordinates, clipping, and projections. |
| CO-5 | To be able to discuss the application of computer graphics concepts in thedevelopment of computer games, information visualization, and business applications. |
| CO-6 | To comprehend and analyze the fundamentals of animation, virtual reality, underlying technologies, principles |

| | **Semester-VI**<br>**Course- BCA-364: Internet Technologies**<br>**At the end of course student should be able to:** |
|---|---|
| CO-1 | Predict and explain how different networking technologies at the same or different layers interact and affect each other in a large-scale system |
| CO-2 | Critically evaluate network technologies with respect to system requirements, based on information from current research and technical documentation |
| CO-3 | Apply basic system models and analysis methods to analyze distributed systems and networks |
| CO-4 | Study about Application Layer |
| CO-5 | Study about Routing in internet |
| CO-6 | Study about TCP/IP protocol. |

| | **Semester-VI**<br>**Course- BCA-365: Advanced Programming with Visual BasicAt**<br>**the end of course student should be able to:** |
|---|---|

| CO-1 | To develop an understanding of Visual Basic |
|------|---------------------------------------------|
| CO-2 | To develop the skills necessary to create software solutions using Visual Basic |
| CO-3 | To learn how to analyze certain types of problems with a software solution in mind |
| CO-4 | To learn how to design software solutions to some types of problems |
| CO-5 | To learn how to implement, test, and debug Visual Basic applications |
| CO-6 | Working with Menus, Advanced Controls |
| CO-7 | Explain File Handling & File Controls |
| CO-8 | Working with Accessing Databases (Data Controls, Data-Bound Controls, DAO, RDO, ADO) |
|  | **Semester-VI**<br>**Course- BCA-366: Programming in Core Java**<br>**At the end of course student should be able to:** |
| CO-1 | Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs. |
| CO-2 | Read and make elementary modifications to Java programs that solve real-world problems. |
| CO-3 | Validate input in a Java program. |
| CO-4 | Identify and fix defects and common security issues in code. |
| CO-5 | Document a Java program using Javadoc. |
| CO-6 | Use a version control system to track source code in a project. |
| CO-7 | Identify classes, objects, members of a class and relationships among them needed for a specific problem |
| CO-8 | Write Java application programs using OOP principles and proper program structuring |
| CO-9 | Demonstrate the concepts of polymorphism and inheritance Demonstrate |
| CO-10 | Write Java programs to implement error handling techniques using exception handling |

# PROGRAM: BACHELOR OF VOCATION (SOFTWARE DEVELOPMENT)

| PO No. | Programme Outcomes<br>Upon completion of the B.VOC Degree Programme, the graduate will be able to |
|---|---|
| PO-1 | The B.Voc program is focused on universities and colleges providingundergraduate studies which would also incorporate specific job roles and their NOSs along with broad based general education. |
| PO-2 | This would enable the graduates completing B.Voc. to make a meaningfulparticipation in accelerating India's economy by gaining appropriate employment, becoming entrepreneurs and creating appropriate knowledge. |
| PO-3 | Attain strong base to pursue higher education in the field of Computer Applications, Computer Science, IT |
| PO-4 | Become civilized citizen bundled with human values, professional ethics, environment consciousness and sensitive to societal issues. |
| PO-5 | Use the Systems Analysis Design paradigm to critically analyze a problem. Solve the problems (programming networking database and Web design) in the Information Technology environment. Function effectively on teams to accomplish a common goal and demonstrate professional behaviour. |
| PO-6 | Develop IT-oriented security issues and protocols. Design and implement a web page. |

| PSO No. | Programme Specific Outcomes<br>Upon completion of these courses the student would |
|---|---|
| PSO-1 | Understand analyse and develop computer programs in the areasrelated to web design, mobile application design. |
| PSO-2 | Apply standard software engineering process and strategies in software project development using open source programmingenvironment to deliver a quality product for business success. |
| PSO-3 | Acquaintance with latest trends in software development and therebyinnovate new ideas in the area of software development. |
| PSO-4 | Conceptual grounding in computer usage as well as its practicalbusiness applications. |
| PSO-5 | To demonstrate advanced skills in the effective analysis design andrealization of business system utilizing contemporary information technology. |
| PSO-6 | Improve their computer literacy, their basic understanding of operative systems and a working. Knowledge of software commonlyused in academic and professional environments. |
| PSO-7 | Do Academic and Professional Presentations - Designing and delivering an effective presentation and developing the various ITskills to the electronic databases. |

| Course Title | Computer Fundamentals |
|---|---|
| | **Course outcomes** |
| CO-1 | Making the students understand and learn the basics ofcomputer how to operate it. |
| CO-2 | To make familiar with the part and function of computer, itstypes, how to use computer in our day-to-day life |
| CO-3 | To know Its characteristics, its usage, Limitations andbenefits etc. |
| CO-4 | Understand the difference between an operating system andan application program, and what each is used for in a computer |
| CO-5 | Describe some examples of computers and state the effectthat the use of computer technology has had on some common products |
| CO-6 | Identify and analyze computer hardware, software, andnetwork components |
| CO-7 | Understand the fundamental hardware components that make up a computer's hardware and the role of each of thesecomponents |

| Course Title | PC Software |
|---|---|
| CODE No. | **Course Outcomes** |
| CO-1 | Use systems development, word-processing, spreadsheet,and presentation software to solve basic information systems problems. |
| CO-2 | Analyze compression techniques and file formats to determine effective ways of securing, managing, andtransferring data. |
| CO-3 | Microsoft Word and Microsoft office suite for students help to transmit educational materials and practice systematically in school and university faster with higher quality. |
| CO-4 | Microsoft word can benefits students to create newinnovative methods of learning and teaching. |
| CO-5 | Using Excel can enhance understanding of content within a graphic presentation of the information; it provides a visual representation of data that makes iteasier to analyze. |

| CO-6 | Excel reduces the difficulty of plotting data and allows students a means for interpreting the data. |
|---|---|
| CO-7 | It provides encouragement and support to staff by facilitating the structuring of a presentation in aprofessional manner. |

| Course Title | Operating Systems-I |
|---|---|
| CO No. | Course Outcomes |
| CO- 1 | Describe the main responsibilities of a contemporary operating system (OS) and to explain the history leadingto their current form |
| CO- 2 | List the most fundamental subsystems of an OS and thefunctions that each subsystem is responsible of. |
| CO- 3 | Recognize and give examples of conflicting goals andcompromises necessary in implementing an OS and configuring its run-time parameters |
| CO- 4 | Describe under which circumstances the processor is executing code either in kernel mode or in user mode,and how these modes differ from each other |
| CO- 5 | Describe translation of a virtual memory address into aphysical address, given a page table (of a given simple "toy" computer with very tiny address space); understand and explain how a shared memory area canbe implemented using VM addresses in different processes |
| CO- 6 | Understand the idea of direct memory access (DMA)with its advantages and implications |
| CO- 7 | Describe how multitasking is possible to implement in a uniprocessor system, and how application programmingdiffers between a multicore system and a uniprocessor one |

| Course Title | Programming Fundamentals and C |
|---|---|
| CO No. | Course Outcomes |
| CO-1 | Know the correct and efficient ways of solvingproblems. |
| CO-2 | Write C program for simple applications |

| CO-3 | Formulate algorithm for simple problems |
|------|------------------------------------------|
| CO-4 | Analyze different data types and arrays |
| CO-5 | Perform simple search and sort |
| CO-6 | Understand memory management and write programsusing structures for solving complex computational problem |
| CO-7 | Create files and perform file operations using C |
| CO-8 | Apply the programming language concepts to solvereal time problems |

| Course Title | Operating Systems-II |
|--------------|----------------------|
| CO No. | Course Outcomes |
| CO-1 | Recall the different structures of operating systems. |
| CO-2 | Discuss theory and implementation of processes, resource control, physical and virtual memory, scheduling, I/O andfiles |
| CO-3 | Calculate waiting time, response time, turnaround time anddisk seek time in disk scheduling |
| CO-4 | Compare the memory allocation methods and differentiate the page replacement algorithms |
| CO-5 | Conclude with a detailed understanding of Linuxkernel |
| CO-6 | Gain the necessary knowledge for the employability inteaching profession. |

| Course Title | Web Designing |
|--------------|---------------|
| CO No. | Course Outcomes |
| CO-1 | Understand the principles of creating an effective web page,including an in-depth consideration of information architecture. |
| CO-2 | Learn the language of the web: HTML and CSS. |

| | |
|---|---|
| **CO-3** | Learn techniques of responsive web design, including mediaqueries. |
| **CO-4** | Develop basic programming skills using Javascript andjQuery. |
| **CO-5** | Be able to embed social media content into web pages. |
| **CO-6** | Develop skills in analyzing the usability of a web site. |

| Course Title | **Networking & Internet** |
|---|---|
| **CO No.** | Course Outcomes |
| CO-1 | Explain the fundamental knowledge in Network Hardwareand Software; summarize OSI reference Model. |
| CO-2 | Describe about the types of Transmission Media andunderstands the working of Public Switches Telephone Network. |
| CO-3 | Relate and illustrate the techniques of Error Detection andCorrection. |
| CO-4 | Express the Elementary Data Link Protocols. |
| CO-5 | Illustrate and analyse the Routing and Congestion ControlAlgorithms in Network Layer; explain the underlying protocol in Transport Layer. |
| CO-6 | Identify the functionality of Application Layer services. |
| CO-7 | Analyze and interpret the network securityalgorithms. |
| CO-8 | Analyze the various concepts of networks related to OSI andTCP reference models |

| Course Title | **Web Programming –PHP** |
|---|---|
| **CO No.** | **Course Outcomes** |
| **CO-1** | Understand how server-side programming works on the web. |
| **CO-2** | How to make your pages dynamic based upon user interaction,interacting with HTML forms and store and retrieve information from local data sources which include a database. |

| CO-3 | Be able to use the HTML programming language. |
|---|---|
| CO-4 | Resolves written HTML codes. |
| CO-5 | Understand the principles of creating an effective web page,including an in-depth consideration of information architecture. |
| CO-6 | Outline the principles behind using MySQL as a backendDBMS with PHP |

| COURSE TITLE | RDBMS-1 |
|---|---|
| CO No. | Course Outcomes |
| CO-1 | Explain the basic concepts of database system andfundamental relational algebraic operations. |
| CO-2 | Explain, Apply SQL queries, Create ER modelfor any database applications. |
| CO-3 | Explain the normalization techniques; learn the basicidea of object – based database. |
| CO-4 | Describe the physical storage media and file structure, comparethe file organization techniques; understand, analyze & compare Indexing & Hashing techniques. |
| CO-5 | Discuss the concepts of Transaction and Concurrency control,classify the database system architecture, Understand and apply NOSQL queries |
| CO-6 | Acquire the knowledge of working with database |

| Course Title | Data Structures |
|---|---|
| CO No. | Course Outcomes |
| CO-1 | Understand the fundamentals of Data Structures and basicconcepts of String Processing, Linear Arrays, Records and Pointers. |
| CO-2 | Analyze the representation of Linked Lists in memory, Stack,Queues and implement real time applications in Stack and Queues. |
| CO-3 | Explore the structure of Trees, basic operations of Trees,analyze and illustrate the algorithms. |
| CO-4 | Apply data structures and algorithms in real timeapplications. |
| CO-5 | Analyze the various algorithm design and implementation. |
| CO -6 | Develop solutions using advanced algorithms for various kindsof problems. |

| Course Title | Software Engineering |
| --- | --- |
| CO No. | Course Outcomes |
| CO-1 | Define software, explain the nature of software, software process and software engineering practice, explain and compare the various models. |
| CO-2 | Discuss the requirements, analyze and design the variousrequirement models. |
| CO-3 | Explain the design concepts, analyze and apply the concepts todesign architectural, component level & User interface models, list the golden rules. |
| CO-4 | Explain the quality concepts, Software Quality Assurance tasks,discuss the strategies of testing, explain the types of testing. |
| CO-5 | Explain the Product, process & project metrics, discuss the estimation modeling, understand the emergingtrends, Prepare a Product |
| CO-6 | Become efficient software developer |

| Course Title | OBJECT ORIENTED PROGRAMMING WITH C++ |
| --- | --- |
| CO No. | COURSE OUTCOMES |
| CO-1 | Outline the essential features and elements of the C++programming language. |
| CO-2 | Explain programming fundamentals, including statementand control flow and recursion. |
| CO-3 | Apply the concepts of class, method, constructor, instance,data abstraction, function abstraction, inheritance, overriding, overloading, an polymorphism. |
| CO-4 | Program using objects and data abstraction, class, andmethods in function abstraction. |
| CO-5 | Analyze, write, debug, and test basic C++ codes using theapproaches introduced in the course. |
| CO-6 | Analyze problems and implement simple C++ applicationsusing an object-oriented software engineering approach. |

**SEM 4**

| Course Title | RDBMS-II |
|---|---|
| **CO No.** | **Course Outcomes** |
| **CO-1** | Understand Data Warehouse fundamentals, Data MiningPrinciples |
| **CO-2** | Design data warehouse with dimensional modelling and applyOLAP operations. |
| **CO-3** | Understanding the use of XML format |
| **CO-4** | Build indexing mechanisms for efficient retrieval ofinformation from databases |
| **CO-5** | Apply appropriate security techniques database systems. |
| **CO -6** | Design distributed database for better resource management |

| Course Title | Management Information Systems |
|---|---|
| **CO No.** | **Course Outcomes** |
| **CO-1** | Evaluate the role of information systems intoday's competitive business environment. |
| **CO-2** | Identify and describe important features of organizationsin order to build and use information systems successfully. |
| **CO-3** | Demonstrate systems analysis, design and decisionmaking in a business setting. |
| **CO-4** | Define and describe the fundamentals of hardware, software,database management, data communications and systems related to the management activities of an organization. |

| CO-5 | Assess how information systems support the activities ofmanagers and end – users in organizations. |
|---|---|
| CO -6 | Develop skills for business management |

| COURSE TITLE | Java Programming |
|---|---|
| CO No. | Course Outcomes |
| CO-1 | State OOPS and Relate java syntax with C and C++. |
| CO-2 | Categorize OOPS such as encapsulation, abstraction,polymorphism. |
| CO-3 | Applying encapsulation concepts in developing the programswith classes and objects. |
| CO-4 | Identify different types of inheritance and apply them forreusability of code. |
| CO-5 | Construct the packages by arranging the classes with visibilitycontrol. |
| CO-6 | Develop program using different methods of thread creationand exception handling. |
| CO-7 | Create Internet program using applets. |
| CO-8 | Evaluate java collection with other implementation methods ofdata structure. |
| CO-9 | Propose the use of certain technologies by implementing themin the Java programming language to solve the given problem. |

| Course Title | VISUAL PROGRAMMING |
|---|---|
| CO No. | COURSE OUTCOMES |
| CO-1 | Demonstrate knowledge of programming terminology and how applied using Visual Basic (e.g., variables, selectionstatements, repetition statements, etc.) |
| CO-2 | Develop a Graphical User Interface (GUI) based on problemdescription |

| CO-3 | Develop an Event Planning Chart based on problem description so as to define the processing that is to occurbased on specific events |
|------|-----|
| CO-4 | Develop an Algorithm to verify processing is accurate |
| CO-5 | Develop and debug applications using Visual Basic 2010 (orversion required for the course) that runs under Windows operating system |
| CO-6 | Develop programs that retrieve input from a file as opposedto input only provided by user |

## Semester 5

| Course Title | CURRENT TECHNOLOGIES |
|------|-----|
| CO No. | Course Outcomes |
| CO-1 | Discuss the fundamental concepts in cloud. |
| CO-2 | Analyse the cloud enabling technologies. |
| CO-3 | Know and explain the Virtualization mechanisms. |
| CO-4 | Comprehend the Cloud Data Security concepts. |
| CO-5 | Know and distinguish the various applications Cloud. |
| CO-6 | Analyze the concepts of Cloud Computing to develop the skillof doing research |

| Course Title | E- Commerce |
|------|-----|
| CO No. | Course Outcomes |
| CO-1 | Describe and criticize the e-commerce, advantage disadvantage of E-commerce and traditional Commerce v/s E-Commerce. |
| CO-2 | Explain different type of models and activities of E-Commerce. |
| CO-3 | Describe the different type techniques and software used in E-Commerce. |
| CO-4 | Identify the strategies for marketing sales and promotion. |
| CO-5 | Describe and show the different type of E- Commerceapplication and Supply Chain diagram. |
| CO-6 | Analyze the concepts of E-commerce for skill developmenttowards solving real-time problems. |

| Course Title | Web Technology –ASP Dot Net |
|---|---|
| CO No. | Course Outcomes |
| CO-1 | Explain Architecture & features of DOTNETFramework and VS 2012 IDE. |
| CO-2 | Discuss Object Oriented Programming conceptsin C# programming. |
| CO-3 | Explain WPF Class Hierarchy with Application model with relevant to Flow control mechanisms. |
| CO-4 | Database connectivity in WPF and ASP.NETapplications. |
| CO-5 | Classifies the Web standard controls and Validationcontrols of DOTNET Technology. |
| CO-6 | Develop user-friendly applications using dot net |

**Course Title**   **Advanced Java**

| CO No. | Course Outcomes |
|---|---|
| CO-1 | learn the Internet Programming, using Java Applets |
| CO-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 |
| CO-3 | apply event handling on AWT and Swing components. learnto access database through Java programs, using Java Data Base Connectivity (JDBC) |
| CO-4 | create dynamic web pages, using Servlets and JSP. make areusable software component, using Java Bean. invoke the remote methods in an application using Remote MethodInvocation (RMI) |
| CO-5 | understand the multi-tier architecture of web-based enterprise applications using Enterprise JavaBeans (EJB). develop Stateful, Stateless and Entity Beans. |
| CO-6 | use Struts frameworks, which gives the opportunity to reuse the codes for quick development |

**Semester 6**

| Course Title | MOBILE COMPUTING |
|---|---|
| CO No. | Course Outcomes |
| CO-1 | Explain the principles and theories of mobile computingtechnologies. |
| CO-2 | Describe infrastructures and technologies of mobile computingtechnologies. |
| CO-3 | List applications in different domains that mobile computing offersto the public, employees, and businesses. |
| CO-4 | Describe the possible future of mobile computing technologies andapplications. |
| CO-5 | Effectively communicate course work through written and oralpresentations. |

| Course Title | INFORMATION SECURITY |
|---|---|
| CO No. | Course Outcomes |
| CO-1 | To understand the fundamentals of Cryptography. |
| CO-2 | To acquire knowledge on standard algorithms used to provideconfidentiality, integrity and authenticity |
| CO-3 | To understand the various concepts like database security, networksecurity, OS security. |
| CO-4 | To understand the concepts of risk analysis, risk assessment |
| CO-5 | To acquire the knowledge of legal and ethical issues that is involved inInformation Security. |

| Course Title | SYSTEM TESTING |
|---|---|
| CO No. | Course Outcomes |
| CO-1 | The basic software debugging methods. |
| CO-2 | White box testing methods and techniques. |
| CO-3 | Black Box testing methods and techniques. |
| CO-4 | Designing test plans. |
| CO-5 | Different testing tools (familiar with open source tools) |
| CO-6 | Quality Assurance Methods |

| Course Title | Linux & Shell Programming |
|---|---|
| CO No. | Course Outcomes |
| CO-1 | Use command substitution to capture program output. |
| CO-2 | Use conditional statements to control the execution ofshell scripts. |
| CO-3 | Write shell scripts to perform repetitive tasks using whileand for loops. |
| CO-4 | Design and implement shell functions. |
| CO-5 | Identify and process command-line arguments. |

# Department of Electronics & IT

## Program: Bachelor of Science (Hons)-Information technology

## Program Outcomes

On completion of B.Sc (Hons)-IT the students will be able to

PO-1: Apply the knowledge of mathematics, physics and basic science to the enhance the problem-solving capabilities.

PO-2 develop their knowledge practically in a scientific manner, get the experience to work independently and express their knowledge on different academic issues.

PO-3: Identify information related various problems, understand them and implement the solution of the problems.

PO-4: Apply the knowledge of electronics and Computer to manage the different problems and projects effectively.

PO-5: Select and apply current techniques, tools and skills, necessary for completion of Real time based problems and projects.

Po-6: Communicates effectively on various academic activities and present them in a very effective manner

## Program Specific Outcomes (PSOs)

On completion of the B.Sc (Hon) Information Technology degree the graduates will be able to

PSO-1: Make the complete analysis of the IT infrastructure and use the skills for the implementation of the real-world problems using latest tools and Computer Language

PSO-2: will be able to work in the field of Electrons and Computer in an effective manner.

PSO-3: Recognize opportunities and apply multidisciplinary knowledge to contribute in real time technical problems.

# Course Outcomes

| BSIT - 101 | Communication Skills (English)-I | After completion of this course the students will:<br><br>□ Understand the types of Communication used.<br>□ Able to analyze the difference between Verbal Communication and Non-Verbal Communication Practice dynamics of Professional presentations get the knowledge how to write letters both personaland professional.<br>□ Know how to make the resume for self-presentation |
|---|---|---|
| BSIT - 102 | Mathematical foundations for Information Technology-I | This course provides the basics of:<br><br>• Rank of Matrix, Eigen vectors, Characteristic equation, Diagonalization.<br>• Formation of differential equations<br>• Linear equations of higher order with constant coefficient, Homogenous linear equations.<br>• Finite and infinite sets, Mathematical induction, principle of inclusion andexclusion, multisets, properties of binary relations.<br>• functions and pigeon Hole Principle,Propositions. |
| BSIT - 103 | Fundamental of EM Waves | After this course the students will beable<br><br>• To solve mathematical expression of Maxwell, Gauss divergence theorem andstrokes theorem.<br>• Differentiate different AC circuits and perform circuit analysis.<br>• Explain fundamentals of EM wave<br>• Fundamentals of Transmission Line, their characteristics and properties. |
| BSIT - 104 | Electronic Devices and Circuits | After this course the students will be able<br><br>• Demonstrate about semiconductor, typesof semiconductors<br>• PN junction diode, its characteristicsand different applications such as rectifiers, clipper and clamper circuits. |

| | | |
|---|---|---|
| | | • Demonstrate the transistor working, transistor as an amplifier, MOSFET andits characteristics |
| BSIT - 105 | **Electronic Communication-I** | • After this course the students will beable to: <br> • Explain Communication model. Differentiate between different types ofmodulation and demodulation techniques and perform Qualitative andQuantitative analysis. <br> • Describe different modulation schemesand Sampling theorem. <br> • Explain different Digital Modulation systems, their bandwidth requirement and calculate noise involved. <br> • Explain elements of Communicationsystem, their designing and perform analysis. <br> • Explain different characteristics ofCommunication system. |
| BSIT - 106 | **Computer Fundamentals** | After this course students will enable to: <br> ☐ Know about basic structure and fundamentals of computer <br> ☐ Have basic idea of input and output devices <br> ☐ Know about different secondary storagedevices such as Magnetic disk, Floppy Disk, Winchester Disk, Mass Storage, Optical Disk. <br> ☐ Replicate the concept of Software and Hardware, Types of software's: System Software (Meaning and its type), Application software, Acquiring Software, Software Development Steps, Firmware, Middleware. <br> ☐ Know about window, desktop, basic services and uses. <br> ☐ Build the concept of word, creating, editing a document, modifying and formatting a |

| | | |
|---|---|---|
| | | document, using the speller in word, Creating and using macros. |
| BSIT-201 | **Communication Skills (English)-II** | After this course students will be able to:<br>• Write the business letter,<br>• Learn about Seven Cs of effective business communication.<br>• Learn to write appreciation letters, making quotations, proposals, letter of recommendation etc.<br>• Learn Concept of - Articles, agreement between verb and subject, Tenses, Active and passive voice, Auxiliaries.<br>• Have Introduction to Phonetics, Detailed study of vowels and consonants, Phonetics transcription of single syllabic words, Stress and intonation |
| BSIT-202 | **Mathematical foundations for Information Technology-II** | After this course students will learn:<br>• Idea of Computational Techniques such as Bolzano/Bisection Method, Regula Falsi Method, Newton Raphson Methods and their Convergence.<br>• Concept of solving Simultaneous linear Equations, Gauss Elimination Method, Gauss Jorden Method, Triangularization Method.<br>• Different numerical methods such as Gauss-seidal Iterative Method, Euler Method, Modified-Euler Method. Taylor-series Method, Runga-Kutta Method. Predictor corrector Method, Jacobi Method and many more |
| BSIT-203 | **Applications of EM wave** | After this course students will be able to:<br>☐ Explain propagation of EM waves.<br>☐ Explain Basic antenna operation and their different characteristics and different types of antenna<br>☐ Demonstrate High frequency directional antennas with their applications.<br>☐ Explain Remote sensing and its applications. |
| BSIT-204 | **Digital Electronics-I** | After this course the students will be able to |

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| | | • Explain and solve problems of DifferentNumber Systems.<br>• Solve problems of base conversions.<br>• Differentiate different Binary Codes<br>• Explain different Logic gates with theirsymbols and truth tables. Able to applydifferent Boolean algebra laws and principles.<br>• Minimize Boolean expression using K- Maps and circuit implementations usingNAND and NOR gate.<br>• Explain and differentiate betweendifferent Logic Families.<br>• Explain different characteristics ofDigital IC.<br>• Explain operation of MOS and CMOSLogic families in detail. |
| BSIT-205 | Electronic Communication-II | After this course the students will be able to:<br>• Explain different Digital Modulation Techniques, perform qualitative analysis.<br>• Explain different error controlling techniques in detail. Explain error detecting and correcting codes.<br>• Explain Binary cyclic codes and their structure.<br>• Explain concept of information theory and different parameters involved.<br>• Explain different types of coding used for Information.<br>• Differentiate error rates in differentcodes.<br>• Explain Shanon's theorem and Shanon -Hartley theorem and its implication |

| BSIT-206 | Programming Techniques | After completion of this course the students will be ableto : <br> • Learn the Purpose of program planning <br> • Meaning, Use, Symbols Used andLevels of Flowcharts. <br> • Build the concept of algorithm, Top down Design Implementation of algorithms, Program Verifications, Efficiency of Algorithms, Analysis ofAlgorithm. <br> • Learn how to write algorithm for Sine Function, Fibonacci sequence, reversingthe digits of an integer, Algorithm for factoring methods: Square root of number, smallest divisor of an integer, Greatest Common Divisor etc. |
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## Semester-III & IV

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| **BSIT -301** | **Circuit Analysis & Digital Electronics-II** | The students will be able to gain the knowledge of different methods to solve the circuit problems and also understand the concept of designing combination and sequential circuits such as encoders, decoders and counters using multiplexers, and flip - flops |
| **BSIT -302** | Transistor and Linear Integrated Circuits | The students will be able to learn the different fabrication technologies to make the integrated circuits (ICs) and working of the operational amplifier IC. |
| **BSIT -303** | Telecommunication & Networking-I | The students will gather the knowledge of Structure of the telephone system, different Multiplexing techniques: FDM, WDM and TDM. Understand the concept of switching and computer network in detail. |
| **BSIT -304** | Microprocessor Architecture and Programming-I | The objective of this course is to become familiar with the architecture and the instruction set of SAP-I, SAP-II and SAP-III Understand the architecture of 8085 and various interrupts types in 8085. |
| **BSIT -305** | Operating System – I | Upon successful completion of this course, Students will be able to:<br>• Learn the principles of operating systems Different types of operating systems<br>• Understand various process management concepts including scheduling and its different types<br>• Demonstrate the Cooperating Processes, Inter-process Communication: ProducerConsumer Problem, Process Synchronization: Critical Section, Hardware supported solutions, Software solutions.<br>• Understand concept of Deadlocks, Graphical representation of a Deadlock, Deadlock Prerequisites, and Methods for handling Deadlocks: Prevention, Avoidance, Detection and Recovery. |
| **BSIT -306** | **Computer Programming with C – I** | After this course students will: |

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| | | • Understand the basics of C, Constants & Variables and their declarations, Symbolic Constants, Comments in C, expressions & statements, Structure of a C Program, ConsoleI/O (printf, scanf). Escape Sequences.<br>• Learn how to use operators in C, different types of operators such as Arithmetic,logical, relational & bitwise operators, Assignment and Conditional Operators, Increment and Decrement Operators, Library functions.<br>• Learn how to use decision making statements in C such as Switch statement, gotostatement.<br>• Design programs involving Arrays and Functions, character I/O functions: getchar(),getche(), getch(), putchar(). |
| **BSIT-401** | Digital Electronics-III | The objective of this course is to enhance the design logics of digital circuits. the students will be able to design different shift registers and learnthe uses of Analog to Digital and Digital to Analog converter |
| **BSIT-402** | Oscillators and Multivibrators | ☐ The students will be able to learn the applications of operational amplifier, different feedback topologies applied in amplifiers, effect of negative feedback on various parameters of amplifiers.<br>☐ Demonstrate the design of AF and RF oscillators.<br>☐ Learn the working of A stable Multivibrator, Bistable Multivibrator, MonostableMultivibrator using BJT and working of 555 Timer IC. |
| **BSIT-403** | **Telecommunication & Networking-II** | The objective of this course is to impart theknowledge amongst students about:<br>• Network Devices such as repeaters, hub, bridge, switch, gateways, router,connectors and transceivers.<br>• The students will be able to learn about Cellular Networks, MobilityManagement, GSM and IS-95 architecture Wireless Data Service, 3G and 4G Cellular Systems.<br>• The concept of optical fiber |

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| | | communication is build up by studying Fiber Optic System, Applications & Benefits of Fiber Optics, Construction of Fiber Optic Cables, Optical Transmitter and receiver. |
| **BSIT-404** | Microprocessor Architecture and Programming-II | The objective of this course is to learn <br> • the interfacing of various peripheral devicessuch as 8255 and 8254 with 8085 microprocessor. <br> • The students will be able to learn architecture of 8086 microprocessor and different instructions and flags used in 8086. <br> • Use of the instructions in programming using assembly language. |
| **BSIT-405** | Operating System – II | After this course students will be able to : <br> • Describe and understand the role of operating system and services available in operating system. <br> • Understand the process management policies and scheduling of processes by CPU. |
| **BSIT-406** | **Computer Programming with C – II** | After completion of this course students will beable to <br><br> • Understand the concept of the Preprocessor, File inclusion directives, Macro substitution directives, compiler control directives, other directives. <br><br> • Learn the concept of string and string functions <br><br> • Create and use the functions in programs, use Call function by value & Call by Reference, Passing arrays to functions, Recursion, command line arguments, <br><br> • Familiar with pointers and their uses, use of different data types. |

# Semester-V & VI

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| **BSIT - 501** | **Computer System Architecture- I(Th)** | After this course students will be able to:<br>• Understand the computerSystem organization, design of ALU<br>◻ Explain the register<br>transfer, Bus and Memory Transfers, Arithmetic Micro operations, Logic Micro operations,<br>◻ Describe the register organization, RISC and CISC characteristics. |
| **BSIT - 502** | **Programming In C++ - I (Th)** | After this course students will be able to:<br>• Replicate the concept of OOPS<br>• Build the concept of data types,pointer.<br>• Understand the concept of Array, Strings, Structures, Union and Pointers.<br>• Use the concept of function in different programs.<br>• Know the about the Class definition, class objects, member functions, implicit this pointer, static class members, class scope, constructors and destructors. |
| **BSIT - 503** | **Web-Site Design Implementing Basic Design Tools-I(Th)** | Students will be able to enhance thecapabilities in:<br>◻ Basics of HTML<br>◻ Classifying HTML Documents<br>◻ Different elements in HTML<br>◻ External Link Attributes<br>◻ Understanding the Tables in HTML |
| **BSIT - 504** | **Internet Concepts & Applications-I (Th)** | After completion of this course the students will be able to:<br>• Learn how to use internet indifferent applications<br>• Get Knowledge about e-mail concepts, e- mail tasks,<br>e- mail attachments, mailing lists, filtering e- mails, controlling e-mail spam. |

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| | | Bulid the concept of filer transfer protocol [ FTP ]programmes, TCP/IP, FAQs, remote login [telnet], network news.<br>Learn different types of Internet Connection –Dial Up Connection, ISDN, DSL, Cable TV Internet Connection, Satellite Internet Connection, Wireless Internet Connection. |
| **BSIT - 505** | **Microprocessor Architecture and Programming III (Th)** | After this course students will be ableto<br>• Explain Stack and interruptstructure of 8086, types of interrupts. Write programs using interrupts.<br>• Explain concept of MACROS and calculate timing and delays<br>• Perform and explain interfacing of Memory and I/Oports with 8086.<br>• Perform interfacing of A/D andD/A converters with 8086 and write small programs for it.<br>• Explain different Explain Stackand interrupt structure of 8086, types of interrupts. Write programs using interrupts. Explain different interconnection topologies.<br>• Explain software aspect of multimicroprocessor system and Numeric Processor 8087with architecture diagram.<br>• Explain features of different advanced versions of 8086 processor and differentiate them on the basis of different parameters.<br>• Explain basic features of RISCprocessors and design issues involved with them. |
| **BSIT - 601** | **Computer System Architecture-II(Th)** | Upon successful  completion  of  this course, Students will be able to: |

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| | | • Understand the concept of Parallel Processing, pipelining, Instruction Pipeline, Risc Pipeline, Vector Processing.<br>• Learn the concept of multiprocessor, interconnectionstructures.<br>• Get the Knowledge of differentperipheral devices, Asynchronousdata transfer, Modes of Transfer,Priority Interrupt, Direct MemoryAccess(DMA),Input-Output processor(IOP),Serial Communication. |
| **BSIT - 602** | Programming In C++ - II(Th) | Upon successful completion of thiscourse, Students will be able to:<br>• Describe concept of friendfunction<br>• Learn the Concept of Classderivation and inheritance,<br>• Understand the Virtual functions, virtual base class, template class definition , instantiation and Specialization: its static members).<br>• Develop different Applicationsusing formatted, unformatted I/O operations and Exception handlingmethods |
| **BSIT - 603** | **Web-Site Design Implementing Basic Design Tools II (Th)** | Upon successful completion of this course, Students will be able to:<br>☐ Understand the concept Frames ,Creating frameset documents, NestedFrame Set , In Line Frames<br>☐ Understand the concept of Forms: Forms Attributes , Form Controls .<br>☐ Know about the multimedia skills, components, creating simple web pages.<br>☐ Understand the concept of Extensible Markup Language (XML): Introduction, features, XML support & usage, Structure of XML document,Structures in XML, Creating document type declarations, flow |

| | | objects, working with text & font, color & background properties. |
|---|---|---|
| **BSIT - 604** | Internet Concepts & Applications –II (Th) | Upon successful completion of this course, Students will be able to:<br>• Learn about Computer security methods such as cryptography, data encryption standards, breaches of security, security of measures. Classification of virus, prevention andcure, cookies.<br>• Knowledge of Multimedia concepts, design consideration in multimedia.<br>• Describe the meaning e- commerce and different types of sites.<br>• Learn about Web (HTTP)Publishing, HTML, Hypertext .<br>• Learn about communication system such as email and fax.<br>• Understand about Electronic Meeting Systems such as Audio conferencing, Video Conferencing, Groupware. |
| **BSIT - 605** | **Embedded Systems & 8051 Microcontroller (Th)** | Upon successful completion of thiscourse, Students will be able to:<br>• Explain RISC and CISC architecture, different Memory devices used in embedded system<br>• Describe the basics ofMicrocontrollers, its architecture, memory type.<br>• Use the 8051 micro controller instruction set.<br>• Use the lookup table in 8051 |

# DEPARTMENT OF COMMERCE

## Programme: Bachelors of Commerce

| PO No. | Programme Outcome<br>Upon completion of the B.Com. Degree Programme, the graduatewill be able to |
|---|---|
| 1. | Gain thorough knowledge of the fundamentals of commerce and, management, finance, economics, law and accounting. |
| 2. | Analyse relationship among commerce, trade, industry, services and management. |
| 3. | Understand application of knowledge of concepts of advertising, finance, entrepreneurship in business. |
| 4. | Think about commercial and professional way or point of view. |
| 5. | Understanding legal issue/ law relating to banking and insurance sector. |
| 6. | Applications of techniques for managing office work efficiently. |
| 7. | The course provides a platform for experimental learning and groomsstudents towards industry specific curriculum with focused approach on specific areas which are crucial in the management of companies. |
| 8. | The course provides exposure to students in the latest trends in relevant branches of knowledge giving them the needed competence and creativityto face global challenges. |

## Programme: Bachelors of Commerce (General)

| PSO No. | Programme Specific Outcome<br>Upon completion of these courses the student would be able to doaccomplish the following |
|---|---|
| 1. | Students will learn relevant financial accounting skills by applying both quantitative and qualitative knowledge to their future career in business |
| 2. | Perform all accounting activities and handling business well. |
| 3. | Develop communication skills and computer awareness and rules of income tax Act. |
| 4. | Application of mathematical and statistical tools in commerce and industry |
| 5. | Students will be familiarized with the provisions of Company Law andBusiness Law. |
| 6. | To apply the computer skills in managing accounts of a business |

| Course title | BC-101 Financial Accounting-I |
|---|---|
| Co No | Course Outcome |
| 1. | Recognize the basic accounting concept and conventions |
| 2. | Cultivate accounting skills to manage the profits andlosses of any trading organization |
| 3. | Apply the rules of double entry book keeping for the preparation of final accounts |
| 4. | Understanding various provisions related to depreciation |

| Course title | BC-102 Micro Economics |
|---|---|
| CO No. | Course Outcome |
| 1. | To understand the concepts of cost, nature of productionand its relationship to Business operations |
| 2. | To analyse the causes and consequences of different market conditions. |
| 3. | To understand the concepts related to elasticity of demand |
| 4. | To understand the theories of demand and their applications in real life world. |

| Course title | BC-103 Principles of Business Management |
|---|---|
| CO No. | Course Outcome |
| 1. | Apply managerial roles and managerial skills |
| 2. | Evaluate different approaches for organizational control |
| 3. | Recognize the theory of management and manager's role in organization |
| 4. | To understand the evolution and importance of globalization in today's business world. |

| Course title | BC-104 Computer Applications in Business |
|---|---|
| CO No. | Course Outcome |
| 1. | To understand the basic concepts of computers |
| 2. | To familiarize candidates with use of word processors, spreadsheets and presentation software |
| 3. | To introduce students with the working of network |
| 4. | To equip students with basic applications of computers and technology in managing a business. |

| Course title | BC-105 Business Mathematics |
|---|---|
| CO No. | Course Outcome |
| 1. | To equip students with concepts of differentiation andintegration |
| 2. | To understand about solution of a system of linearequations |
| 3. | Students will be able to understand about different types ofmatrices and determinants |
| 4. | To familiarize with calculus |

| Course title | BC-106 Business Communication |
|---|---|
| CO No. | Course Outcome |
| 1. | To develop communication skills of students |
| 2. | To equip students with formal communication techniquesfor use in corporate world. |

| | 3. | Skills of writing business letters, e-mails, notices, circulars, memos and reports |
|---|---|---|
| | 4. | To help students in performance in business self-development for better |

| Course title | BC-201 Financial Accounting II | |
|---|---|---|
| Co No | Course Outcome | |
| 1 | Illustrate the accounting procedures of death and insolvency of a partner. | |
| 2 | Cultivate accounting skills under hire purchase. | |
| 3 | Relate the accounting procedures relating to admission and death of partners. | |
| 4 | Cultivate accounting skills under branch accounting system. | |

| Course title | BC-202 Macro Economics | |
|---|---|---|
| Co No | Course Outcome | |
| 1 | To familiarize students with basic concepts of macro economics | |
| 2 | To equip students about Classical & Keynesian theory of income | |
| 3 | To understand about different business cycles | |
| 4 | To make students aware about the concept of inflation and ways to measure and control inflation | |

| Course title | BC-203 Fundamentals of Marketing | |
|---|---|---|
| CO No. | Course Outcome | |
| 1. | To help students in developing basic marketing skills | |
| 2. | Equipping students with the market segmentation strategies | |
| 3. | To help students understand the pricing and promotion aspect of marketing | |
| 4. | To make students understand the product concept of marketing | |

| Course title | BC-204 E-Commerce | |
|---|---|---|
| CO No. | Course Outcome | |
| 1 | Understanding various applications of E-Commerce | |
| 2 | Cultivating the habit of using online mode of payments | |
| 3 | To understand about the concepts of M-Commerce and E-governance | |
| 4 | To understand about the security issues related to E- Commerce | |

| Course title | BC-205 Business Mathematics-II | |
|---|---|---|
| CO No. | Course Outcome | |
| 1. | To understand the binomial theorem | |
| 2. | To equip students with the formulae related to permutations and combinations | |
| 3. | To make students understand about Linear Programming | |
| 4. | To equip students with methods of data representation and interpretation | |

| Course title | BC-206 Business Environment of Haryana |
|---|---|
| CO No. | Course Outcome |
| 1 | Understanding nature of economy of Haryana |
| 2 | Understanding the agricultural and cultivational patternsof crops in Haryana |
| 3 | To equip students about agricultural credit |
| 4 | To understand about Micro, small & medium enterprises(MSME) in Haryana |

| Course title | BC-207 Environmental Studies |
|---|---|
| CO No. | Course Outcome |
| 1. | Understanding the multidisciplinary nature of environmental studies |
| 2. | To make students understand about renewable and non-renewable resources |
| 3. | Cultivate habit of recycling for safeguarding the environment. |
| 4. | To make students aware about social issues andenvironment |

| Course title | BC-301 Corporate Accounting-I |
|---|---|
| CO No. | Course Outcome |
| 1. | Understand the concept of amalgamation and applies the accounting standards with respect to Amalgamations andmergers |
| 2. | Recording journal entries for accounting for share capital |
| 3. | Equipping students about methods of preparation of final accounts of companies |
| 4. | Understanding internal reconstruction of Companies. |

| Course title | BC-302 Business Statistics-I |
|---|---|
| CO No. | Course Outcome |
| 1. | To introduce basic concepts of statistics |
| 2. | To provide insights for primary and secondary data and methods of collection of data |

| | 3. | To provide an overview of mean, median, mode, harmonic mean and geometric mean. |
|---|---|---|

| Course title | BC-303 Business Laws-I | |
|---|---|---|
| CO No. | Course Outcome | |
| 1 | Understand the rules regarding offer, acceptance, consideration and capacity to contract | |
| 2 | Explaining the rules pertaining to Sale of Goods Act,1930 | |
| 3 | To make students aware about the rights under Consumer Protection Act, 1986 | |

| Course title | BC-304 Company Law-I | |
|---|---|---|
| CO No. | Course Outcome | |
| 1 | Understanding the meaning, characteristics and types of Companies | |
| 2. | Understanding about Memorandum of Association and Articles of Association | |
| 3. | To familiarize students with the basics of prospectus issuedby Companies | |
| 4. | To introduce the process of transfer and transmission of shares and debentures | |

| Course title | BC-305 Indian Financial System | |
|---|---|---|
| CO No. | Course Outcome | |
| 1. | Making students understand the basic financial structure of India | |
| 2. | Understanding the role of financial institutions in India | |
| 3. | Introducing the concepts of Payment Banks and Development Banks | |
| 4. | Cultivating the skills of managing finance | |

| Course title | BC- 306 (i) Rural Marketing | |
|---|---|---|
| CO No. | Course Outcome | |
| 1 | Understanding the opportunities and challenges of Rural marketing in India | |
| 2 | Understanding the four P's (product, place, pricing,promotion) in relation to rural areas. | |
| 3 | Equipping students with the process of developing strategies for rural marketing. | |
| 4 | Familiarizing students with basic initiatives of marketing in rural areas. | |

| Course title | BC- 306 (ii) Foreign Trade of India |
|---|---|
| CO No. | Course Outcome |
| 1. | Understanding export procedure and documentation |
| 2. | Understanding import procedure and documentation |
| 3. | To familiarize with the concepts of SEZ and EOUs |
| 4. | To provide information about International economic/financial institutions: WTO, World Bank and IMF. |

| Course title | BC- 401 Corporate Accounting-II |
|---|---|
| CO No. | Course Outcome |
| 1 | The main objective of this subject to provide the knowledge of companies, Shares and regulatory of companies. |
| 2 | This subject describes the pattern of final accounts of thecompany. |
| 3 | It provides the knowledge of issue of shares a |
| 4 | It also provides the methods of valuation of goodwill andshares |

| Course title | BC- 402 Business Statistics-II |
|---|---|
| CO No. | Course Outcome |
| 1. | To Estimate the mean and standard deviation of the marginal distribution of the response variable and use this information to inform a business decision |
| 2. | To make them aware about confidence interval for the slope of the regression line |
| 3. | To develop the student's ability to deal with numericaland quantitative issues in business |
| 4. | Understand how to organize and summarize data by using descriptive statistics and appropriate statistical graphics |

| Course title | BC- 403 Business Laws-II |
|---|---|
| CO No. | Course Outcome |
| 1 | Students can Identify the legal constraints faced by the business professional as well as the legal options available to the business professional in responding to and resolving legal issues. |
| 2 | Apply the global business laws to current business environment |
| 3 | Integrate concept of business law with foreign trade |
| 4 | Understand about the partnership act  rules and regulations |

| Course title | BC- 404 Company Laws-II |
|---|---|
| CO No. | Course Outcome |
| 1. | To understand about the types of meetings conducted inthe company |
| 2. | To know about the number of members in company and transferability of shares and debentures |
| 3. | To make them aware about the amalgamation and reconstruction of company |
| 4. | To make them aware about the company management and reconstruction policies. |

| Course title | BC- 405 Computerized Accounting System |
|---|---|
| CO No. | Course Outcome |
| 1 | To define a computerized accounting system |
| 2 | To distinguish between a manual and computerizedaccounting system |
| 3 | To highlight the advantages and limitations of computerized accounting system |
| 4 | To state the sourcing of a computerized accounting system |

| Course title | BC- 406 (i) Advertising |
|---|---|
| CO No. | Course Outcome |
| 1 | To understand about the difference between advertising and publicity. |
| 2 | To understand about communication and advertising mix. |
| 3 | To know about the impact of advertising |
| 4 | To make them aware about creative aspects ofadvertising. |

| Course title | BC- 406 (ii) Entrepreneurship Development |
|---|---|
| CO No. | Course Outcome |
| 1 | To know about the meaning of entrepreneur |
| 2 | To understand about the feasibility study of various entrepreneurship plans |
| 3 | To know about government policies in entrepreneurship development |
| 4 | To understand about the plans of new business inentrepreneurship |

| Course title | BC- 501 Cost Accounting |
|---|---|
| CO No. | Course Outcome |
| 1 | Students will learn the concepts related to cost, its classification, methods and techniques. |

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|---|---|
| 2. | Students will be familiarized with the labour cost, methods of wage payment and incentive schemes. |
| 3. | Gain the knowledge about overheads. |
| 4. | Students will learn how to control cost and how to do cost reduction. |

| Course title | BC- 502 Entrepreneurship Development |
|---|---|
| CO No. | Course Outcome |
| 1. | Students will be familiarized with role and functions ofEntrepreneur. |
| 2. | After the completion they are able to prepare feasibility reports. |
| 3. | They will learn the role of government and promotionalagencies and institutes in entrepreneurship development |
| 4. | Students will learn about the factors which affect success of new business. |

| Course title | BC- 503 Income Tax-I |
|---|---|
| CO No. | Course Outcome |
| 1. | Students will learn the concept of Income, Agricultural Income, and Casual Income. |
| 2. | Students will be familiarized with the concepts of total income, gross total income, tax planning and tax evasion. |
| 3. | They will be able to compute tax on the salary. |
| 4. | Concept related to clubbing and aggregation of Income. |

| Course title | BC- 504 Company Law II |
|---|---|
| CO No. | Course Outcome |
| 1. | To understand the concept of transfer and transmission of shares and debentures |
| 2. | To equip students with different types of meeting |
| 3. | To make students understand about the methods of winding up of the Companies |
| 4. | Understanding all the legal aspects related to Directors |

| Course title | BC- 505 Materials Management |
|---|---|
| CO No. | Course Outcome |
| 1 | Introducing students with the basics of Materials Management |
| 2 | Financial aspects and committee report in materialsmanagement |
| 3 | Equipping students with the transportation methods and insurance for risk management |

| 4. | Understanding inventory management and control systems |
|---|---|

| Course title | BC- 506 Investment Management | |
|---|---|---|
| CO No. | Course Outcome | |
| 1. | Understanding meaning, nature and process of investment | |
| 2. | Familiarizing students with the concept of Fundamental analysis | |
| 3. | Understanding various investment philosophies | |
| 4. | Understanding Valuation of securities | |

| Course title | BC- 507 Goods and Service Tax |
|---|---|
| CO No. | Course Outcome |
| 1 | To understand about the concept of GST |
| 2 | To understand about registration, levy and collection of GST rules |
| 3 | To understand about the time and place of supply of GST |
| 4 | To understand about computation of input tax credit |
| 5 | To understand about the offences and penalties in GST |

| Course title | BC- 601 Management Accounting |
|---|---|
| CO No. | Course Outcome |
| 1 | To equip the students with the ability to analysis interpretand use accounting information in managerial decision making. |
| 2 | Understanding of the application of accounting techniquesfor management |
| 3 | Familiarizing students with the methods of accounting for marginal cost |
| 4 | Understanding calculations and use of ratios in Companies |

| Course title | BC- 602 Auditing |
|---|---|
| CO No. | Course Outcome |
| 1 | Introducing basic concepts of auditing, the need and importance of auditing. |
| 2 | To understand the conceptual framework that is applied byaudit professionals to assess, evaluate, and manage audit risks and evidence |
| 3 | Understanding the auditing procedures. |
| 4 | Equipping the students with the process of preparing the audit reports. |

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|---|---|
| 5. | Familiarizing students with the role of a professional auditor |

| Course title | BC- 603 Income Tax- II |
|---|---|
| CO No. | Course Outcome |
| 1 | Understanding Deductions under Section 80 |
| 2 | Computation of Total Income and Tax Liability |
| 3 | Procedure for Assessment |
| 4 | Understanding the Recovery of Tax and Refund of Tax |

| Course title | BC- 604 Security Market Operations |
|---|---|
| CO No. | Course Outcome |
| 1 | Understanding the working of primary and secondarymarkets |
| 2 | Introducing students with the working of Primary and Secondary markets. |
| 3 | Understanding derivative trading |
| 4 | Understanding the mechanism raising funds from international markets |

| Course title | BC- 605 International Marketing |
|---|---|
| CO No. | Course Outcome |
| 1. | To make students aware about the international trade and international marketing |
| 2. | To understand about the promotion and advertising concepts on an international level |
| 3. | To develop critical skills among students for developing strategies for international companies. |
| 4. | Understanding the pricing effects in international market. |

| Course title | BC- 606 Foreign Exchange Management |
|---|---|
| CO No. | Course Outcome |
| 1 | To understand about foreign exchange concept |
| 2 | To understand about exchange rate determination |
| 3 | To know about Foreign Exchange Regulations |
| 4 | To make students aware about foreign exchange risk |
| 5 | To make students aware about international monetary fund |

| Course title | BC- 607 Corporate Governance |
|---|---|
| CO No. | Course Outcome |
| 1 | To make students understand the importance of Corporate Governance in Indian context |

| | 2. | To brief on provisions related to Clause 49 laid down by SEBI |
|---|---|---|
| | 3. | Understanding the concepts of whistle blowing in corporate world with reference to real life case studies |
| | 4. | Understanding the concept of Corporate SocialResponsibility (CSR) |
| | 5. | To study about the duties and liabilities of Board of Directors in a Company. |

# DEPARTMENT OF COMMERCE

## Programme: Bachelors of Commerce

| PO No. | Programme Outcome - Upon completion of the B.Com. Degree Programme, the graduate will be able to: |
|---|---|
| 1. | Gain thorough knowledge of the fundamentals of Commerce and Management, Finance, Economics, Law and Accounting. |
| 2. | Analyze relationship among Commerce, Trade, Industry, Services and Management. |
| 3. | Understand application of knowledge of concepts of Advertising, Finance and Entrepreneurship in Business. |
| 4. | Think about commercial and professional way or point of view. |
| 5. | Understand legal issues/laws relating to Banking and Insurance Sector. |
| 6. | Understand applications of techniques for managing office work efficiently. |
| 7. | Get a platform for experimental learning that will groom him/her through industry specific curriculum and focused approach on specific areas which are crucial in the management of companies. |
| 8. | Grab the required exposure to the latest trends in relevant branches of knowledge, competence and creativity to face global challenges. |

## Programme: Bachelors of Commerce (Computer Application)

| PSO No. | Programme Specific Outcome - Upon completion of the B.Com. (Computer Application) Degree Programme, the graduate will be able to: |
|---|---|
| 1. | Learn relevant financial accounting skills by applying both quantitative and qualitative knowledge to their future career in business |
| 2. | Perform all accounting activities and handling business well. |
| 3. | Get thorough knowledge of computers and operating systems. |
| 4. | Create, select, and apply appropriate techniques, resources, and modern IT tools |
| 5. | Familiarize themselves with the provisions of Company Law and Business Law. |
| 6. | Apply the computer skills in managing accounts of a business. |
| 7. | Enrich the knowledge in computer field. |
| 8. | Understand application of knowledge of Commerce and Computer in business and service sector industry, marketing, finance entrepreneurship development etc. |

| Course title | BC-101 Financial Accounting-I |
|---|---|
| CO No. | Course Outcome |
| 1. | To provide understanding of the principles of accounting and its concepts. |
| 2. | To give knowledge of basic accounting concepts and conventions |
| 3. | To inculcate accounting skills to manage the profits and losses of any trading organization |
| 4. | To make students apply the rules of double entry book keeping for the preparation of final accounts |
| 5. | To let students, grab the understanding of various provisions related to depreciation |

| Course title | BC-102 Micro Economics |
|---|---|
| CO No. | Course Outcome - To let students: |
| 1. | Understand the theories of demand and their applications in real world. |
| 2. | Be clear about the law of the supply and its criticism and evaluate concept of cost. |
| 3. | Be conversant about the concepts of cost, nature of production and its relationship to Business operations |
| 4. | Analyze the causes and consequences of different market conditions. |
| 5. | Grab the understanding of the concepts related to elasticity of demand. |

| Coursetitle | BC-103 Principles of Business Management |
|---|---|
| CO No. | Course Outcome - To provide students with: |
| 1. | The understanding of the principles of business management and their scope and significance. |
| 2. | The knowledge of the process of business management and functions of business management. |
| 3. | List of the characteristics and importance of planning and decision making. |
| 4. | The competence to Apply managerial roles and managerial skills |
| 5. | The understanding to evaluate different approaches for organizational control |
| 6. | The knowledge to recognize the theory of management and manager's role in organization |
| 7. | The understanding of the evolution and importance of globalization in today's business world. |

| Course title | BC-106 Business Communication |
|---|---|
| CO No. | Course Outcome |
| 1. | To develop communication skills of students |
| 2. | To equip students with formal communication techniques for use in corporate world. |
| 3. | To develop skills of writing business letters/emails/notices/circulars/memos/reports. |
| 4. | To help students in self-development for better performance in business. |

| Course title | BC(Voc)-105 Computer Fundamentals & Logical Organizations |
|---|---|

| CO No. | Course Outcome |
|---|---|
| 1. | Student will be able to work on different operating systems – Windows, Linux Mac, Android, and Chrome. |
| 2. | Student will learn different programming languages |
| 3. | Student will learn the real time applications; operating systems for tabs, mobile phones, etc. – Android, etc |
| 4. | Student will learn about open-source software: like Linux Ubuntu and concepts of translators, linkers and loader. |
| 5. | Students will learn about the operating systems. |

| Course title | BC(Voc)-106 BUSINESS DATA PROCESSING AND PC SOFTWARE-I |
|---|---|
| CO No. | Course Outcome |
| 1. | Student will be able to work on Windows and Linux and be proficient in the use of MS Word, MS Excel, MS Access and Libra Office. |
| 2. | Understand the practical applications of computer in business. |
| 3. | Gain complete knowledge on the utilization of computer in day to day activities of business. |

| Course title | BC-201 Financial Accounting II |
|---|---|
| CO No. | Course Outcome |
| 1 | Illustrate the accounting procedures of death and insolvency of a partner. |
| 2. | Provide accounting skills under hire purchase. |
| 3. | Relate the accounting procedures relating to admission and death of partners. |
| 4. | Provide accounting skills under branch accounting system. |

| Course title | BC-202 Macro Economics |
|---|---|
| CO No. | Course Outcome |
| 1. | To familiarize students with basic concepts of macro economics |
| 2. | To equip students about Classical & Keynesian theory of income |
| 3. | To understand about different business cycles |
| 4. | To make students aware about the concept of inflation and ways to measure and control inflation |

| Course title | BC-203 Fundamentals of Marketing |
|---|---|
| CO No. | Course Outcome |
| 1. | To help students in developing basic marketing skills |
| 2. | Equipping students with the market segmentation strategies |
| 3. | To help students understand the pricing and promotion aspect of marketing |
| 4. | To make students understand the product concept of marketing |

| Course title | BC-204 E-Commerce |
|---|---|
| CO No. | Course Outcome |
| 1. | Understanding of various applications of E-Commerce |
| 2. | Providing knowledge of using online mode of payments |
| 3. | Understanding about the concepts of E-Commerce and E-governance |
| 4. | Creating understanding about the security issues related to E-Commerce |
| 5. | Providing the knowledge about EDI, Business strategies and how to use those strategies in electronic market. |
| 6. | To define E-Commerce, Types and components of I way. |

| Coursetitle | BC(Voc)-205 PROGRAMMING IN C |
|---|---|
| CO No. | Course Outcome |
| 1. | Student will have the programming ability in C language |
| 2. | Will gain knowledge on object-oriented programming concepts using C++ |
| 3. | Will Learn proper lines of C++, Encapsulation, Inheritance and Polymorphism. |
| 4 | Will learn the concept of inheritances, types of inheritance and polymorphism, virtual Functions. |
| 5. | Will get to know the types of streams and formats of input and output operations. |

| Coursetitle | BC(Voc)-206 BUSINESS DATA PROCESSING AND PC SOFTWARE-II |
|---|---|
| CO No. | Course Outcome |
| 1. | This course aim to expose the students to application of computer in business. |
| 2. | To enable the students to learn Desktop publishing: concept, need and applications; hardware, software requirements for DTP, an overview of DTP packages |
| 3. | The students will be able to make presentations including graphics and animation and create documents using Page Maker |
| 4. | This paper will Enable students to learn the mobile applications. |
| 5. | Student will be able to perform statistical analysis of data using Excel and SPSS. |

| Course title | BC-301Corporate Accounting-I |
|---|---|
| CO No. | Course Outcome |
| 1. | Providing understanding of the concept of amalgamation and applies the accounting standards with respect to Amalgamations and mergers. |
| 2. | Making students know how to record journal entries of accounting for share capital. |
| 3. | Equipping students with methods of preparing final accounts of companies. |
| 4. | Making students understand internal reconstruction of Companies. |

| Course title | BC-207 Environmental Studies | |
|---|---|---|
| CO No. | Course Outcome | |
| 1. | Provide Understanding of the multidisciplinary nature of environmental studies | |
| 2. | To make students understand about renewable and non-renewable resources | |
| 3. | Cultivate habit of recycling for safeguarding the environment. | |
| 4. | To make students aware about social issues and environment. | |

| Course title | BC-302 Business Statistics-I |
|---|---|
| CO No. | Course Outcome |
| 1. | To introduce basic concepts of statistics |
| 2. | To provide insights for primary and secondary data and methods of collection of data |
| 3. | To provide an overview of mean, median, mode, harmonic mean and geometric mean. |
| 4. | To introduce basic concepts of statistics |

| Course title | BC-303 Business Laws-I |
|---|---|
| CO No. | Course Outcome |
| 1. | To introduce the rules regarding offer, acceptance, consideration and capacity to contract |
| 2. | To explain the rules pertaining to Sale of Goods Act, 1930 |
| 3. | To make students aware about the rights under Consumer Protection Act, 1986 |

| Course title | BC-304 Company Law-I |
|---|---|
| CO No. | Course Outcome |
| 1. | To introduce the meaning, characteristics and types of Companies |
| 2. | To clarify Memorandum of Association and Articles of Association |
| 3. | To familiarize students with the basics of prospectus issued by Companies |
| 4. | To introduce the process of transfer and transmission of shares and debentures |

| Coursetitle | BC(Voc)-305 DATA STRUCTURE |
|---|---|
| **CO No.** | **Course Outcome** |
| 1. | To impart knowledge on Networking concepts and technologies like wireless, broadband and Bluetooth |
| 2. | Student will learn algorithm and double linked list and circular linked list concepts and B-Tree concept. |
| 3. | Student will be able to Implement the Data Structure Using C Language |
| 4. | Students will be able to define basic static and dynamic data structures and relevant standard algorithms for them: stack, queue, dynamically linked lists, trees, graphs,heap, priority queue, hash tables, sorting algorithms |

| Course title | BC (Voc)-306<br>FUNDAMENTALS OF DATABASE MANAGEMENT SYSTEM |
|---|---|
| CO No. | Course Outcome |
| 1. | Elucidation of Database system architecture and corresponding operations. |
| 2. | Introducing the relational approach and special relational operations |
| 3. | Student will learn the Embedded SQL in detail. |
| 4. | Introducing the Hierarchical Approach and E-R diagrams. |
| 5. | To give a detailed note on Network approaches. |
| 6. | Introducing Oracle service: terminology and architecture; the applications of ORACLE in business. |

| Coursetitle | BC- 307 On the Job Training Report |
|---|---|
| CO No. | Course Outcome |
| 1. | The aim of the project work is to acquire practical knowledge on the implementation of the programming concepts studied |

| Course title | BC- 401 Corporate Accounting-II |
|---|---|
| CO No. | Course Outcome |
| 1. | The main objective of this subject is to provide the knowledge of companies, Shares and regulatory of companies. |
| 2. | This subject describes the pattern of final accounts of the company. |
| 3. | It provides the knowledge of issue of shares |
| 4. | It also provides the methods of valuation of goodwill and shares |

| Coursetitle | BC- 402 Business Statistics-II |
|---|---|
| CO No. | Course Outcome |
| 1. | To Estimate the mean and standard deviation of the marginal distribution of the response variable and use this information to inform a business decision |
| 2. | To make them aware about confidence interval for the slope of the regression line |
| 3. | To develop the student's ability to deal with numerical and quantitative issues in business |
| 4. | Understand how to organize and summarize data by using descriptive statistics and appropriate statistical graphics |

| Coursetitle | BC- 403 Business Laws-II |
| --- | --- |
| CO No. | Course Outcome |
| 1. | Students will know to Identify the legal constraints faced by the business professional as well as the legal options available to the business professional in responding to and resolving legal issues. |
| 2. | Students will get to know to apply the global business laws to current business environment |
| 3. | Students will know to Integrate concept of business law with foreign trade |
| 4. | Will let students understand the partnership act rules and regulations |

| Course title | BC- 404 Company Laws-II |
| --- | --- |
| CO No. | Course Outcome |
| 1. | To make students know about the types of meetings conducted in the company |
| 2. | To let them know about the number of members in a company and transferability of shares and debentures |
| 3. | To make them aware about the amalgamation and reconstruction of company |
| 4. | To make them know about the company management and reconstruction policies. |

| Course title | BC (Voc)-405 PROGRAMMING IN JAVA |
| --- | --- |
| CO No. | Course Outcome |
| 1. | To impart knowledge on Java Programming |
| 2. | The student will be able to write programmes for the simple business applications using Java Programming. |
| 3. | Student will be able to use and create Packages and Interfaces in a Java programming |
| 4. | Student will be able to manage Layout Managers – Flow layout, Border layout, Grid layout - Graphics and Java 2D - Graphics contexts |

| Course te | BC (Voc)-406 ADVANCED COMPUTER APPLICATIONS |
| --- | --- |
| CO No. | Course Outcome |
| 1. | The students will be able to use the e-governance services – digital locker, filing income tax return, filing various applications such as passport, accessing bankaccounts, etc. |
| 2. | Enable students learn the Social and ethical aspects of IT. Cyber Laws – IT Act2000, impact of IT on other laws concerning business; cyber security – threats, anti-virus software, firewalls, etc. |

| | |
|---|---|
| 3. | Student will learn digitalization of services, linking AADHAR to service – issues and impact. |

| Coursetitle | BC- 501 Cost Accounting |
|---|---|
| CO No. | Course Outcome |
| 1. | Students will learn the concepts related to cost, its classification, methods and techniques. |
| 2. | Students will be familiarized with the labour cost, methods of wage payment and incentive schemes. |
| 3. | Students will gain the knowledge about overheads. |
| 4 | Students will learn how to control cost and how to do cost reduction. |

| Coursetitle | BC- 502 Entrepreneurship Development |
|---|---|
| CO No. | Course Outcome |
| 1. | Students will be familiarized with role and functions of Entrepreneur. |
| 2. | After the completion they will be able to prepare feasibility reports. |
| 3. | They will learn the role of government and promotional agencies and institutes in entrepreneurship development |
| 4. | Students will learn about the factors which affect success of new business. |

| Course title | BC-503 Income Tax-I |
|---|---|
| CO No. | Course Outcome |
| 1. | Students will learn the concept of Income, Agricultural Income, and Casual Income. |
| 2. | Students will be familiarized with the concepts of total income, gross total income, tax planning and tax evasion. |
| 3. | They will be able to compute tax on the salary. |
| 4. | The will understand concepts related to clubbing and aggregation of Income. |

| Coursetitle | BC-504 Company Law II | |
|---|---|---|
| **CO No.** | **Course Outcome** | |
| 1. | To make students understand the concept of transfer and transmission of shares and debentures | |
| 2. | To equip students with different types of meeting | |
| 3. | To make students understand the methods of winding up of the Companies | |
| 4. | To provide understanding of all the legal aspects related to Directors | |

| Coursetitle | BC (Voc)-505 Computer Aided Design |
|---|---|
| **CO No.** | **Course Outcome** |
| 1. | Students will grab knowledge about Application of graphics, Introduction to CAD, Benefits of ACAD |
| 2. | Students will learn Creating simple drawing using 2-D. |

| Coursetitle | BC (Voc)-506 Data Structures |
|---|---|
| **CO No.** | **Course Outcome** |
| 1. | To inculcate knowledge on Data Structure: Linear and least structures : array definition, type, address calculation |
| 2. | Student will learn stack: push/pop algorithms, applications. |
| 3. | Student will be able to Implement Data Structures Using C Language |
| 4. | Students will be able to know Queue: INS/DEL algorithm, double and circular queue concept, Algorithm and Double linked list and circular linked list concepts. |

| Course title | BC- 507 On the Job Training Report |
|---|---|
| CO No. | Course Outcome |
| 1. | The aim of the project work is to acquire practical knowledge on the implementation of the programming concepts studied |

| Course title | BC-601 Management Accounting |
|---|---|
| CO No. | Course Outcome |
| 1 | To equip the students with the ability to analyze, interpret and use accounting information in managerial decision making. |
| 2 | To make students understand application of accounting techniques for management |
| 3 | Familiarizing students with the methods of accounting for marginal cost |
| 4 | To make students understand calculations and use of ratios in Companies |

| Course title | BC-602 Auditing |
|---|---|
| CO No. | Course Outcome |
| 1 | Introducing basic concepts of auditing, the need and importance of auditing. |
| 2 | Introducing the conceptual framework that is applied by audit professionals to assess, evaluate, and manage audit risks and evidence. |
| 3 | Familiarize students with the auditing procedures. |
| 4 | Equipping the students with the process of preparing the audit reports. |
| 5 | Familiarizing students with the role of a professional auditor. |

| Course title | BC-603 Income Tax- II |
|---|---|
| **CO No.** | **Course Outcome** |
| 1 | Introducing Deductions under Section 80 |
| 2 | Imparting knowledge for Computation of Total Income and Tax Liability |
| 3 | Introducing Procedure for Assessment |
| 4 | Making students understand the Recovery of Tax and Refund of Tax |

| Course title | BC-604 Security Market Operations |
|---|---|
| **CO No.** | **Course Outcome** |
| 1 | **Introducing the working of primary and secondary markets** |
| 2 | **Introducing students with the working of Primary and Secondary markets.** |
| 3 | **Making students understand derivative trading.** |
| 4 | **Familiarizing students with the mechanism of raising funds from international markets** |

| Course title | BC(Voc)-605 Advanced Computer Applications |
|---|---|
| **CO No.** | **Course Outcome** |
| 1 | **The students will get knowledge about the Networking: Fundamentals, LAN/MAN/WAN, Topologies, Transmission Media, ISDN, B-ISDN, Protocols-TCP/IP, OSI, ATM, Internet Services.** |
| 2 | **To Enable students to learn about Information Technology Application in Business, E-Business, E-Commerce. Net banking; Online purchasing and selling; Electronic Payment Systems- an overview. E-Governance- Concept and examples.** |
| 3 | **Students will learn Internet. Browsers - Internet explorer, Mozilla Firefox, Opera, Google Chrome; Search Engines; Webpage.** |

| Course title | BC(Voc)-606 System Analysis & Design |
|---|---|
| **CO No.** | **Course Outcome** |
| 1 | **Students will learn the types of system, system development life cycle.** |
| 2 | **Will introduce Techno-economic feasibility; Role of system analyst the process of logical and physical design.** |
| 3 | **Will make students learn to form design: input, output, form. System testing, auditing,** |
| 4 | **Will provide knowledge about system maintenance, threats to security, control measures.** |

# DEPARTMENT OF COMMERCE

## Programme: Bachelors of Business Administration

| PO No. | Programme Outcome Upon completion of the B.BA Degree Programme, the graduate will beable to |
|---|---|
| 1 | Gain thorough knowledge of the fundamentals of management, human behavior, business as well as communication skills finance, economics, law and accounting& mathematics |
| 2 | Students can get knowledge about business as well as marketing skills |
| 3 | In this programme a vast array of subjects are covered that will make you knowledgeable professional and give you many options for pursuing acareer |
| 4 | This programme is stepping stone for MBA programme |
| 5 | Understanding legal issue/ law relating to banking and insurance sector. |
| 6 | Applications of techniques for managing sales work efficiently. |
| 7 | BBA degree is not just about education, you also learn about personality development. The degree teaches you to be a strong, confident person who is capable of handling teams and run a whole company. You are taught to be a team leader and a good team player as well. You are also taught to be a good public speaker as you have to give a lot of presentations during your BBA education. By the end of your degree, you will be a more developed and wholesome person. |
| 8 | This programme can increase our personality / confidence level/thinkinglevel |

## Programme: Bachelors of Business Administration

| PSO No. | Programme Specific Outcome Upon completion of these courses the student would be able to doaccomplish the following |
|---|---|
| 1 | Students get in depth understanding of business administration |
| 2 | It gives practical knowledge of corporate business activities. |
| 3 | This course can increase leadership as well as entrepreneurship skills |
| 4 | In BBA students can also learn about application of mathematical andstatistical tools in business world |
| 5 | It teaches how to develop business idea into reality |
| 6 | We can also gain knowledge about Sales and Marketing strategies |

| Course title | BBA-101 Business Organization |
|---|---|
| Co. No | Course Outcome |
| 1 | Strong foundation in specialized areas such as management,international business. |
| 2 | Develop skills in marketing, accounting, information andcommunication technology, or entrepreneurship. |
| 3 | It will also provide practical skills for those who wish to movedirectly into the workplace. |
| 4 | Helping people with their needs, challenges, and problems; andhelp to improve the quality of **life.** |

| Course title | BBA-102 Business Accounting |
|---|---|
| CO No. | **Course Outcome** |
| 1 | To overcome financial trouble. |
| 2 | To understand the basics of financial statements |
| 3 | To develop analytical skills of comparing variousstatements and finding the results |
| 4 | Make the students aware of the accounting software of tally |

| Course title | BBA-104 Business Mathematics-I |
|---|---|
| CO No. | **Course Outcome** |
| 1 | To equip students with concept of differentiation ad Integration |
| 2 | To understand about solution of system of linear equations |
| 3 | Students will be able to understand about different types of matrices and determinants |
| 4 | To Familiarize with Calculus |

| Course title | BBA-103 Managerial Economics-I |
|---|---|
| CO No. | **Course Outcome** |
| 1 | Understanding of the principles of economics |
| 2 | To estimate the economic relationships |
| 3 | Use of economics as a consumer point of view |
| 4 | Knowledge of various forms of markets and pricing strategies |

| Course title | BBA-105 Hindi | |
|---|---|---|
| CO No. | Course Outcome | |
| 1 | To develop essay writing skills | |
| 2 | Awareness of general topics related to essays | |
| 3 | Understanding level of various novels | |
| 4 | Letter writing skills | |

| Course title | BBA-106 Computer Fundamentals | |
|---|---|---|
| CO No. | Course Outcome | |
| 1 | To understand the basics of Computers | |
| 2 | To familiarize candidates with use of word processors, spreadsheet and presentation software | |
| 3 | To introduce students with working of network | |
| 4 | To equip students with basics of applications of computersand technology in managing business | |

| Course title | BBA- 107 Seminar | |
|---|---|---|
| CO No. | Course Outcome | |
| 1 | Skills of presenting the PPTs | |
| 2. | Increase the confidence level of the students | |
| 3. | Improves the communication skills | |
| 4. | Mental alertness and personality developments | |

| Course title | BBA 108 Principles of Management | |
|---|---|---|
| CO No. | Course Outcome | |
| 1 | Students will be able to know about management skills thatthey have to apply in various field with their functions. | |
| 2 | Thoughts of various renowned persons in development ofmanagement field will help to apply any one of them in their business | |
| 3 | Motivational and leadership theories will help them to adopt them in their business. | |
| 4 | Management will help the student to apply those principlesin their general life to work smoothly without any hassle | |

| Course title | BBA 109     Analysis of Financial Statements |
|---|---|
| **CO No.** | **Course Outcome** |
| 1 | This subject will help to analyze the profitability of thefirms by using various financial statements. |
| 2 | Students can get the performance check of the firms byusing various financial reports. |
| 3 | To analyze Cash flow statements which will help to analyze the actual revenue the company is generating |
| 4 | To analyze financial statements which will help to create and monitor: the balance sheet, income statement, and cashflow statement |
| 5 | To give the knowledge of accounting ratios and theirinterpretation |

| Course title | BC-110 Managerial economics-II |
|---|---|
| **CO No.** | **Course Outcome** |
| 1 | To understand the functioning of economy at the macro level. |
| 2 | To Understand how the economy is regulated throughmonetary and fiscal policies. |
| 3 | To study the important indicators of the economy and their significance. |
| 4 | To explain the concept of macroeconomics. |
| 5 | To apply the circular flow of income and expenditure. |
| 6 | To analyse the income determination through classical andKeynesian economics. |
| 7 | To integrate the role of fiscal and monetary policies in regulating economy |

| Course title | BBA-111 Understanding of Social Behavior |
|---|---|
| **CO No.** | **Course Outcome** |
| 1 | To explain the concept of sociology and social process. |
| 2 | To know and understand about the social changes |
| 3 | To know and understand about the social problems |
| 4 | To know and understand about social institutions |
| 5 | To know and understand bout attitude formation |

| Course title | BBA-112 Business Mathematics | |
|---|---|---|
| CO No. | Course Outcome | |
| 1 | Define basic terms in the area of business calculus | |
| 2 | Explain basic methods of business calculus, types | |
| 3 | Define graph, compute limits, differentiate, integrate, andsolve related problems. | |
| 4 | To understand about approximation techniques ofintegration. | |
| 5 | Connect acquired knowledge and skills with practical problems in economic practice. | |

| Course title | BBA-113 Business Communication |
|---|---|
| CO No. | Course Outcome |
| 1 | To understand about communication and  barriers in communicating |
| 2 | To know various parts of speech |
| 3 | To know about verbal and nonverbal communication |
| 4 | Students will be able to expand their knowledge about communication in various business circles professionally |

| Course title | BBA-201 Understanding Human Behavior |
|---|---|
| CO No. | Course Outcome |
| 1. | Students will learn about nature, meaning; approaches forstudying human behavior |
| 2. | Personality/motivational  theories |
| 3. | Perceptional theories /learning theories |
| 4. | Different aspects memory & forgetting |

| Course title | BBA-202 Micro Business Environment |
|---|---|
| CO No. | Course Outcome |
| 1 | Students will learn about different components & their importance of business environment |
| 2 | Economic systems: capitalism, socialism & mixedeconomy. Economic planning in India: |
| 3 | What is the role of government in economy |
| 4 | Social responsibility of business |

| Course title | BBA-203 Business Statistics-I |
|---|---|
| CO No. | Course Outcome |
| 1 | Students will learn about definition, scope, functions, importance, limitations and distrust of statistics; types of statistical methods |

| 2 | Data collection and analysis; types of data |
|---|---|
| 3 | central tendency/ Measures of dispersion and skewness Sampling: introduction, census versus sample errors in sampling, types of sampling, judging reliability of sample |
| 4 | Index numbers/ Computation of above mentioned statistical techniques with Microsoft excel |

| Course title | BBA-204 Management Accounting |
|---|---|
| CO No. | Course Outcome |
| 1 | Students will learn about Management Accounting: meaning, nature, usefulness, functions, scope, conventions, techniques and limitations |
| 2 | What is the difference between management accounting &financial accounting |
| 3 | Cost Accounting: meaning, uses of cost accounting; various cost concepts; organization of cost accounting department; Classification of Cost, Cost-Sheet and Costing methods. |
| 4 | Budgets and Budgetary Control/ Marginal Costing: Break-even –analysis/standard costing/ Control Techniques/Responsibility Accounting |

| Course title | BBA -205 Fundamentals of DBMS and ORACLE |
|---|---|
| CO No. | Course Outcome |
| 1 | Students will learn about Traditional file-oriented approach, Disadvantages of simple file system, Database approach, Advantages of Database approach, Database |
| 2 | They learn about Computers its use in business, advantagesand disadvantages, computerized system for inventory control, |
| 3 | They come to know about SQL using ORACLE. They alsoknow about how to write a report Report-Writing also advantages of Report writing |
| 4 | In practical subject they learn  about practical aspects of |
| 5 | SQL and PL/SQL using Oracle. Introduction to SQL PLUSenvironment, Executing and Editing SQL Commands, Creating and executing simple PL/SQL programs. RDBMS Package like MS-Access |

| Course title | BBA-206: Business Communication-II |
|---|---|
| **CO No.** | **Course Outcome** |
| 1 | Students will learn about communication its approaches |
| 2 | Different barriers in the path of communication & how tohandle them |
| 3. | What are the terms of effective listening |
| 4. | Also, they can learn about Importance of communicationmanagement, and communication structure in an organization. |

| Course title | BBA-207 Seminar |
|---|---|
| **CO No.** | **Course Outcome** |
| 1 | Students will learn about how to present their ppt |
| 2 | How to make ppt presentation Effective/ length of ppt/contents of ppt |
| 3 | This subject will increase confidence level/ theirpersonality as well mental alertness level |
| 4 | Students will also indulge group discussion that increase their knowledge level |

| Course title | BBA- 208 Human Behavior at Work |
|---|---|
| **CO No.** | **Course Outcome** |
| 1 | Students will learn human Behavior at Workplace,Factors affecting human behaviour at Workplace, |
| 2 | To Understand Group Dynamics at Work Place, how thedifferent group performance is managed at work place |
| 3 | Team Building at Workplace, and how team building helps affects organization |
| 4 | Inter personal communication at Workplace, feedbackprocess |

| Course title | BBA – 209 Macro Business Environment |
|---|---|
| CO No. | Course Outcome |
| 1. | To learn about The Economic Reforms-Liberalization, Privatization ad Globalization |
| 2 | To understand about the concept of Foreign Capital andForeign Investment in India |
| 3 | To get knowledge of Nature and operations of Multilateral Economic Institutions World Bank, WTO |
| 4 | Understand the Working of The Monetary policy of Indiaand EXIM Policy of India |

| Course title | BBA – 210 Business Statistics-II |
|---|---|
| CO No. | Course Outcome |
| 1 | To understand about Correlation – its types and methods |
| 2 | Students will be able to learn about linear regression and its methods |
| 3 | To Understand the concept of Probability, Time Series-Components and Analysis |
| 4 | To learn about Hypothesis Testing |

| Course title | BBA – 211 Marketing Management |
|---|---|
| CO No. | Course Outcome |
| 1. | To study about marketing environment and marketing mix |
| 2. | To understand the Marketing Information System |
| 3. | To know about pricing of product |
| 4. | To learn about promotion mixes in marketing |

| Course title | BBA- 212 Financial Management |
|---|---|
| CO No. | Course Outcome |
| 1 | To study nature and scope of Financial Management |
| 2 | To study about investment Decision such as Capital Budgeting |
| 3 | To Understand Financial decisions ad Divided Decisions |
| 4 | To understand working capital management |

| Course title | BBA- 213 Principles of Material Management |
|---|---|
| CO No. | Course Outcome |
| 1 | To Learn about material management and its use in organization |
| 2 | To study about fundamental objectives of Purchasing |
| 3 | To learn about Inventory management and control |
| 4 | To Lear about Physical Distribution and Logistics |

| Course title | BBA- 301 Business Laws-I |
|---|---|
| CO No. | Course Outcome |
| 1 | The student will be able to explain the concepts in businesslaws with respect to foreign trade |
| 2 | Apply the global business laws to current businessenvironment. |
| 3 | Awareness of global business laws and its impact on businesses. |
| 4 | Analyse the principle of international business and strategiesadopted by firms to expand globally |

| Course title | BBA- 302 Principles of Retailing |
|---|---|
| CO No. | Course Outcome |
| 1 | Knowledge of all functional areas of retailing |
| 2 | To give an account of essential principles of retailing |
| 3 | To give a perspective of the Indian retailing scenario |
| 4 | Articulate and implement industry standard approaches to the site selection, store planning and visual merchandising. |

| Course title | BBA- 303 Principles of Banking |
|---|---|
| CO No. | Course Outcome |

| | 1 | Students will be able to demonstrate a comprehension of theprinciples of Banking laws and its relationship to banks and customers |
|---|---|---|
| | 2 | Analyzing the Indian Banking system and its recent trends |
| | 3 | Integrate process according to the functioning of ReserveBank of India and commercial banks |
| | 4 | To make the students comprehend, the latest offerings and the day-to-day operations in Banking. |

| Course title | BBA- 304 Fundamentals of E-Commerce |
|---|---|
| CO No. | Course Outcome |
| 1 | To understand the basic concepts and technologies usedin the field of management information systems; |
| 2 | Have the knowledge of different types of management information systems |
| 3 | To aware about the ethical, social, and security issues of information systems. |
| 4 | To understand the processes of developing and implementing information systems. |

| Course title | BBA- 305 Export Procedure and Documentation |
|---|---|
| CO No. | Course Outcome |
| 1 | Explain the concepts in custom clearance in international business with respect to foreign trade |
| 2 | Apply the current custom clearance phenomenon and to evaluate the global business environment in terms of economic, social and legal aspects. |
| 3 | Handle documentation procedures during International business. |

| Course title | BBA- 306 Principles of Production Management |
|---|---|
| CO No. | Course Outcome |
| 1 | Gaining knowledge about managing production processes |
| 2 | How to run operations effectively. |
| 3 | Better understanding of modern production techniques. |
| 4 | Better understanding of quality management. |
| 5 | Management skills needed for the effective operationsmanagement. |

| Course title | BBA-308 Entrepreneurship Development |
|---|---|
| CO No. | Course Outcome |
| 1 | Skills required for aspiring entrepreneurs |
| 2 | Qualities of a successful Entrepreneur |
| 3 | Awareness of Government and Non-GovernmentPromotional strategies |

| | 4. | Government Schemes related to entrepreneurshipdevelopment |
|---|---|---|

| Course title | **BBA-309 Business Law-II** | |
|---|---|---|
| **CO No.** | **Course Outcome** | |
| 1 | Knowledge of the promotion and establishment of TheIndian Companies Act,2013 | |
| 2 | Awareness regarding rule of membership of the company | |
| 3 | Provisions relating to the Company Meetings | |
| 4 | Legal provisions of Securities Exchange Board of India Act 1992 | |

| Course title | BBA-310 Logistics Management | |
|---|---|---|
| CO No. | Course Outcome | |
| 1 | Acquire in them the skills of supply chain management | |
| 2 | How to provide service to customers in a business | |
| 3 | Role of technology in logistics | |
| 4 | Logistics Performance Measurement and control | |

| Course title | BBA-311 Principles of Insurance | |
|---|---|---|
| CO No. | Course Outcome | |
| 1 | To learn about concept of Insurance – Life and Non- Life | |
| 2 | To study about General Insurance that works in organization | |
| 3 | To learn about Distribution Channel in Insurance | |
| 4 | To learn about Life Insurance and procedure of Claim Settlement | |

| Course title | BBA -312 Introduction to Financial Services | |
|---|---|---|
| CO No. | Course Outcome | |
| 1 | To Learn about Financial Services their meaning and types | |
| 2 | To understanding Merchant Banking, Equity Issues and Role of SEBI | |
| 3 | To get familiarize with leasing ad hire purchase Concept | |
| 4 | To understand Concept of Mutual Funds | |

# DEPARTMENT OF COMMERCE

## Programme: Bachelors of Commerce

| PO No. | Programme Outcome<br>Upon completion of the B.Com. Degree Programme, the graduate will be able to |
|---|---|
| 1 | Gain thorough knowledge of the fundamentals of commerce and, management, finance, economics, law and accounting. |
| 2 | Analyse relationship among commerce, trade, industry, service and managmet |
| 3 | Understand application of knowledge of concepts of advertising, finance, entrepreneurship in business. |
| 4 | Think about commercial and professional way or point of view. |
| 5 | Understanding legal issue/ law relating to banking and insurance sector. |
| 6 | Applications of techniques for managing office work efficiently. |
| 7 | The course provides a platform for experimental learning and grooms students towards industry specific curriculum with focused approach onspecific areas which are crucial in the management of companies. |
| 8 | The course provides exposure to students in the latest trends in relevantbranches of knowledge giving them the needed competence and creativity to face global challenges. |

## Programme: Bachelors of Commerce (Office Management and Secretarial Practice)

| PSO No. | Programme Specific Outcome<br>Upon completion of these courses the student would be able to doaccomplish the following |
|---|---|
| 1 | Students will learn relevant Office management and Secretarial Practiceskills by applying both theoretical and practical knowledge to their future career in business |
| 2 | Perform all Secretarial duties and handling office activities well. |
| 3 | Develop communication skills and short hand awareness. |
| 4 | Application of mathematical and statistical tools in commerce and industry |
| 5 | Students will be familiarized with the provisions of preparation of tour programme for executives. |
| 6 | To apply their skills in management of office stationery. |

| Course title | BC-101 Financial Accounting-I |
|---|---|
| CO No. | Course Outcome |
| 1 | Recognize the basic accounting concept and conventions |
| 2 | Cultivate accounting skills to manage the profits and losses of any trading organization |
| 3 | Apply the rules of double entry book keeping for the preparation of final accounts |
| 4 | Understanding various provisions related to depreciation |

| Course title | BC-102 Micro Economics |
|---|---|
| CO No. | Course Outcome |
| 1. | To understand the concepts of cost, nature of production and its relationship to Business operations |
| 2. | To analyse the causes and consequences of different market conditions. |

| | |
|---|---|
| **3.** | To understand the concepts related to elasticity of demand |
| **4.** | To understand the theories of demand and their applications in real life world. |

| Course title | BC-103 Principles of Business Management |
|---|---|
| **CO No.** | **Course Outcome** |
| **1.** | Apply managerial roles and managerial skills |
| **2.** | Evaluate different approaches for organizational control |
| **3.** | Recognize the theory of management and manager's role in organization |
| **4.** | To understand the evolution and importance of globalization in today's business world. |

| Course title | BC-106 Business Communication |
|---|---|
| CO No. | **Course Outcome** |
| 1 | To develop communication skills of students |
| 2 | To equip students with formal communication techniques for use in corporate world. |
| 3 | Skills of writing business letters, e-mails, notices, circulars, memos and reports |
| 4 | To help students in self-development for Better performance in business. |

| Course title | BC(Voc)-105 Computer Fundamentals and BusinessData Processing |
|---|---|
| CO No. | **Course Outcome** |
| 1 | **Understand about the fundamentals of computer, Windows** |
| 2 | **Understand about the impact of data processing on businessorganizations.** |
| 3 | **Analyse about Data processing systems in various business functions the use of computers in data processing and incarrying out business functions** |
| 4 | **The course provides exposure to students in the latest trends in relevant branches of knowledge giving them theNeeded competence and creativity to face global challenges.** |

| Course title | BC (Voc)-106 Introduction to Computer Applications |
|---|---|
| CO No. | **Course Outcome** |
| 1. | Understand about the Computers and its components. |
| 2. | Understand about the various computer software's and the operating system |
| 3. | Analyse about the various google applications, database management system |
| 4. | Practically apply various multimedia technologies and use of internet services |

| Course title | BC-201 Financial Accounting II | |
|---|---|---|
| CO No. | Course Outcome | |
| 1. | Illustrate the accounting procedures of death and insolvency of a partner. | |
| 2. | Cultivate accounting skills under hire purchase. | |
| 3. | Relate the accounting procedures relating to admission and death of partners. | |
| 4. | Cultivate accounting skills under branch accounting system. | |

| Course title | BC-202 Macro Economics |
|---|---|
| CO No. | Course Outcome |
| 1. | To familiarize students with basic concepts of macro economics |
| 2. | To equip students about Classical & Keynesian theory of income |
| 3. | To understand about different business cycles |
| 4. | To make students aware about the concept of inflation and ways to measure and control inflation |

| Course title | BC-203 Fundamentals of Marketing |
|---|---|
| CO No. | Course Outcome |
| 1 | To help students in developing basic marketing skills |
| 2 | Equipping students with the market segmentation strategies |
| 3 | To help students understand the pricing and promotion aspect of marketing |
| 4 | To make students understand the product concept of marketing |

| Course title | BC-204 E-Commerce |
|---|---|
| CO No. | Course Outcome |
| 1. | Understanding various applications of E-Commerce |
| 2. | Cultivating the habit of using online mode of payments |
| 3. | To understand about the concepts of M-Commerce and E-governance |
| 4. | To understand about the security issues related to E-Commerce |

| Course title | BC(Voc)-205 Shorthand (English) Theory | |
|---|---|---|
| CO No. | **Course Outcome**<br>**Upon completion of the B.Com. Degree Programme, the graduate will be able to** | |
| 1 | Understand about the origin of shorthand various writing techniques | |
| 2 | Understand about the various vowel, Consonants various upward and downward strokes | |
| 3 | Analyse about various grammalogues and phrase-graphy grammalogues | |
| 4 | Practical application circles, loops, hooks size & direction | |
| 5 | The course provides a platform for experimental learning and grooms students for a successful stenographer | |
| 6 | The course provides exposure to students in the latest<br>trends in relevant branches of knowledge giving them theneeded competence to face global challenges. | |

| Course title | BC(Voc)-206 Shorthand (English) Practical | |
|---|---|---|
| CO No. | **Course Outcome**<br>**Upon completion of the B.Com. Degree Programme, thegraduate will be able to** | |
| 1 | Write in shorthand twenty grammalogues/ phrase | |
| 2 | Write one passage in English containing 300 words that are dictated in ten minutes | |
| 3 | Read a passage of shorthand containing about 100 words within 10 minutes. | |
| 4 | Complete practical application of the shorthand | |
| 5 | The course provides a platform for experimental learning and grooms students as a strong stenographer. | |
| 6 | The course provides exposure to students in the latest<br>trends in relevant branches of knowledge giving them theneeded competence to face challenges. | |

| Course title | BC-207 Environmental Studies | | | |
|---|---|---|---|---|
| CO No. | **Course Outcome** | | | |
| 1. | Understanding the environmental studies | multidisciplinary | nature | **of** |
| 2. | To make students understand about renewable and non- renewable resources | | | |
| 3. | Cultivate habit of recycling for safeguarding the environment. | | | |
| 4. | To make students aware about social issues and environment | | | |

| Course title | BC-301Corporate Accounting-I |
|---|---|
| CO No. | Course Outcome |
| 1 | Understand the concept of amalgamation and applies theaccounting standards with respect to Amalgamations and mergers |
| 2 | Recording journal entries for accounting for share capital |
| 3 | Equipping students about methods of preparation of final accounts of companies |
| 4 | Understanding internal reconstruction of Companies. |

| Course title | BC-302 Business Statistics I |
|---|---|
| CO No. | Course Outcome |
| 1. | To introduce basic concepts of statistics |
| 2. | To provide insights for primary and secondary data and methods of collection of data |
| 3. | To provide an overview of mean, median, mode, harmonic mean and geometric mean. |

| Course title | BC-303 Business Laws-I |
|---|---|
| CO No. | Course Outcome |
| 1. | Understand the rules regarding offer, acceptance, consideration and capacity to contract |
| 2. | Explaining the rules pertaining to Sale of Goods Act, 1930 |
| 3. | To make students aware about the rights under Consumer Protection Act, 1986 |

| Course title | BC-304 Company Law-I |
| --- | --- |
| CO No. | Course Outcome |
| 1 | Understanding the meaning, characteristics and types of Companies |
| 2 | Understanding about Memorandum of Association and Articles of Association |
| 3 | To familiarize students with the basics of prospectus issued by Companies |

| Course title | BC (Voc)-305 Office Practice & Communication |
| --- | --- |
| CO No. | Course Outcome |
| 1 | Understanding and defining the crucial role of an office manager |
| 2 | Identify the keys to robust and effective organization |
| 3 | Understanding the role of filing and indexing in officemanagement |
| 4 | Acquire basic skills and knowledge regarding modernoffice machines and how best to apply them |

| Course title | BC (Voc)-306 Typewriting theory (English) |
| --- | --- |
| CO No. | Course Outcome |
| 1 | Understanding the technique of carbon man folding |
| 2 | Understanding the use of stencils for cutting andduplicating |
| 3 | Acquire basic skills and knowledge regarding officialcommunication techniques and methods |

| Course title | BC- 401 Corporate Accounting-II |
|---|---|
| CO No. | Course Outcome |
| 1 | The main objective of this subject to provide the knowledge of companies, Shares and regulatory of companies. |
| 2. | This subject describes the pattern of final accounts of the company. |
| 3. | It provides the knowledge of issue of shares a |
| 4. | It also provides the methods of valuation of goodwill and shares |

| Course title | BC- 402 Business Statistics-II |
|---|---|
| CO No. | Course Outcome |
| 1. | To Estimate the mean and standard deviation of the marginal distribution of the response variable and use this information to inform a business decision |
| 2. | To make them aware about confidence interval for the slope of the regression line |
| 3. | To develop the student's ability to deal with numerical and quantitative issues in business |
| 4. | Understand how to organize and summarize data by using descriptive statistics and appropriate statistical graphics |

| Course title | BC- 403 Business Laws-II |
|---|---|
| CO No. | Course Outcome |
| 1 | Students can Identify the legal constraints faced by the business professional as well as the legal options availableto the business professional in responding to and resolving legal issues. |
| 2 | Apply the global business laws to current business environment |
| 3 | Integrate concept of business law with foreign trade |
| 4 | Understand about the partnership act rules and regulations |

| Course title | BC- 404 Company Laws-II |
|---|---|
| CO No. | Course Outcome |
| 1. | To understand about the types of meetings conducted in the company |
| 2. | To know about the number of members in company and transferability of shares and debentures |
| 3. | To make them aware about the amalgamation and reconstruction of company |
| 4. | To make them aware about the company management and reconstruction policies. |

| Course title | BC (Voc)-405 Office Practice & Communication Theory |
|---|---|
| CO No. | Course Outcome |
| 1 | Understanding the importance of mail and its management |
| 2 | Learning the art of office correspondence |
| 3 | Acquire basic skills and knowledge regarding office equipment and their use |
| 4 | Understanding both hardware and software configuration of computers |

| Course title | BC (Voc)-406 Shorthand Theory |
|---|---|
| CO No. | Course Outcome |
| 1 | Knowledge about Consonants |
| 2 | Halving and doubling principle in Phraseography |
| 3 | Understanding of Prefixes, suffixes, contraction and intersections |
| 4 | Practical knowledge about writing of figures in shorthand |
| 5 | Practical knowledge about note taking techniques and transcription on typewriter |

| Course title | BC- 501 Cost Accounting |
|---|---|
| CO No. | Course Outcome |
| 1. | Students will learn the concepts related to cost, its classification, methods and techniques. |
| 2. | Students will be familiarized with the labour cost, methods of wage payment and incentive schemes. |
| 3. | Gain the knowledge about overheads. |
| 4. | Students will learn how to control cost and how to do costreduction. |

| Course title | BC- 502 Entrepreneurship Development |
|---|---|
| CO No. | Course Outcome |
| 1. | Students will be familiarized with role and functions of Entrepreneur. |
| 2. | After the completion they are able to prepare feasibilityreports. |
| 3. | They will learn the role of government and promotionalagencies and institutes in entrepreneurship development |
| 4. | Students will learn about the factors which affect success of new business. |

| Course title | BC-503 Income Tax-I |
|---|---|
| CO No. | Course Outcome |
| 1. | Students will learn the concept of Income, AgriculturalIncome, and Casual Income. |
| 2. | Students will be familiarized with the concepts of total income, gross total income, tax planning and tax evasion. |
| 3. | They will be able to compute tax on the salary. |
| 4. | Concept related to clubbing and aggregation of Income. |

| Course title | BC-504 Company Law II |
|---|---|
| CO No. | Course Outcome |

| | 1. | To understand the concept of transfer and transmission of shares and debentures |
|---|---|---|
| | 2. | To equip students with different types of meeting |
| | 3. | To make students understand about the methods of winding up of the Companies |
| | 4. | Understanding all the legal aspects related to Directors |

| Course title | BC (Voc)-505 Office Practice | |
|---|---|---|
| CO No. | Course Outcome | |
| 1 | Students will acquire knowledge about utilization of office resources. | |
| 2 | Students will acquire knowledge about the maintenance of stock | |
| 3 | The students will get awareness about the use of information source. | |
| 4 | Course will make students competent in making travel arrangements | |

| Course title | BC (Voc)-506 Typewriting (English) |
|---|---|
| CO No. | Course Outcome |
| 1 | Students will enhance their typing speed. |
| 2 | Students will learn about writing of formal letters. |
| 3 | Students will acquire knowledge about the use of stencil paper. |
| 4 | Students will be able in typing manuscripts. |

| Course title | BC-601 Management Accounting |
|---|---|
| CO No. | Course Outcome |
| 1. | To equip the students with the ability to analysis interpretand use accounting information in managerial decision making. |
| 2. | Understanding of the application of accounting techniques for management |
| 3. | Familiarizing students with the methods of accounting for marginal cost |
| 4. | Understanding calculations and use of ratios in Companies |

| Course title | BC-602 Auditing |
|---|---|
| CO No. | Course Outcome |
| 1. | Introducing basic concepts of auditing, the need and importance of auditing. |
| 2. | To understand the conceptual framework that is applied by audit professionals to assess, evaluate, and manage auditrisks and evidence |
| 3. | Understanding the auditing procedures. |
| 4. | Equipping the students with the process of preparing the audit reports. |

| Course title | BC-603 Income Tax- II |
|---|---|
| CO No. | Course Outcome |
| 1. | Understanding Deductions under Section 80 |
| 2. | Computation of Total Income and Tax Liability |
| 3. | Procedure for Assessment |
| 4. | Understanding the Recovery of Tax and Refund of Tax |

| Course title | BC-604 Security Market Operations |
|---|---|
| CO No. | Course Outcome |
| 1. | Understanding the working of primary and secondary markets |
| 2. | Introducing students with the working of Primary and Secondary markets. |
| 3. | Understanding derivative trading |
| 4. | Understanding the mechanism raising funds from international markets |

| Course title | BC-(Voc) 605 Computer Applications |
|---|---|
| CO No. | Course Outcome |
| 1 | Understanding computer application to business and storage devices. |
| 2 | Disc operating systems |
| 3 | Block, saving, formatting, shelling ched and printingcommand. |
| 4 | Understanding MS Office: MS Word, MS Excel, MS Power pointand Various Operating System: DOS, LINUX. |

# Department of Arts
## Program Name: Bachelors of Arts

| POs | Program Outcome: After completing this programme students will be able to |
|---|---|
| 1 | Get exposure from a variety of subjects, thereby developing their capability of decision making. |
| 2 | Develop the ability to find the solutions to a problem with their imagination and critical thinking while taking part in co-curricular activities. |
| 3 | Develop Analytical and Competitive Skills such as Quizzes, competitions, cultural and sports activities organized for the students help in developing their analytical and competitive skills. This programme equips them to clear competitive exams as well as enables them to work efficiently. |
| 4 | Become eligible & well-equipped for employment in the government andprivate sector and also develop entrepreneurial skills after studying Subjects like Economics, Physical Education and Home Science. |
| 5 | The program builds a strong academic foundation amongst students, thereby preparing them to excel in higher education. |
| 6 | The objective of the Environment course & various activities carried outunder NSS and tree-plantation drive in the campus is to help students understand the importance of environment & sustainable development. |

**Course Outcomes of English**

| Semester I | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| EN21 | English Compulsory | oDescribe the concept of essay as a genre of prosefiction and analyzed its specific features and objectives. |
| | | o Discuss the concept of Parts of Speech and analysed their relative importance in investing the sentence with a legible meaning as a syntactic unit.<br>o Describe the concept of Tenses and discuss their uses in the formation of different types of sentences.<br>o Interpret texts with attention to ambiguity, complexity, and aesthetic value and will be able to enhance the writing ability.<br>o A robust English vocabulary improves all areas of communication-listening, speaking, reading, and writing. More words can help to express ideas in a meaningful manner |

| Semester II | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course,students will be able to** |
| **EN22** | **English Compulsory** | o Describe the concept of Story as a genre of Prose Fiction and discuss its major components, theirrelevance and objectives.<br>o Describe the concept of Sentence and its kinds.<br>o Describe Modal Auxiliaries and their uses.<br>o Describe the grammatical rules and linguisticconventions.<br>o Described the concept of voice and discussed its uses, relevance and objectives in different contexts.<br>o A robust English vocabulary improves all areas ofcommunication-listening, speaking, reading, andwriting. More words can help to express ideas in a meaningful manner. |

| Semester III | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| **EN23** | **English Compulsory** | o Describe the Concept of Poetry as a genre of literature, its kinds, salient features and relevance.<br>o Describe the concept of Phrasal Verbs and discusstheir relevance in effective written and verbal (oral) communication.<br>o Described the concept of Direct and Indirect Speech and discussed its relevance, function and objectives.<br>o Described the concept of parts of speech and discuss its essential role in providing language withthe trait of accuracy and precision.<br>o A robust English vocabulary improves all areas ofcommunication-listening, speaking, reading, andwriting. More words can help to express ideas in ameaningful manner |

## Semester IV

| Course Code | Course Name | COs: After successfully completing this course,students will be able to |
|---|---|---|
| EN24 | English Compulsory | o Describe the concept of One Act Play and discussed its salient features and their relevance and objectives.<br>o Describe the concept of translation, its prominent role in a world of diversity of languages; learned the importance of prevalent linguistic normsand conventions of various languages and their rolein the act of good translation.<br>o Describe the concept of Dialogue Writing, Resume Writing, and Writing E mails; their relevance and objectives.<br>o Robust English vocabulary improves all areas of communication-listening, speaking, reading, and writing. More words can help to express ideas in ameaningful manner. |

## Semester V

| Course Code | Course Name | COs: After successfully completing this course,students will be able to |
|---|---|---|
| EN25 | English Compulsory | o Describe the concept of Novel, its components, salient features and tools of analysis.<br>o Will get familiar with – and be able to apply – technical terms for describing and analyzingEnglish pronunciation and be able to read and produce phonemic transcriptions and transcriptionof intonation patterns.<br>o Understand Types of sentences and to Identify sentence structure concerns in example sentences. Define sentence fragment, run-on sentence, passive voice and modifier. Demonstrate improved sentence writing abilities.<br>o To describe literary terms and to add layers of meaning to the work allowing for it to be read at different levels by the reader. To use symbolism that can be developed in a work through the use ofother literary devices, particularly figurative speech devices such as metaphor and simile. |

## Semester VI

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| EN26 | English Compulsory | o Described the concept of full-length play, itscomponents, salient features and tools of analysis.<br>o Described the concept of Precis Writing and LetterWriting; RTI their relevance and objectives.<br>o One word substitution is a way to replace a wordyphrase with one word to make it more succinct. |
| | | This creates clarity in writing and allows for more to be written in a shorter space.<br>o to describe literary terms and to add layers of meaning to the work allowing for it to be read at different levels by the reader. To use symbolism that can be developed in a work through the use ofother literary devices, particularly figurative speech devices such as metaphor and simile. |

**Course Outcomes of Hindi**

| Semester I | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| **Paper-I** | Hindi Compulsory | o Through poetry, the description of saints, Sufi poetry, Nirgun Sagun poetry and Ashtachap poetryis to be presented.<br>o The knowledge of the naming, characteristics of Hindi literature is obtained. And complete information about the ancient literature is available.<br>o Poetry is formed through the development of language, ornamentation, word-powers and rasa.Poetry sparkles beauty. |
| **Semester II** | | |
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| **Paper-I** | Hindi Compulsory | o The drama Dhruva swamini by Jai shankar Prasad is associated with historicity. The exploitation of women is shown in this play, divided into three parts.<br>o Bhaktikal is the golden period. In this era, deep thought is done on Ramakavya, Krishnakavya.<br>o Language Forms Standard Language. Official language. National language, medium language, mother tongue Hindi, the solution to the problem ofspelling. |
| **Semester III** | | |
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| **Paper-I** | Hindi Compulsory | o Poetry is a powerful medium to express the words of the mind. Modern Hindi poetry gives a solution to the problems of the modern era and the understanding of modernity.<br>o Ritikaal literature Shangar is a period of ritual, arts, sexuality and exploitation of women.<br>o Computer Internet Media Press Concept is a device leading to modernity. |
| **Semester IV** | | |
| **Course Code** | **Course Name** | **COs: After successfully completing this course,students will be able to** |

| | | |
|---|---|---|
| **Paper-I** | **Hindi Compulsory** | o The story is related to the reality of life. From the story we get the form of society, the form of a woman. The value of art exposes discrimination.<br>o Modern prose literature is the origin and developedform of story, drama, novel essay etc.<br>o The term terminology is the working language form. |

| Semester V | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course,students will be able to** |
| | Hindi Compulsory | o Contemporary poetry keeps man connected to theground.<br>o Modern Hindi poetry is the form of Chhayavad, Experimentalism, Progressivism, New poetry.<br>o The newer prose introduces new genres such as reportage travel, humor, satire etc.<br>o Haryanvi literature is associated with our state and highlights our culture.<br>o Prognostic Hindi modern equipment Computermedia journalism is connected to the Internet. |

| Semester VI | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| **Paper-I** | **Hindi Compulsory** | o Progenitive Hindi modern equipment is connectedto the computer, media, journalism, and internet.<br>o Shows the ups and downs of social and personal lifethrough loneliness, memoir etc.<br>o Poems depicting mentality as well as training inletter writing have also been done. Program results<br>1. Students get knowledge of medieval poets andancient literature in detail.<br>2 Hindi literatures is studied in depth. Purity leadsto intellectual development.<br>4 Poetry reveals the inner feelings and mind of thestudents.<br>5 Drama keeps students connected with theatre.<br>6 Story, novel etc. keeps students connected withculture.<br>**7** Haryanvi literature keeps the students connectedwith the folk life and culture of the state. |

**Course Outcomes of Punjabi**

| Semester I | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| **Paper-I** | **Modern Punjabi Poetry** | o Book: Kaav Naad<br>o Poets: Bhai Veer Singh, Dhani Ram Chatrik , Professor Mohan Sigh, Baba Balwant Singh, |

| | | Dr. Har Bhajan Singh, Har Bhajan Singh Halwarvi,Dayal Chand Miglani, Hari Bhajan Singh Komal.<br>o Novel: Pavitra Papi (Nanak Singh)<br>Grammer: Idioms, Correct –incorrect words,Personal letters, official letters, Official Terminology. |
|---|---|---|
| **Semester II** | | |
| **Course Code** | **Course Name** | **COs: After successfully completing this course,students will be able to** |
| **Paper-I** | Modern Punjabi Poetry | o Book: Kaav Naad<br>o Poets: Puran Singh, Amrita Pritam, Santokh Singh Dheer, Pritam Singh Safeer, Shiv Kumar Btalvi, Avtaar Singh Paash, Himmat Singh Sodhi ,Har Bhajan Singh Renu<br>o Book: Ekangi-Bahurangi<br>o Grammer- Idioms, Correct –incorrect words, Personal letters, official letters, Official Terminology. |
| **Semester III** | | |
| **Course Code** | **Course Name** | **COs: After successfully completing this course,students will be able to** |
| **Paper-I** | Punjabi Poetry | o Book: Kaav Taranga<br>o Poets: Bulle Shah, Mukbal, Hasham, Najabat,Agra.<br>o Katha Yatra: Arzee, Dhara, Rab di maut, ZinnatAppa, Do Anne da Gha, Sanjhi khand, Anderlijot,ButtShikan, Sheshnag, Go, Badda Admi, Kurahia, Hummash.<br>o Punjabi Sahitya da itihas: 1701 to 1850<br>o Grammer: Essay, Conjuntion, Translation from English to Punjabi, Synonyms, Sahitak vocabulary.<br>o Chhand: Korda, Sortha, Baint, Chaupai, Kavit,Dudi, Davaya, Savaya, Dohira, |
| **Semester IV** | | |
| **Course Code** | **Course Name** | **COs: After successfully completing this course,students will be able to** |
| **Paper-I** | Punjabi Poetry | o Book: Kaav Taranga<br>o Poets: Vajid, Varish Shah, kadar Yaar, PeerMohammad, Shah Mohammad.<br>o Punjabi Sahitya da itihas: 1701 to 1850<br>o Grammer: Conjuntion, Paragraph Writing, Translation from English to Punjabi, Synonyms, Sahitak vocublary<br>o Alankar: Upma, Rupak, Atikathani, Dristhant, Virodh, Anupras, Vikrokti, Prodkati, Lesh, Lokokti, |
| **Semester V** | | |
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |

| Paper-I | Punjabi Poetry | o **Poetry Book: Kaav Jottan**<br>o **Poets: Guru Nanak Dev, Guru Angad Dev, Baba Farid, Damodar, Bhai GurDass**<br>o **Gad Darpan: Punjabi Batcheet, Vatan Da Pyar,Bhed chal, Gusal Khana, Ghar vich hi guriai, MeraNisafal Pyar, Gurbani, Natak di nakkardadi**<br>**, Chitra Kala di samartha, Saadha santa lai shrada, Khudha Bachae Chugalkhora too, Bahu Pakhi Sakhsiat- Dr. Ambedkar**<br>o **Kaav Roop: Kissa, var, Jangnama, Kafi, Baramah, Mahakaav, Rubai, Gajal,**<br>o **Translation Hindi to Punjabi.** |
|---|---|---|
| **Semester VI** | | |
| **Course Code** | **Course Name** | **COs: After successfully completing this course,students will be able to** |
| **Paper-I** | **Punjabi Poetry** | o **Poetry Book: Kaav Jottan**<br>o **Poets: Guru Arjan Dev, Guru Teg Bahadar, ShahHussain, Pillu, Guru Govind Singh.**<br>o **Punjabi Sahit da Itihas: Starting to1700**<br>o **Grammer: Sahitik Roop–Novel, Nikki Kahani, Natak, Ekangi, Rekha**<br>o **chitra, Safarnama, Essay, Biography, AutoBiography.**<br>o **Translation Hindi to Punjabi, opposite words.** |

**Course Outcomes of Sanskrit**

| **Semester I** | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| **Paper-I** | Sanskrit | o 'Hitopdesa' interprets social behavior, ethical stories of 15th century. That is helpful to understand disciplined aspects of society.<br>o 'Nitishatakam' by Bhartrhari is a collection of shlokas pertaining to moral values.<br>o Sanskrit grammar provides knowledge of 'Shabdroop' & 'Dhaluroop' that help students to identify the gender.<br>o 'Sandhi' is a perfect grammatic combination of alphabets that reveals the formation of Words based on vowels as well as consonants. |
| **Semester II** | | |
| **Course Code** | **Course Name** | **COs: After successfully completing this course,students will be able to** |
| **Paper-I** | **Sanskrit** | o 'Shrimadbhagwad Geeta' from the Bhishma Parva of 'Mahabharta' represents the teachings of Lord Krishna to Arjuna as well as for all human beings regarding 'Karma' & 'Kartaya'. |

| | | o 'Nitishatkam' is a collection of 100 'Shlokas' pertaining to moral values by which students can learn to behave perfectly in society.<br>o Grammar is helpful for students for the identification of genders, verbs etc.<br>o (i) 'Chhandas' are the main source to pronounce the phrases with accent.<br>o (ii) Translation from Hindi to Sanskrit is beneficial to remove the grammatical errors to be done by the students. |
|---|---|---|

**Semester III**

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| Paper-I | Sanskrit | o 'Panchratram' by Bhasa represents the way to take one's own right diplomatically.<br>o History of Sanskrit provides the knowledge of authors like Bana, Dandi, Subandhu, Ambikadutt Vyas, Vishnu Sharma etc. & work done by them. That reflects the political, social, religious scenario as well as life style of that, era.<br>o Sanskrit grammar reveals the knowledge about – Samasas, Pratyaye, Pratyahaar sutras etc.<br>o Sanskrit Letter Writing improves the writing skills of Sanskrit among students.<br>o Poetry is a source of knowledge related to vedas, upnishadas, Ramayana etc. for students.<br>o Text provides the knowledge of Yajurveda, charak Samhita as well as Panchtantra.<br>o 'Shabdroop' reveals the nouns in Sanskrit grammar.<br>o Swara 'Sandhi' helps students to form the words pertaining vowels. |

**Semester IV**

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| Paper-I | Sanskrit | o 'Raghu Vansham' by Kalidasa represents the story of Suryavanshi kings. One of them king 'Dilip' & his wife 'Sudakshina' served Nandhi cow of Rishi Vashistha, for desiring their own son.<br>o 'Shivrajvijay' is an historic novel by Ambika Dutt Vyas that reflects the scenario of 19th century's Mugal epires negative approach pertaining to Hindu society.<br>o Sanskrit grammar as active voice, Passive voice, 'Shabdroop' as well as Dhaturoop' help to make sentences and to identity the gender, verbs etc.<br>o Laghu Sindhanta Kaumudi' by Varadraj that reveals the knowledge of nouns, translation etc. |

| | | All these aspects other grammatical components are based on Panini Sutras. |
|---|---|---|
| | | o Poetry reveals the introduction of Shrimad bhagwat Geeta, & so as... to the students. |
| | | o Text reveals the introduction pertaining to 'Panchtantra' Hitopdesha' for students. |
| | | o 'Dhaturoop' provides knowledge regarding various types of verbs for students in the field of Sanskrit. |
| | | o By Swara Sandhi students can gain skills of various types of formation of words. |

## Semester V

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| Paper-I | Sanskrit | o 'Abhigyan Shakuntalam' by Mahakavi Kalidas is seven-digit Play. From which one to three digits are included in this semester that represents the story of king Dushyant & Shakuntla's love within the limitations of society, it refers four stanzas regarding the discipline for girls after marriage which are beneficial for today's society as those were for ancient society. |
| | | o Introduction of Kalidasa relates to the various works done by Kalidasa like writing of drama, epic etc. After study of these, students can learn about various aspects of society of ancient time which are also relevant in modern society. |
| | | o History of Sanskrit provides the knowledge of Vedas, Brahmanas, Aaranyakas, Upnishadas as well as vedangas which reflect the vast knowledge of Vedic literature. |
| | | o 'Laghu Siddhanta Kaumudi' helps to study grammatical terms pertaining to sentence making. 'Alankaras' Play very important role to enhance the grace of political stanzas. |

## Semester VI

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| Paper-I | Sanskrit | o 'Abhigyam Shakuntalam' by Kalidasa contains fifth to seventh digits in this semester by which students gain knowledge of the significance of Name 'Abhigyam Shakuntalan' of this play with the help of various eventual facts. |
| | | o Literary works done by Mahakavi Kalialasa reveal such as-vision of life, National spirit, nature illustration and adornments used for literary attractiveness in various compositions that create interest of students to study Kalidasa's works. |
| | | o History of Sanskrit Provides the knowledge about valmiki, Vyas Bhavbhuti, Ambikadutt Vyas, |

| | | Bharvi, Vishnu Sharma, Bhartrhari Jaidev as wellas their work done for the literary world. |
|---|---|---|
| | | o (i) Laghusiddhanta Kaumudi' is a famous work done by varadraj for the grammatical knowledge to the students related to 'Stri Pratayaye' |
| | | o (ii) Sanskrit Essay writing improves the knowledge of various grammatical aspects among students. |

**Course Outcomes of B.A. History**

| Semester I | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | Ancient India (FromEarliest Times to Gupta Age) | o Understand the human evaluations like the transformations occurred right from Indus valley civilization times to 13<sup>th</sup> century A.D.<br>o Identify and define various kinds of sources and understand how evidences are notified.<br>o Compare and contrast various stages of progress from Indus valley civilization to Vedic age and analyse the Jain, Buddhist and Vedic faiths.<br>o Increase the awareness of transition from territorial states to emergence of empires.<br>o Analyse the emergence of the mauryan and gupta empires during the "Classical age" in India.<br>o Critically examine the nature of monarchic rule and develop a comprehensive understanding of cultural evolution during ancient period.<br>o Visualize where places are in relation to one another through map pointing. |
| **Semester II** | | |
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | History of India (600 A.D. to 1526 A.D.) | o Learn about the post Gupta Period & Raj put Art and Architecture<br>o Learn the foreign invasions on India and their consequences.<br>o Understand the socio- economic and culturalconditions of medieval India.<br>o Describe the advent of Islam in India and study the traces of Political and cultural expansion of Turks & Afghans.<br>o Explain the administration, Art and architecture of Vijayanagara Rulers, Mughals and also analyse the rise of the marthas and contribution of sivaji.<br>o Evaluate the establishment of the British rule in India and understand the dangerous consequencesdisunity at all levels. |

| | | o Analyse the emergence of composite culture in India. |
|---|---|---|

## Semester III

| Course Code | Course Name | COs: After successfully completing this course,students will be able to |
|---|---|---|
| Paper-I | Political History of India (1526-1857 A.D) | o By studying this paper, students identify Europeans arrival, the disintegrations among the kings and the weakness of fleet etc. that led the British invasions on India and finally occupying political power in this country.<br>o Understand the Socio, Economic and cultural conditions of medieval India.<br>o The student realize that the mistakes of past shouldit be repeated.<br>o The student can identify the advent of the European to India; can analyse the reasons for thekarnatic wars and the after effects of it.<br>o The student can perceive how India lost its freedoms stage by stage deterioration of freedoms.<br>o They can understand the reasons which led tomovements against British Empire. |

## Semester IV

| Course Code | Course Name | COs: After successfully completing this course,students will be able to |
|---|---|---|
| Paper-I | Freedom Movement ofIndia | o The students identifies Origins of the National Consciousness. Founding of Indian National Congress. Moderates and Extremists: Ideology, Programmes and Politics Home Rule Movement.<br>o They can understand Role of Mahatma Gandhi in Freedom Movement: Non-Cooperation Movement, Civil Disobedience Movement and Quit India Movement. Ideology and Contribution ofRevolutionaries with special reference to Bhagat Singh.<br>o They can understand about the Political Reforms: Acts of 1909 and 1919.Rise of Communal Politics:Muslim League – Ideology and Politics Conclusionof Poona Pact and the Act of 1935.Subhash ChandraBoss and Indian National Army Partition and Independence of India. |

## Semester V

| Course Code | Course Name | COs: After successfully completing this course,students will be able to |
|---|---|---|
| Paper-I | Modern World | o Transition from Feudalism to Capitalism in Europe Renaissance: Origins, Emergence and Results Reformation: Origins, Emergence and Results.<br>o Shift of Economic Balance from the Mediterranean to Atlantic Region Early Colonial |

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| | | o System: Motives, Process and Consequences of Colonization of Americas Mercantile Revolution: Origins and Results.<br>o Revolution: Origins and Impact Glorious Revolution: Origins and Results Industrial. Maps<br>o Important Centers of Renaissance Important Centers of Reformation Important<br>o Mercantile Centers Major Places Connected with Industrial Revolution Capitalist Powers of Europe.<br>o Revolution: Origins, Progress and Impact Agricultural Revolution: Origins, Progress and Impacts. |

| Semester VI | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course,students will be able to** |
| Paper-I | Modern Europe (1789-1945 A.D.) | o After completion of the course students learnt aboutFrench Revolution: Causes, Nature and Consequences Napoleon Bonaparte: Rise to Power,Reforms System and Continental system Congress of Vienna: Motives, Provisions and Significance<br>o Conservative Reaction in Europe: Metternich System and the Concert of Europe Glorious Revolution (1688). Nationalism in Europe: Unifications of Italy and Germany Bismarck and hisDiplomatic Alliances: Formation of Triple Allianceand Triple Entente<br>o World War – I: Causes and Consequences Peace Settlements: Treaty of Versailles - Provisions, Nature and Effects. Bolshevik Revolution: Causes Nature and Impact World War II: Causes and Consequences |

### Course Outcomes of Mathematics

| Semester I | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course,students will be able to** |
| Paper-I | Algebra | o Symmetric, Skew symmetric, Hermitian and skew Hermitian matrices. Elementary Operations on matrices. Cayley Hamilton theorem and its use in finding the inverse of a matrix.<br>o Applications of matrices to a system of linear (both homogeneous and non– homogeneous) equations.<br>o Relations between the roots and coefficients of general polynomial equation in one variable. Transformation of equations.<br>o Nature of the roots of an equation Descarte's rule ofsigns. Solutions of cubic equations (Cardon's method). Biquadratic equations and their solutions. |

| Paper-II | Calculus | o Definition of the limit of a function. Basic properties of limits, Continuous functions and classification of discontinuities. Maclaurin and Taylor series expansions.<br>o Asymptotes in Cartesian coordinates, intersection of curve and its asymptotes, asymptotes in polar coordinates. Curvature, radius of curvature for Cartesian curves, parametric curves, polar curves.<br>o Tracing of curves in Cartesian, parametric and polar co-ordinates. Reduction formulae, Rectification, intrinsic equations of curve.<br>o Quadrature (area) Sectorial area. Area bounded by closed curves. Volumes and surfaces of solids of revolution. |
|---|---|---|
| Paper-III | Solid Geometry | o General equation of second degree. Tracing of conics. Tangent at any point to the conic, chord of contact, pole of line to the conic, director circle of conic.<br>o Sphere: Plane section of a sphere. Sphere through a given circle. Intersection of two spheres, radical plane of two spheres. Co-oxal system of spheres<br>o Central Conicoids: Equation of tangent plane. Director sphere. Normal to the conicoid, Polar plane of a point. Enveloping cone of a conicoid. Enveloping cylinder of a conicoid.<br>o Paraboloids: Circular section, Plane sections of conicoid, Generating lines. Confocal conicoid. Reduction of second-degree equations. |

**Semester II**

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| Paper-I | Number Theory and Trigonometry | o Divisibility, G.C.D. (greatest common divisors), L.C.M. (least common multiple) Primes, Complete residue system and reduced residue system modulo m. Euler function, Euler's generalization of Fermat's theorem. Chinese Remainder Theorem.<br>o De Moivre's Theorem and its Applications. Expansion of trigonometrical functions, Direct circular and hyperbolic functions and their properties. Inverse circular and hyperbolic functions and their properties. Logarithm of a complex quantity. |
| Paper-II | Ordinary Differential Equations | o Geometrical meaning of a differential equation. Exact differential equations, integrating factors. Orthogonal trajectories: in Cartesian coordinates and polar coordinates. Self-orthogonal family of curves.<br>o Linear differential equations of second order: Reduction to normal form. Solution of simultaneous |

| | | differential equations involving operators x (d/dx) or t (d/dt) etc. Method of auxiliary equations. |
|---|---|---|
| Paper-III | Vector Calculus | o Scalar and vector product of three vectors, product of four vectors. Divergence and curl of vector point function, cylindrical co-ordinates and Spherical coordinates. Vector integration; Line integral, Surface integral, Volume integral, Theorems of Gauss, Green & Stokes and problems based on these theorems. |

## Semester III

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| Paper-I | Advanced Calculus | o Continuity, Sequential Continuity, properties of continuous functions, Uniform continuity, chain rule of differentiability. Taylor's theorem for functions of two variables. Lagrange's method of multipliers. Surfaces: Tangent planes, one parameter family of surfaces, Envelopes. |
| Paper-II | Partial Differential Equations | o Partial differential equations: Formation, order and degree, Equations reducible to linear equations with constant co-efficients. Solution of linear hyperbolic equations, Monge's method for partial differential equations of second order. Cauchy's problem for second order partial differential equations. |
| Paper-III | Statics | o Composition and resolution of forces. Parallel forces. Moments and Couples. Analytical conditions of equilibrium of coplanar forces. Friction. Centre of Gravity. Virtual work. Forces in three dimensions. Pointsets central axis, Wrenches. |

## Semester IV

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| Paper-I | Sequences and Series | o Boundedness of the set of real numbers; least upper bound, greatest lower bound of a set, Neighborhoods. Infinite series: Convergence and divergence of Infinite Series, Infinite series: D-Alembert's ratio test, Raabe's test, Convergence and absolute convergence of infinite products. |
| Paper-II | Special Functions and Integral Transforms | o Series solution of differential equations – Power series method, Definitions of Beta and Gamma functions. Bessel equation and its solution: Bessel functions and their properties Convergence, recurrence, Relations and generating functions, Orthogonality of Bessel functions. |
| Paper-III | Programming InC & Numerical Methods | o Programmer's model of a computer, Algorithms, Flow charts, Data types, Operators and expressions, Input / outputs functions. Decisions control structure: Decision statements, Logical and conditional statements, Implementation of Loops. |

| | Semester V | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | Real Analysis | o Riemann integral, Integrability of continuous and monotonic functions, The Fundamental theorem of integral calculus. Mean value theorems of integral calculus. Improper integrals and their convergence, Comparison tests, Abel's and Dirichlet's tests, Frullani's integral. |
| Paper-II | Groups And Rings | o Definition of a group with example and simple properties of groups, Subgroups and Subgroup criteria, Rings, Subrings, Polynomial rings over commutative rings, Unique factorization domain. |
| Paper-III | Numerical Analysis | o Finite Differences operators and their relations. Finding the missing terms and effect of error in a difference tabular value, Central Differences:Gauss forward and Gauss's backward interpolationformulae, Numerical Differentiation, Eigen Value Problems: Power method, Jacobi's method, given's method, House-Holder's method, QR method, Lanczos method. |
| **Semester VI** | | |
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | Real And Complex Analysis | o Jacobians, Beta and Gama functions, Double and Triple integrals, Dirichlets integrals, change of order of integration in double integrals. Fourier's series: Fourier expansion of piecewise monotonic functions, Properties of Fourier Co-efficients, Dirichlet's conditions. |
| Paper-II | Linear Algebra | o Vector spaces, subspaces, Sum and Direct sum of subspaces, Linear span, Linearly Independent and dependent subsets of a vector space. Finitely generated vector space, Homomorphism and isomorphism of vector spaces, Linear transformations and linear forms on vactor spaces, Vector space of all the linear transformations Dual Spaces, |
| Paper-III | Dynamics | o Velocity and acceleration along radial, transverse, tangential and normal directions. Relative velocity and acceleration. Simple harmonic motion. Elastic strings. Mass, Momentum and Force. Newton's laws of motion. Work, Power and Energy. Definitions of Conservative forces and Impulsive forces. |

**Course Outcomes of Political Science**

| Semester I | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Option-I | Indian Constitution | o To introduce Indian Constitution-Sources and Features, Preamble, Fundamental Rights, Fundamental Duties and Directive Principles of State Policy.<br>o Students know about Union Executive - President, Vice-President, Prime Minister, Council of Ministers; State Executive- Governor, Chief Minister and Council of Ministers.<br>o To understand about Union Legislature- Parliament-Composition and Functions; Speaker of Lok Sabha Amendment Process; State Legislature- Vidhan Sabha; Panchayati Raj Institutions -History, Basic Features and 73rd Amendment.<br>o To study Judiciary-Supreme Court, High Courts, Judicial Review and Judicial Activism. |
| Option-II | Principles of Political Science | o Students introduce Political Science: Definition, Nature & Scope; Relation of Political Science with the Social Sciences, Traditional approaches<br>o To the study of Political Science. State: Definition, Elements, Relations with the other organization, Theories of the Origin of State.<br>o To understand Sovereignty: Monist & Pluralist; Concept of Welfare State, Liberty, Equality, Rights & Justice. Theory & Practice of Govt.: Organs of Government and their relationship, Operational<br>dynamics – Political Parties, Pressure Groups and Bureaucracy. |
| **Semester II** | | |
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Option-I | Indian Politics | o To introduce Federalism and its Working with reference to Centre-State Relations, Demand For State Autonomy; Emerging Trends in Indian Federalism.<br>o To understand Election Commission, Electoral Process and its Defects and Voting Behaviour, Electoral Reforms, Problem of Defection.<br>o To gain knowledge about the Party System in India: National and Regional Political Parties, Interest and Pressure Groups. Role of Caste, Religion, Language, Regionalism in India, Politics of Reservation, Emerging Trends and Challenges before Indian<br>Political System. |
| Option-II | Contemporary Political Science | oStudents know about Modern concerns of Political Science, Behaviorism and Post-Behaviorism. |

| | | o To intrude on Political Theory: Definition, Scope, Nature, Characteristics, and Decline & Resurgence of Political Theory.<br>o To know about Political Socialization, Political Culture, Ideology, and End of Ideology. Students will understand Post-Modernism, Feminism, Environmentalism, RTI and Consumer Welfare. |
|---|---|---|

## Semester III

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| Option-II | Indian Political Thinkers | o Students will understand the thoughts of Raja RamMohan Ray & Swami Dayanand, Dada Bhai Narojee & Gopal Krishan Gokhle.<br>o To study views of Swami Vivekanand & Aurbind Ghosh<br>o To know about the ideas of Lala Lajpat Rai & Bal Gangadhar Tilak. |

## Semester IV

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| Option-II | Indian Political Thinkers | o Introduce to views of J.P. Narayan & Ram ManoharLohia.<br>o Students will understand thought of Mahatma Gandhi & M.N, Roy Jawaharlal Nehru & B.R.Ambedkar.<br>o To know about the ideas of Subhash Chander Bose & Bhagat Singh. |

## Semester V

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| Option-I | Comparative Politics | o Introduction to Comparative Politics-Definition, Scope; Traditional & Modern Concerns; Comparative Methods.<br>o To get the knowledge Approaches to the Study of Comparative Politics: Input-Out (David Easton), Structural Function (G. Almond), Political Development (Lucian W. Pye), Political Culture (G.Almond) Introduce to Constitutionalism: History, Nature, Type and Problem in Modern Times.<br>o To know about Constitutional Structure: (a)Formal-Executive, Legislation and Judiciary, (b)Informal Structures– Political Parties and Pressure Groups. |

## Semester VI

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| Option-I | Comparative Constitutions of UK & USA | o Students know about Evolution, Conventions, Legacies and Basic features of Constitutions of UK & USA; Socioeconomic basis of Constitutions of UK & USA. |

| | | |
|---|---|---|
| | | o To understand and analyse Comparative Study of Executive, Legislation and Judiciary System of UK & USA.<br>o To get the knowledge with Comparative studies of Structures, Functions and roles of political parties and pressure groups of UK & USA.<br>o Students learn about the Electoral Processes, Voting Behaviour, Bureaucracy and Recent Trends of the working of the systems of UK & USA. |

**Course Outcomes of Economics**

| Semester I | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| EC21 | Microeconomics-I | o Understand the basic terminology of micro economics and they will be able to provide definitions for fundamental economic concepts, such as, scarcity, choice, opportunity cost, utility, demand, supply, elasticity, cost and profit.<br>o Answer the questions what, how, and for whom should goods and services be produced with limited resources.<br>o Understand the factors on which demand of a commodity depends exhibit the measures of demandelasticity relative to change in price, income and priceof substitutes.<br>o Understand the behavior of consumers in making decisions on the allocation of limited resources in order to get maximum satisfaction<br>o understands the concept of production function inshort run and long-run and develop an understanding of law of diminishing marginal product, law of variable proportion and returns to scale<br>o understands the factors on which supply of a commodity depends and the students will be able to calculate the price elasticity of supply<br>o exhibits the calculation of various production costs fixed, variable and marginal cost<br>o understands the total, average and marginal revenue and break-even analysis |
| **Semester II** | | |
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| EC22 | Microeconomics-II | o Compare and contrast the market structures, including perfect competition, monopoly, monopolistic competition and oligopoly.<br>o Exhibit how firms under perfect competition, monopoly and monopolistic |

| | | competition determine their price, output and profit maximization.<br>o Gain the knowledge of marginal productivity theory of distribution, theory of wages, identify different types of rent and grasp different theories of rent and interest. |
|---|---|---|

## Semester III

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| EC23 | Macroeconomics-I | o Understand the nature, scope and importance of macroeconomics.<br>o Demonstrate the process of measuring National Income Statistics, identify its components and analyze the various income identities.<br>o Understand the role of household sector producer sector, government sector and rest of the world in circular flow of income in an economy.<br>o Understand Say's law of market, classical theory of employment and Keynesian theory of income and employment; demonstrate the principle of Effective Demand.<br>o Understand the meaning of consumption function, relationship between APC and MPC, Keynesian Psychological Law of consumption.<br>o Understand the meaning of capital and investment; types of investment and understand the relation between MEC and MEI. |

## Semester IV

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| EC24 | Macroeconomics-II | o Understand the concept of multiplier and its relation with MPC and MPS, demonstrate the working of multiplier.<br>o Understand and Acceleration principle and the concept of Super Multiplier.<br>o Demonstrate the demand for and supply of money, high powered money, illustrate various version of quantity theory of money, Keynesian Liquidity theory of Money.<br>o Illustrate the classical theory of inflation understand the meaning of inflation, identify different types of inflation, causes and effects of inflation on different sectors of the economy.<br>o Examine different phases of trade cycle, demonstrate various trade cycle theories, understand the impact of cyclical fluctuation on the growth of business, and elaborate classical and Keynesian theories of interest. |

## Semester V

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| EC25 | Indian Economy-I | o Make a comparison between capitalistic, socialistic and mixed economy.<br>o Develop ideas of the basic characteristics of Indian economy, its potentials and different resources, make a comparison with developed economies.<br>o Understand the importance, causes and impact of population growth and its distribution, translate and relate them with economic development.<br>o Understand the current and historical scenario of poverty, causes and measures of eradication of poverty.<br>o Understand the nature and types of unemployment in India, identify various causes of unemployment in India.<br>o Analyze the role of agriculture in Indian economy, causes of low productivity, demonstrate achievements and failures of green revolution.<br>o Understand the defects and measures of agricultural marketing, identify various sources of agricultural finance.<br>o Understand the features and problems of SEZs. |

**Semester VI**

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| EC26 | Indian Economy-II | o Understand the role of industrialization, analyze the impact of liberalization, globalization and privatization on Indian economy.<br>o Understand the growth and problems of small- and large-scale industry, have knowledge about information technology and software consultancy.<br>o Understand the characteristics of industrial labour, have knowledge on the various causes of industrial dispute and initiatives taken by the govt. for their social security.<br>o Understand the economic planning undertaken by Indian government, have knowledge on the various objectives, failures and achievement as the foundation of the on-going planning.<br>o Demonstrate trends, composition and direction of exports and imports.<br>o Analyze the role of FDI, FII and MNCs in India.<br>o Understand external borrowings and BOP problem in India Establish relationship between international institutions and Indian economy. |

**Course Outcomes of Physical Education**

| Semester I | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | Physical Education | o Understand the Physical Education: Meaning, definition, scope, Misconceptions, Aim, Objectivesand its Importance in modern society.<br>o Understand Health & Hygiene: Meaning, definition, importance of Health & Hygiene in life, Factors influencing Health and Hygiene of various body parts.<br>o Understand Yoga: Meaning, Concept, Historical development, Types, importance and benefits ofYoga and Pranayama.<br>o Understand Human Anatomy and Physiology:Meaning, definition, Importance of Human Anatomy and Physiology in Physical Education andDefinition of Cell, Tissue, Organ and System, Structure and Properties of Cell. |
| **Semester II** | | |
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | Physical Education | o Understand Health Education & First Aid: Aim, Objectives, Scope, and importance of HealthEducation.<br>o Understand First Aid: Meaning, Aim, Objectives, General Principles of First Aid and First Aid for Bleeding, Burns, Electric Shock, Drowning andSnake Bite and Common injuries.<br>o Understand the Historical Prospects of Physical Education: Pre-independence and Post – independence historical development of PhysicalEducation in India, Role of IOA, SAI, NSNIS and YMCA in the development of Physical Education and Sports in India, Sports Policy of Haryana state and India.<br>o Understand Physical Fitness: Meaning, definition, importance, Components, Principles, Factors influencing of Physical Fitness. Meaning of Isometric, Isotonic and Isokinetic exercises.<br>o Understand Human Bone Anatomy and Physiology: Human Bone, Types and Function of bones in Human Body. Meaning and types of joints in Human Body.<br>o Understand kho–kho, Badminton and Cricket games with ground specifications, general rules and general skills. Name and identification of bones in Human Body |

| | | (Measurements & Basic Techniques) Types of Starts - Crouch Start and standing starts (Basic Technique) |
|---|---|---|

## Semester III

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| Paper-I | Physical Education | o Understand Safety Education and injuries: Meaning, need and importance of Safety Education, understand types, causes, Principles, General treatment for sports Injuries i.e. Abrasion, Contusion, Sprain , Strain, Fracture and Dislocation of joints.<br>o Understand Common Diseases: Meaning of Communicable and Non– communicable diseases, Modes of transmission, prevention and control of communicable diseases i.e. HIV/ AIDS, Hepatitis, Dengue, Typhoid, Malaria, Influenza, Allergy related diseases: Asthma and Sinuses.<br>o Understand Balanced Diet: Meaning, importance, Components, sources and Factors affecting balanced diet and Harmful effects of Junk Food on our body<br>o Understand Anatomy and Physiology of Circulatory System: Structure, Function of Heart, Systemic and Pulmonary Circulation and Effects of exercise on Circulatory System. |

## Semester IV

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| Paper-I | Physical Education | o Understand Warming Up and Cooling Down: Meaning, types, significance, Methods and Physiological aspects of warming up and cooling down.<br>o Understand Psychological aspects of Physical Education: Meaning Need and importance of Psychology and sports Psychology<br>o Understand meaning, laws of Learning and Learning curve<br>o Understand Major Sports Events: Ancient, Modern Olympic Games, Asian Games and Common Wealth Games.<br>o Understand Anatomy and Physiology of Respiratory system: Respiratory Organs, Physiology of respiratory System, Effect of exercise on respiratory System and Terminology of respiration: Tidal Volume, Residual Volume and Total Lung Capacity.<br>o Understand and Practical knowledge of Measurement of Body Mass Index, Games and |

| | | Athletics: Normal Range of B.M.I for (Children, Women and Men), Basketball, Football, Kabaddi Game (With ground specifications, general rules and skills) and Athletics; Discus throw and Long Jump (Specifications, general rules and general skills) |
|---|---|---|

## Semester V

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| Paper-I | Physical Education | o Understand Growth & Development: Meaning and definition, Stages, Principles and factors influencing of Growth and Development and Age and sex difference in relation to physical activities and sports.<br>o Understand Sports Organization and Administration: Meaning, Principles, importance, Intramural and Extramural activities of organization and administration in Physical Education and Sports. Tournaments and their types (League and Knock out)<br>o Understand Body Posture: Meaning, importance of good posture, causes of poor posture, Symptoms, causes of Postural Deformities i.e., Lordosis, Kyphosis, Scoliosis, Flat Feet, Knock Knee and Blow Legs, Precautions and Remedies for postural deformities.<br>o Understand Anatomy and Physiology of muscle and Blood: Types of Muscles in human body and Effects of exercise on it and Composition and functions of Human Blood. |

## Semester VI

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| Paper-I | Physical Education | o Understand Motivation and Socialization: Meaning, definition, types and importance of motivation in sports.<br>o Understand meaning of Socialization and Socialization through sports and effect of social behavior on performance of sports person.<br>o Understand Sports Training and Doping Meaning, definition, factors affecting sports training and types of sports training: Circuit training, Interval Training and Continuous Training.<br>o Understand Doping: Meaning, types and its effects on health.<br>o Understand Sports Biomechanics: Meaning, definition, Importance of sports biomechanics. |

| | | o Understand Newton's Laws of motion and their application in sports. Understand Levers: Meaning,types and their application in Sports |
| | | o Understand Anatomy and Physiology: Organs, Structure of Digestive System, Mechanism of food digestion and effects of exercise on Digestive System. |
| | | o Understand Pranayam: Bhramari, Anulom Vilom and Kapal Bhati. Volleyball/ Hockey/ Judo/ Boxing/ Wrestling/ Self-defense game tactics,Ground Specifications, General rules and General Skill. |
| | | o Understand Bandages its types and Arm Slings FirstAid: First aid for different injuries and circumstances, items of first aid box and their uses. |

### Course Outcomes of Home Science

| Semester I | | |
| --- | --- | --- |
| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
| Paper-I | Human Resource Management | o Understanding what is Home Science and job opportunities in all disciplines of Home Science. Management of Human and non- human resources. <br> o Application of different color schemes in interior decoration. <br> o Using different work simplifications techniques at home. <br> o Helps students understand their rights andresponsibility as a consumer and their <br> o Role in buying process and also helps to make well-informed decisions. <br> o Interior Decoration- Making of Rangoli, Alpana,Flower arrangement, Table setting, Pot painting and decoration, Driftwood, Menu card preparation and Floorplan. |

| Semester II | | |
| --- | --- | --- |
| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
| Paper-I | Health and Hygiene | o Realising the importance of a clean environment fora healthy life. <br> o Prevention from the spread of infectious diseases. <br> o Importance of immunity in life and the ways to improve it. <br> o Causes and prevention of common emergingproblems in women like Breast Cancer, Cervical Cancer. <br> o Understanding the use of disinfectants. <br> o Cleaning of different metals, Preparation of articlesfor interior decoration, visit to Health Center for vaccination, First aid. |

| Semester III | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course,students will be able to** |
| Paper-I | Human physiology | o Understand normal functioning of different systems of Human body like Digestive System, Respiratory System, Circulatory System, Reproductive System, Nervous System, Endocrine System, Skeleton System<br>o Cleaning of different metals, Preparation of articles for interior decoration, visit to Health Center for vaccination, First aid. |

| Semester IV | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | Clothing and Textiles | o Understanding properties and manufacturing ofdifferent fibers.<br>o Use of finishes to be done on fabrics.<br>o Use of different weaves to add variety in the fabrics.<br>o Laundry and reagents and their usage.<br>o How to remove stains from the fabric.<br>o Creating clothes with an esthetic expression. Understanding the working of sewing machine drafting and stitching of different garments. |

| Semester V | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course,students will be able to** |
| Paper-I | Food & Nutrition | o Understanding different food groups, essentialnutrients and the effect of their deficiency and excess in the body.<br>o Planning meals for different age groups keeping in mind their recommended allowances.<br>o Managing therapeutic diets to optimize the nutritional needs of the person in order to treat a variety of diseases and disorders and to improve theeating capabilities of a patient.<br>o Help in promoting healthy life as well as reducing the risk of chronic diseases.<br>o Preventing the decay and spoilage of produced freshfoods and storing it under prescribed conditions.<br>o Preparation of different nutritious recipes by usingdifferent cooking methods.<br>o Meal planning for different age groups with reference to their nutritional requirements and therapeutic nutrition. |

| Semester VI | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | Human Development | o Understand the importance of child psychology with reference to all round development of a child – |

|  |  | Personality development, language development, intelligence.<br>o Understand the characteristics and problems of different stages of a life cycle and suggest the solutions.<br>o Understand the signs & discomforts of pregnancy, care and feeding of a new born child,<br>o Understand the importance of play duringchildhood.<br>o Understand various common ailments of childhood and their remedies. |
|--|--|--|

**Course Outcomes of Music Vocal**

| Semester I | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | Music Vocal | o Students learn to differentiate sounds, tonal qualityand different pitches.<br>o They would learn the correlation of Music with Science and Physics.<br>o Writing Notations of Singing Compositions andTalas. Learning of Basic Ragas and talas. |

| Semester II | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | Music Vocal | o Practical singing perfectly all the musical notes in different pitches.<br>o Basic Knowledge of all the Ragas and Talas mentioned in the syllabus.<br>o Knowledge of the different Classical and Semi Classical forms of Music. |

| Semester III | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | Music Vocal | o Knowledge of the different Notation system of Indian and Western Notation system.<br>o Insights of Northern and Southern Musical forms and styles.<br>o Writing Notations of Singing Compositions andTalas. Learning of Ragas and talas mentioned in thesyllabus.<br>o Classification and knowledge of MusicalInstruments. |

| Semester IV | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | Music Vocal | o Practical: singing perfectly all the musical notes in different pitches. Basic Knowledge of all the Ragas and Talas mentioned in the syllabus. |

| | | o Knowledge of the different Classical and SemiClassical forms of Music.<br>o Tuning the Instruments and to develop the skills of accompaniment. |
|---|---|---|

## Semester V

| Course Code | Course Name | COs: After successfully completing this course,students will be able to |
|---|---|---|
| Paper-I | Music Vocal | o Students could get the knowledge of Musical History of India from Ancient period to the ModernEra.<br>o They get to know the origin of Gharanas and the reasons behind the evolution of different Gharanas in Indian Classical Music.<br>o Proficiency in writing Notations of Compositions and Talas. Learning of Ragas and talas mentioned in the syllabus. |

## Semester VI

| Course Code | Course Name | COs: After successfully completing this course,students will be able to |
|---|---|---|
| Paper-I | Music Vocal | o Practical: Proficiency in singing Ragas and Talas mentioned in the syllabus.<br>o Knowledge of the different Classical and SemiClassical forms of Music.<br>o Tuning the Instruments and to develop the skills of accompaniment. |

### Course Outcomes of B.A. Music Instrumental

| Semester I | | |
|---|---|---|
| Course Code | Course Name | COs: After successfully completing this course,students will be able to |
| Paper-I | Music Instrumental | o Students learn to differentiate sounds, tonal qualityand different pitches.<br>o They would learn the correlation of Music with Science and Physics.<br>o Writing Notations of Vadan Compositions andTalas. Learning of Basic Ragas and talas. |

| Semester II | | |
|---|---|---|
| Course Code | Course Name | COs: After successfully completing this course,students will be able to |
| Paper-I | Music Instrumental | o Practical: Playing perfectly all the musical notes in different pitches on the Instrument (sitar).<br>o Basic Knowledge of all the Ragas and Talasmentioned in the syllabus.<br>o Knowledge of the different Classical and SemiClassical forms of Music.<br>o Classification and knowledge of Musical Instruments. |

| | | o Students could get the knowledge of MusicalHistory of India from Ancient period to 12th Century. |
|---|---|---|

## Semester III

| Course Code | Course Name | COs: After successfully completing this course,students will be able to |
|---|---|---|
| Paper-I | Music Instrumental | o Knowledge of the Writing Notations of Vadan Compositions and Talas.<br>o Learning of Ragas and talas mentioned in the syllabus.<br>o Gain knowledge of the Different Musical Instruments.<br>o Students could get the knowledge of Musical History in Medieval Period.<br>o They get to know the origin of Gharanas and the reasons behind the evolution of different Gharanas in Indian Classical Music. |

## Semester IV

| Course Code | Course Name | COs: After successfully completing this course,students will be able to |
|---|---|---|
| Paper-I | Music Instrumental | o Practical Playing perfectly all the musical notes in different pitches on the Instrument.<br>o Basic Knowledge of all the Ragas and Talas mentioned in the syllabus.<br>o Knowledge of the different Classical and Semi Classical forms of Music.<br>o Tuning the Instruments and to develop the skills of accompaniment. |

## Semester V

| Course Code | Course Name | COs: After successfully completing this course,students will be able to |
|---|---|---|
| Paper-I | Music Instrumental | o Students could get the knowledge of Musical History of India from 17th and 19th Century.<br>o They get Knowledge the Importance of Electronic musical Instruments.<br>o Proficiency in writing Notations of Compositions and Talas. Learning of Ragas and talas mentioned in the syllabus.<br>o They get to know the origin of Gharanas and the reasons behind the evolution of different Gharanas in Indian Classical Music.<br>o Students Gain Knowledge of the Notation System of Classical Music. |

## Semester VI

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| Paper-I | Music Instrumental | o Practical Proficiency in Vadan of Ragas and Talas mentioned in the syllabus. |

| | | o Knowledge of the different Classical and Semi Classical forms of Music. |
| | | o Tuning the Instruments and to develop the skills of accompaniment. |

**Course Outcomes of B.A. Commercial Art**

| Semester I | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | Commercial Art | o Students learn about commercial art, all types of colours, tint shades and different techniques of color mixing.<br>o They would learn the all types of design theory of design, aims and objectives of commercial art Introduction to Commercial Art and its importance.<br>o Practical: learn Draw monogram, layout and still life poster perfectly all the color mixing techniques.<br>o Learn how to draw sketches. Basic Knowledge of all the colours and Tints. |

| Semester II | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | Commercial Art | o What is Commercial art and scope of commercial art, aims and objectives of commercial Art.<br>o Who is commercial artist and what the qualities of commercial artist are.<br>o Various medium in art, Material used in commercialart and its techniques.<br>o Theory of color: Primary, Secondary and Tertiary colours, tints, shades, tone.<br>o What is logo, logotype, and symbol, what is layout and element of layout, what is poster, hoarding andkiosk. |

| Semester III | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | Commercial Art | o Knowledge of the Introduction of main printingprocess such as letterpress, lithography, gravure, offset, silk screen etc.<br>o History and development of printing. Latest technologies of printing. |

| Semester IV | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | Commercial Art | o Knowledge of What is type, lettering and block making.<br>o Knowledge of copywriting, Typography – Introduction, role of typography in advertising, |

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| | | o copy formats: Headlines, sub headlines, body copyetc. <br> o Practical: learn Draw monogram, layout and still life poster perfectly all the color mixing techniquesalso learn how to draw sketches. <br> o Basic Knowledge of all the colours and Tints. Alsolearn color shading. |

| Semester V | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | Data Structures | o Students could get the knowledge of What is media,what is outdoor media. <br> o Describe the all types of outdoor media, what is transit media. What is indoor media, describe the main indoor media; radio, T.V., internet etc. Radio and T.V. Advertising. <br> o What is print media, describe the main types of print media, what is direct mail. <br> o Role of Computer in Advertising; i.e. designing and printing of advertisement. |

| Semester VI | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | Data Structures | o What is market, introduction to marketing, describethe 4Ps of marketing (Product, Price, Place and promotion). <br> o Advertising and Marketing; Advertising Role in Marketing. <br> o Future of advertising; career option in advertising. <br> o What is advertising agency, Art Director, Visualizerand Copy Writer. <br> o Practical learn Draw layout and still life posterperfectly all the color mixing techniques also learnhow to draw sketches. <br> o Basic Knowledge of all the colours and Tints. Alsolearn computer designing Poster Colour, Pencil Colour, Pastel Color and Water Colour.) |

**Course Outcomes of B.A. Psychology**

| Semester I | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | Psychology | o Understand Psychology: History, Emergence as Science, Subject Matter. Methods of Psychology: Experimental, Observation, Survey. <br> o Understand Sensory Processes: Visual, Auditory Structure and Functions of Eye and Ear. Perception: Nature, Perception of form – Figure and Ground, Perceptual Organization, Depth Perception–Cues. |

| | | |
|---|---|---|
| | | o Understand Emotion: Nature, Bodily Changes. Theories of Emotion: James-Lange, Cannon-Bard and Schachter–Singer. Motivation: Nature, Biological and Psychological Motives.<br>o Understand Personality: Nature, Determinants of Personality, Type and Trait Approach. Intelligence:Nature, Theories: Spearman, Thurstone, and Cattell.<br>o Gain Knowledge of EPQ/EPI, Retinal color zones/ Color Blindness, Sound Localization, Study of emotions, Simple reaction time, Verbal Test of Intelligence, Performance Test of Intelligence/RPM, Observation (Speed & accuracy), Experiment on form perception/Depth Perception, test of Motivation. |

**Semester II**

| Course Code | Course Name | COs: After successfully completing this course,students will be able to |
|---|---|---|
| Paper-I | Psychology | o Understand: Nature, Characteristics, and Types ofAttention. Psychophysics: Problems of Psychophysics and Methods (Classical).<br>o Understand Learning: Definition, Factors affecting, Trial and Error Learning, Insight Learning, Classical and Operant Conditioning.<br>o Understand Memory: Definition, Stages, STM and LTM – Methods to Study Memory. Forgetting: Factors Leading to Forgetting, Pneomonics.<br>o Understand Problem Solving: Stages of Problem Solving, Convergent and Divergent thinking. Statistics: Frequency Distribution, Graphical Presentation of Data, Measures of Central Tendencies.<br>o Gain practical Knowledge of Serial Position Effect, Experiment on STM, Experiment on LTM, Retroactive Inhibition, AL by method of constantstimuli, DL by method of limits, Muller-Lyre Illusion,<br>Problem Solving, Bilateral Transfer of Training/ Maze Learning, Span of Attention. |

**Semester III**

| Course Code | Course Name | COs: After successfully completing this course,students will be able to |
|---|---|---|
| Paper-I | Psychology | o Understand Nature, Subject Matter, Sociometric Method. Socialization: Nature, Process and Agentsof Socialization.<br>o Understand Group: Types and Functions; SocialNorms: Meaning, Characteristics and Formation. Leadership: Types, Function, Theories– Trait, Situational, and Interactional.<br>o Understand Attitudes: Characteristics, Development and Attitude change. Prejudice: Nature, Development and Stereotypes. |

| | | o **Understand Prosocial Behaviour: Nature, Determinants, And Cognitive Model. Aggression: Nature, Determinants and Prevention.**<br>o **Gain practical knowledge of Sociometry,Measurement of Attitude, Altruism Scale, Stereotypes, Anger Expression/Aggression Scale, Prejudice Scale, Leadership Styles, Social Facilitation, Rosenwig's P.F. Test/Norm formation,Social Conformity** |
|---|---|---|

## Semester IV

| Course Code | Course Name | COs: After successfully completing this course,students will be able to |
|---|---|---|
| Paper-I | Psychology | o Understand Human Development; Concept and Principles Factors in Human Development;<br>Biological, Social and Cultural<br>o Understand Prenatal Development, Determinants and Stages. Infancy: Characteristics, Hazards and Adjustment.<br>o Understand Childhood: Characteristics, Perceptual,Motor, Emotional, Cognitive Development. Adolescents: Characteristics and Problems of Adolescents and Adjustment.<br>o Understand Adulthood: Early Adulthood, Late adulthood and Aging-Changing Patterns and Problems. Measures of Variability: QuartileDeviation, Standard Deviation.<br>o Gain practical knowledge of Cognitive Development, Emotional Maturity Scale, Parent- Child Relationship, Self-Concept, Youth Problem Inventory, Self Esteem Inventory, Study of values, Family Environment Inventory, Impulsiveness Scale, Case Study |

## Semester V

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| Paper-I | Psychology | o Understand Concept of Normality and abnormality.Models of Psychopathology: Biological, Psychodynamic, Behavioral, and Cognitive.<br>o Understand Classification of Psychopathology: Need for Classification, DSM System.<br>o Diagnostic Assessment: Case History, Interview, Projective Techniques.<br>o Understand Anxiety Based Disorders: GAD, OCD, and Phobic Disorders-Symptom and Causes. Substance/Drug Abuse – Causes, Consequences and Rehabilitation.<br>o Understand Mood Disorders: Unipolar and Bipolar-Symptoms and Causes, Schizophrenia: Nature, Types, and Causes. |

| | | o Gain practical knowledge of Clinical Interview, CAQ, TAT, WAT, Depression Inventory, Anxiety Scale, WAIS, Emotional Intelligence, PGI Memory Scale, DMI |
|---|---|---|
| **Semester VI** | | |
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | Psychology | o Understand Applied Psychology: Meaning, History, Fields, and Careers in Psychology, Organizational Psychology: Nature, Scope, Objectives, and Development.<br>o Understand Guidance: Objectives, Principles, Types of Guidance, Organization of Guidance Programme. Counselling: Need, Principles, Special Areas, and Types of Counselling.<br>o Understand Health Psychology: Meaning, Scope and Objectives; Concept of Health and Illness. Psychological Factors in Physical Illness, Life Style and Health, Stress and Coping.<br>o Understand Forensic Psychology: Psychology and Law, Eyewitness Memory; Accuracy and Improvement. Statistics: Correlation- Meaning, Rank Difference, and Product Moment Method.<br>o Gain practical knowledge of Stress Scale, Coping Styles/Wellbeing Scale, General Health Questionnaire, Life Style Schedule, Aptitude Scale, Interest Inventory, Job Satisfaction, Counselling Need Inventory, Job Stress Scale, Healthiness Scale/Adjustment Inventory |

# DEPARTMENT OF SCIENCE

## Programme Name: Bachelor of Science (B.Sc. Non-Medical) B.Sc. Computer Science)

**Program Outcomes (POs)**

| POs | After completing this programme students will be able to: |
|---|---|
| 1 | Students become eligible to join as Quality Control Manager in private Sector (Industries) as well as government sector. |
| 2 | Students can join M.Sc. in Physics, Chemistry, and Mathematics. |
| 3 | Students become eligible to serve in DRDO, defense, public sector and private Sector. |

**Course Outcomes of Chemistry**

| Semester I | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I, II &III | Chemistry | o Discuss Atomic Structure, Periodic Table and Atomic Properties viz. Ionization Energy, Electron Affinity, Electro negativity, Quantum Numbers, Electronic Configuration of the Elements.<br>o Study the formation of Covalent Bond, Hybridization, Bond Energy, Bomd Length, Crystal Structure, Lattice Energy, Crystal Defects,Solvation Energy and Fajan's Rule.<br>o Discuss Kinetic Molecular Theory of Gases, Derivation of Vander waals Equation and its applications, Critical Temperature, pressure,volume, compressibility factor.<br>o Elaborate Structure and properties of Liquid, Classification of Solids, Crystal systems, Bragg's Law.<br>o Understand localized and de-localized Chemical bonds, Electronic Effects, Isomerism, Configuration, E and Z, R and S Nomenclature, Conformations.<br>o Draw the mechanism of Organic Reactions, study of attacking reagents, Reaction Intermediates, |

| | | method of preparation, nomenclature, physical properties of alkanes and cycloalkanes. |
|---|---|---|

## Semester II

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| Paper-I, II &III | Chemistry | o Elaborate Hydrogen Bonding, Vander Waal's forces, Metallic bond, semiconductors, Compounds of S-block Elements.<br>o Noble gases, bonding in Compounds of Noblegases.<br>o Discuss about p-block elements, structure, bonding and compounds of Boron, Carbon, Nitrogen and halogen family.<br>o Understand the rate of reaction, Order of reaction, Half life period, Arrhenious equation, Electrolytic conduction, dilution law, Kohlrausch law, Degree of dissociation, Henderson-Hazel Equation.<br>o Study preparation and properties of Alkenes, Arenes, Aromaticity, Mechanism of Aromatic Electrophilic substitution, Activating and De- activating substituents and Orientation.<br>o Discuss the methods of preparation, structure, properties of Dienes, Alkynes, Alkyl and Aryl halides, $S_N1$ and $S_N2$ mechanisms. |

## Semester III

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| Paper-I, II &III | Chemistry | o Discuss the Classification, properties, Comparison of properties of 3d, 4d and 5d elements, Latimer and Forst diagrammes, Structure and properties of Transition element compounds.<br>o Study nomenclature, Isomerism and bonding in Coordination compounds, Types of Solvents, Physical properties with special reference to liq. $NH_3$ and $SO_2$.<br>o Study the types of system, Thermo-dynamicprocess, Heat capacity, Work, Joule- ThomsonEffect.<br>o Elaborate the methods of preparation, properties of Alcohols, phenols, Epoxides, Fries, Claisen Re-arrangement, Riemer Tiemann, Kolbe's, Schotten and Baumann Reactions.<br>o Discuss Absorption laws, Chromophore, Auxochromes and Schifts, Calculation of wave number using Woodward Fieser rules, Applicationof UV-spectroscopy. |
| | | oElaborate method of preparation, structure, bonding and properties of carboxylic acid and its derivatives, relative stability of derivatives, Esterification and hydrolysis.. |

| Semester IV | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I, II &III | Chemistry | o Discuss about the Electronic configuration, properties of Lanthanides, actinides, Lanthanide Contraction, Separation of Np, Pu, Am froUranium, Trans-uranic Elements.<br>o Elaborate the basic and acidic radicals, their identification, Interference by acidic radicals, solubility product, common ion effects.<br>o Discuss the Equilibrium, Law of Chemical equilibrium, Claussius-Calpeyron Equation, Nerst distribution law, degree of hydrolysis, process of Extraction.<br>o Study the Laws of Thermodynamics, Entropy and Enthalpy Change, Spontaneity of Reaction, Gibbs Free Energy, Collision Theory and Transition state Theory, Electrolytic and galvanic cell, S.H.E. and Nernst Equation<br>o Discuss about IR spectroscopy in structure determination, Hook's law, Application of IR, separation of primary, secondary and tertiary amines, Preparation, reaction with Nitrous acid<br>o Discuss the diazonnium salts and synthetic applications, synthesis of aldehydes and ketones, special reagents, condensation reactions, oxidation and reduction reactions. |

| Semester V | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able** |
| Paper-I, II &III | Chemistry | o To discuss the Crystal field theory and metal ligand bonding, Splitting octahedral, tetrahedral and square planar complexes, thermodynamic stability of metal complexes, trans effect.<br>o To discuss the magnetic materials, magnetic susceptibility, method of determining magnetic susceptibility, spin only formula, orbitalcontribution to magnetic moments, application of magnetic moment data, Selection rules for d-dtransition, orgel energy level diagram.<br>o To discuss the Black-body radiation, Plank's radiation law, photoelectric effect, Hamiltonian |

| | | operator, Hermitian operator, Optical activity, magnetic susceptibility and types of magnetism. |
| | | o To elaborate the basic features of Spectroscopy, Degrees of freedom. Rotational, Vibrational and Raman Spectrum. |
| | | o To discuss the NMR spectroscopy and its application in structure determination of Organic compounds. |
| | | o To study the Structure, properties, Inter conversion of Carbohydrates, Formation and chemical reactions of Oregano magnesium, Organozinc and Organolithium compounds. |

| Semester VI | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course,students will be able to** |
| Paper-I, II &III | Chemistry | o To study the concepts of Acids and bases, HSAB principle and its applications, Structure and bonding in organometallic compounds.<br>o To discuss the metal ions present in biological system, Cooperative effect, Bohr effect, Nomenclature, classification, preparation and uses of silicones, and phosphazenes.<br>o To discuss the statistical thermodynamics,thermodynamic probability, partition function andphysical significance, Laws of photochemistry, fluorescence, phosphorescence and quantum yield.<br>o To discuss the Ideal and non-ideal solutions, Colligative properties, Applications in calculating molar masses of normal, dissociated and associated solutes in solution. Phase Rule, phase equilibria of one and two component systems.<br>o To study the Organic synthesis using Enolates, Structure and method of preparation and reactionsof Heterocyclic compounds.<br>o To study the structure, nomenclature, synthesis ofamino acids and proteins, synthetic polymers and their use. |

**Course Outcomes of Physics**

| Semester I | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| | | oStudents will be able to define, present and demonstrate basic mechanical concepts and their |

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|---|---|---|
| Paper-I | Classical Mechanics &Theory of Relativity | applications used in daily life.<br>o Students can understand the motion of a body, Equations of motions, trajectory of an objects in constant field such as electrical, magnetic field.<br>o With the help of this knowledge students can understand process involved in cathode ray Oscilloscope.<br>o With the help of this knowledge students will understand how to launch rockets and satellites. Motion of planets and satellites and dynamic molecular collisions. How the mechanical concepts used in sports and military.<br>o Students will learn Lagrangian and Hamiltonian formulations. Canonical transformation, Passion's Bracket concept.<br>o Using the technique of Lagrangian and Hamiltonian formulation students will explain motions of different bodies in simple form such as kinetic and potential energy.<br>o Students can learn Newton's laws such as projectile motion and rocket motion. Also Kepler'slaws related to motion. Scattering of particles.<br>o Mathematical and thinking skills will develop among students by solving problems. |
| Paper-II | Electricity Magnetism andEMT | o Understand the basic mathematical concepts relatedto electromagnetic vector fields.<br>o Understanding of basic principles and concepts of electromagnetism and magnetostatics<br>o Learning Maxwell's equations and boundary value problems. Applications of these equations for solving problems.<br>o Understanding the basics of electromagnetic waves, wave equations in free space and pointing theorem. |

## Semester II

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| Paper-I | Properties of Matter & KineticTheory | o By studying defects in solid, students can identify the defects existing in a given solid.<br>o Students will learn different polymers and the importance of polymerization in making superior quality polymer.<br>o Students will understand which type of ceramicmaterial can be used for a particular application.<br>o Smart materials are newly discovered materials which are useful to human being in day-to-day life.Students will study such advanced materials. |
| Paper-II | Electronics | o Special Purpose diodes like LED, photodiode, Varactor, Optocoupler<br>o Amplifiers, Class A, Class B and Class C , Push Pull |

| | | emitter follower and differential amplifier |
|---|---|---|
| | | o CO3: Junction Field Effect Transistor and MOSField Effect Transistor, Working and applications |
| | | o CO4: Operational Amplifiers its parameters, characteristics and applications |
| | | o CO5: 555 timer, Astable, Monostable and Bistable Multivibrator |
| | | o CO6: Regulated power supply using IC 723 |
| | | o CO7: Combinational Circuits like Adder, Subtractorand Multiplexer, Binary to Gray code oconversion |
| | | o CO8: Sequential Logic Circuits, Flip- Flop, Counters and Shift Register |

| Semester III | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | Computational & Thermodynamics Physics | o Learn the Basic Programming Concept. <br> o Improve the logical as well as Computational ability. <br> o Memory allocation and utilization technique learning. <br> o Applicability of computer resources in physics. <br> o Learn Graphical technique using some Graphical Commands in C programming. <br> o To understand various thermodynamic processes like isothermal, isobaric, isochoric processes and laws of thermodynamics. <br> o To understand the concept of entropy. <br> o To understand Carnot's cycle, Heat engines and Refrigerators. <br> o To understand Principle of thermometry and various types of thermometers like Liquid filled thermometers, Gas filled thermometers, Bimetallic thermometers, Platinum resistance thermometer |
| Paper-II | Optics | o Image formation related to geometrical optics, Deviation, Magnification, Concept for Equivalent lens and Cardinal Points <br> o Different types of monochromatic and chromatic aberrations and Achromatism in lenses <br> o Construction and working of Simple Microscope, Compound Microscope, Ramsden's Eyepiece and Huygen's Eyepiece <br> o Interference and diffraction of light, Formation of fringes, Resolution <br> o Concept of Polarization, Double refraction, Construction and working of Nicol Prism |

| Semester IV | | |
| --- | --- | --- |
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | Statistical Physics | o To study the transport phenomenon such asviscosity, thermal conductivity, diffusion.<br>o To learn about thermodynamic functions, variablesand their relations.<br>o To acquire the skill of solving problems based of particle distribution.<br>o To study about types of ensembles viz. Microcanonical, canonical and grand canonical.<br>o To get the knowledge about Maxwell Boltzmann statistics, Bose Einstein statistics and Fermi Dirac Statistics |
| Paper-II | Waves and Optics | o Image formation related to geometrical optics, Deviation, Magnification, Concept for Equivalent lens and Cardinal Points<br>o Different types of monochromatic and chromatic aberrations and Achromatism in lenses<br>o Construction and working of Simple Microscope, Compound Microscope, Ramsden's Eyepiece and Huygen's Eyepiece<br>o Interference and diffraction of light, Formation of fringes, Resolution<br>o Concept of Polarization, Double refraction, Construction and working of Nicol Prism |

| Semester V | | |
| --- | --- | --- |
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able** |
| Paper-I | Quantum Mechanics | o Introduction to Quantum Mechanics, Historical background, Matter Waves, Wave particle duality, Phase and Group Velocity, Heisenberg's Uncertainty Principle<br>o Physical Interpretation of Wave function, Schrödinger's Wave Equation, Eigen Function band Eigen values<br>o Free Particle, One Dimensional and Three-Dimensional Rigid Box, Potential Barrier<br>o Spherically symmetric potential, Examples of Rigid Rotor and hydrogen atom<br>o Hermition and other operators in Quantum Mechanics, Commutator brackets and concept of parity |
| Paper-II | Nuclear Physics | oStudying Basic properties of nucleus, student got the idea of inner information of the nucleus. |

| | | o From radioactivity chapter student knew that which radiations emit from radioactive material and how they are useful and harmful for the human.<br>o From nuclear force student understood that apart from alpha, beta, gamma particle how many other particles are inside the nucleus.<br>o Studying molecular spectroscopy students understand the importance rotational and vibrational energy levels.<br>o Student learnt by using accelerators we can produce high energy particle which can be used for research purpose<br>o Use of nuclear reactors to produce huge amount of heat energy. |
|---|---|---|

| Semester VI | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | Solid State Physics | o Students will able to study difference between crystalline and amorphous material, crystal structures, miller indices, interplanar distances, interatomic forces and bonds.<br>o From this study students get to learn the basics of solid-state physics.<br>o Students will understand Bragg's diffraction, Bragg's law. X-ray diffraction and characterization techniques. With the help of this knowledge students know the principles of structures determination by X-ray diffraction method. This would be helpful in performing experiments in nanotechnology.<br>o Students can understand electrical and thermal conductivity of free electron in metals, Energy levels of free electrons in one and three dimensions.<br>o They will learn significance of Pauli's exclusion principle, Bloch theorem, Fermi energy, and Hall effect and energy bands in materials.<br>o Students can Describe and explain the behavior of permanent magnet including induced magnetism, behavior of paramagnetic, diamagnetic, ferromagnetic materials in terms of magnetic domain.<br>o Students can understand superconducting materials, their properties and technological applications of superconductivity. |

| Paper-II | Atomic and Molecular Physics | o There are many atomic models to explain atomic structure. But none of the model explained atomic structure fully. A new model could explain all parameters of atomic structure called vector atom model. Studying this model students can drawvector diagrams easily.<br>o Students learn how to find out interaction energy from different coupling schemes.<br>o Students scientifically understand, how the x-rays produced. Also, they will understand what precaution should be taken during handling of x- rays.<br>o By studying molecular spectroscopy students understand the importance rotational and vibrational energy levels. |
| --- | --- | --- |

# Programme Name: Bachelor of Science (B.Sc. Computer Science)

**Program Outcomes (POs) Computer Science**

| POs | After completing this programme students will be able to: |
| --- | --- |
| PO 1 | Develop problem solving abilities using a computer |
| PO 2 | Prepare necessary knowledge base for research and development in Computer Science. |
| PO 3 | Build the necessary skill set and analytical abilities for developing computer-based solutions for real life problems. |
| PO 4 | Developed their critical reasoning, logic judgment and communication skills. |
| PO 5 | Augment the recent developments in the field of IT and relevant fields of |
| PO 6 | Get overall professional skills related to Software Industry |

| Semester I | | |
| --- | --- | --- |
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | Computer & Programming Fundamentals | o Understand the concept of input and output devicesof computer<br>o Explain functional units and classify types of computers, how they process information.<br>o Understand an operating system and its working and solve common problems related to operating system<br>o Possess the knowledge of basic hardware peripherals.<br>o Develops basic understanding of computers, the concept of algorithm and algorithmic thinking. |

| Paper-II | PC Software | o Understand basics of Windows, its history and basic components of windows, <br> o Do documentation using word, creating, formatting & editing documents. <br> o Use advance features of MS-Word such as mail merge, macros, tables, file management, printing, styles, linking and embedding object. <br> o Understand electronic spread sheet using Excel and apply formulas and mathematical functions. <br> o Create, manipulate presentations using power point tools such as organizational charts, excel charts,word art, layering art objects, and animations. |
|---|---|---|

## Semester II

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| Paper-I | Programming in'C' | o Explain about the basic concepts of programdevelopment statements and its syntax. <br> o Understand algorithms and flowchart for solvingproblems using computers. <br> o Understand and can choose the loops and decision-making statements to solve the problem. <br> o Explain the various types of arrays and its structure. <br> o Discuss about the various types of Functions andString handling mechanisms. <br> o Explain the Concepts of structures and Unions. <br> o Illustrates the various operations performed on different types of files. |
| Paper-II | Logical Organization ofComputers | o Understand the working of different Sequential logiccircuits. <br> o Understand working operations of different types ofFlip flops as a basic building block. <br> o Know the operations of shift registers and Binary Counters. <br> o Understand the basic Computer System and general organization of different blocks. <br> o Understand the organization of memory in the Computer system and know different types of Memories. |

## Semester III

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| Paper-I | Data Structures | o Understand different methods of organizing largeamount of data using data structure. <br> o Implement abstract data types using arrays andlinked list. <br> o Apply the different linear data structures like stackand queue to various computing problems. <br> o Implement different types of trees and apply themto problem solutions. |

| | | |
|---|---|---|
| | | o Discuss graph structure and understand various operations on graphs and their applicability.<br>o Analyze the various sorting and searching algorithms. |
| Paper-II | Software Engineering | o Explain to design a system, component, or processto meet desired needs within realistic constraints such as economic, environmental, social, political, manufacturability, sustainability, ethical, health and safety.<br>o Describe the techniques, skills, and modernengineering tools necessary for engineering practice.<br>o Explain the early careers will be capable of team and organizational leadership in computing project settings, and have a broad understanding ofethical application of computing-based solutions to societal and organizational problems.<br>o Discuss about analyse, design and manage the development of a computing based system,component or process to meet desired needs within realistic constraints in one or more application domains. |

| Semester IV | | |
|---|---|---|
| **Course Code** | **Course Name** | **COs: After successfully completing this course, students will be able to** |
| Paper-I | Object Oriented Programming with C++ | o Understand OOPs Concept, C++ languagefeatures. Able to Understanding and Applying various Datatypes, Operators, Conversions in program design.<br>o Understand and apply the concepts of Classes & Objects, friend function, constructors &destructors in program design.<br>o Design & implement various forms of inheritance,String class, calling base class constructors.<br>o Apply & Analyze operator overloading, runtime polymorphism, Generic Programming.<br>o Analyze and explore various Stream classes, I/O operations and exception handling. |
| Paper-II | Operating System | o Describe the basic components of an operating system and their role in implementations for general purpose, real-time and embedded applications.<br>o Define the concepts of processes, threads, asynchronous signals and competitive system resource allocation.<br>o Explain what multi-tasking is and outline standard scheduling algorithms for multi-tasking. |
| | | o Discuss mutual exclusion principles and their use in concurrent programming including semaphore construction and resource allocation.<br>o Expose the details of major operating system concepts, of memory management, page allocation algorithms, disk management and the implementation of file systems. |

## Semester V

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| Paper-I | Fundamental of Database Management System | o Understand the fundamental concepts of database.<br>o Understand user requirements and frame it in data model.<br>o Understand creations, manipulation and queryingof data in databases.<br>o Solve real world problems using appropriate set, function, and relational models.<br>o Design E-R Model for given requirements and convert the same into database tables.<br>o Use SQL commands. |
| Paper-II | Web Designing | o Understand the fundamentals of Internet, and the principles of web design.<br>o Understand the principles of creating an effective web page<br>o Explain the fundamental tags used in HTML.<br>o Develop the web page in various applications.<br>o Develop the web page using various ordered and unordered listing commands and tables.<br>o Develop the web page using frame concepts with multi-media handling. |

## Semester VI

| Course Code | Course Name | COs: After successfully completing this course, students will be able to |
|---|---|---|
| Paper-I | Relational Database Management System | o Design E-R Model for given requirements and convert the same into database tables.<br>o To apply knowledge of Programming in SQL & PL/SQL including stored function and trigger.<br>o Students will get to know how to apply DML/DDL commands on database.<br>o Explain transaction Management in relationaldatabase System.<br>o Use advanced database Programming concepts. |
| Paper-II | Computer Networks | o Explain the local, metropolitan and wide area networks using the Standard OSI Reference Model.<br>o Discussion of various networking technologies. |
|  |  | o Explain the concepts of protocols, network interfaces and design of performance issues inlocal area networks and wide area networks.<br>o Describe about wireless networking concepts, contemporary issues in networking technologies, network tools and network programming.<br>o Explain the analysis of different types of protocol and the comparison of number of data link, network and transport layer protocols. |