

***DEPARTMENT  
OF  
COMPUTER SCIENCE  
(Lesson Plan)***

***SESSION***  
***(2021-22)***

**LESSON PLANS**  
**SESSION (2021-22)**  
**CLASS- BCA I (1<sup>st</sup> Sem.)**

**Subject-Computer & Programming Fundamental (BCA-111)**

Week	Odd Sem	Topics
1	Oct 25-30, 2021	Computer fundamentals: Definition, Block Diagram of computer with its components, characteristics and classification of Computer
2	Nov. 8-13, 2021	Concept Of Primary Memory & Secondary Memory, Ram
3	Nov. 15-20, 2021	Rom, Types Of Ram, flash Memory, Secondary Storage Devices: magnetic tape, Magnetic Disk, CD, DVD
4	Nov. 22-27, 2021	Computer Hardware & software: I/O Devices, Relation Between Hardware & Software
5	Nov. 29-Dec. 4, 2021	Types of Software, Operating system and its functions
6	Dec. 6-11, 2021	Concept of Multiprogramming, Multitasking, Multithreading, Multiprocessing, Time sharing,
7	Dec. 13-18, 2021	Real Operating System, single User & Multiuser Operating System
8	Dec. 20-24, 2021	Concept Of Problem Solving, Problem definition, Program Design, Debugging, Types of error in Programming
9	Dec 27, 2021 - Jan 1, 2022	Documentation, Techniques Of Problem Solving, FlowChart, Algorithms, Pseudo Codes
10	Jan 3-8, 2022	Decision table, Structured Programming Concepts, programming Methodologies: Top-down and Bottom-up approach
11	Jan. 10-15, 2022	Searching And Sorting Techniques
12	Jan. 17-22, 2022	Designs of algorithms For Searching, sorting and Merging
13	Jan. 24-29, 2022	Computer Languages
14	Jan 31, Feb 1-5, 2022	Revision Test on Algorithms
15	Feb. 7-12, 2022	Language translators, Characteristics of a Good Programming Language
16	Feb. 14-19, 2022	Computer Virus, Worms, Trojan
17	Feb. 21-22, 2022	Sessional Test

**CLASS- BCA I (1<sup>st</sup> Sem.)**

**Subject-Windows and PC Software (BCA-112)**

Week	Odd Sem	Topics
1	Oct 25-30, 2021	Introduction to Windows and its Features, Hardware Requirements of Windows. Windows Concepts
2	Nov. 8-13, 2021	Windows Structure, Desktop, Taskbar, Start Menu, My Pictures, My Music, My Documents, Recycle Bin
3	Nov. 15-20, 2021	Managing Files, Folders and Disk, My Computer, Windows Explorer and its Facilities, . Test
4	Nov. 22-27, 2021	Using CD, DVD, Pen Drive, Burning CD. Windows Accessories. Media Players, Sound Recorder, Volume Control.
5	Nov. 29-Dec. 4, 2021	Managing Hardware & Software - Installation of Hardware & Software, Using Scanner, .
6	Dec. 6-11, 2021	Web Camera, Printers, Backup, Character Map, Clipboard Viewer, Disk Defragmenter, Drive Space, Scandisk
7	Dec. 13-18, 2021	System Information, System Monitor, Disk Cleanup, Using Windows Update
8	Dec. 20-24, 2021	Browsing the Web with Internet Explorer, Multiple User Features of Windows, Creating and Deleting User.
9	Dec 27, 2021 - Jan 1, 2022	Changing User Password, Sharing Folders and Drives, Browsing the Entire Network, Using Shared Printers. Control Panel & its components
10	Jan 3-8, 2022	Introduction and area of use, Working with Excel, Toolbars, Menus and Keyboard, Test
11	Jan. 10-15, 2022	Shortcuts, concepts of Workbook & Worksheets, Using Wizards, Various Data Types, Using different features with Data,

12	Jan. 17-22, 2022	Cell and Texts, Inserting, Removing & Resizing of Columns & Rows, Working with Data & Ranges, Different Views of Worksheets, Test
13	Jan. 24-29, 2022	Column Freezing, Labels, Hiding, Splitting etc., Using different features with Data and Text, Cell Formatting including Borders & Shading
14	Jan 31, Feb1-5, 2022	Multiple Worksheets: Concept, Creating and Using Multiple Worksheets; Use of Formulas, Calculations & Functions
15	Feb. 7-12, 2022	Cell Referencing, Absolute and Relative Addressing, Various types of Functions, Working with Different Chart Types, Chart Wizard
16	Feb. 14-19, 2022	Printing of Workbook, Creation, Sorting, Query and Filtering a Database; Creating and Using Macros; Pivot table & Pivot chart, Test
17	Feb. 21-22, 2022	Revision

**CLASS- BCA I (1<sup>st</sup> Sem.)**  
**Subject- Logical Organization of computer-I (BCA-114)**

Week	Odd Sem	Topics
1	Oct 25-30, 2021	Number Systems, Binary Arithmetic, Representation of numbers
2	Nov. 8-13, 2021	BCD Codes, Error detecting and correcting codes
3	Nov. 15-20, 2021	Character Representation – ASCII, EBCDIC
4	Nov. 22-27, 2021	: Boolean Algebra, Boolean Theorems, Boolean Functions
5	Nov. 29-Dec. 4, 2021	Truth Tables, Test
6	Dec. 6-11, 2021	Canonical forms of Boolean functions, Test
7	Dec. 13-18, 2021	Standard forms of Boolean functions
8	Dec. 20-24, 2021	Simplification of Boolean Functions
9	Dec 27, 2021 - Jan 1, 2022	Venn Diagram, Karnaugh Maps
10	Jan 3-8, 2022	AND, OR, NOT, Universal Gates – NAND, NOR
11	Jan. 10-15, 2022	XOR, XNOR, Implementations of digital circuits
12	Jan. 17-22, 2022	Combinational Logic – Characteristics, Design Procedures, analysis procedures
13	Jan. 24-29, 2022	Combinational Circuits: Half-Adder, Full-Adder, Half-Subtractor
14	Jan 31, Feb1-5, 2022	Full-Subtractor, Encoders, Test
15	Feb. 7-12, 2022	Decoders, Multiplexers, Demultiplexers
16	Feb. 14-19, 2022	Comparators, Code Converters.
17	Feb. 21-22, 2022	Sessional Test

## CLASS- BCA I (1<sup>st</sup> Sem.)

### Subject- Programming in C (BCA-116)

Week	Odd Sem	Topics
1	Oct 25-30, 2021	Overview of C: History of C, Importance of C, Structure of a C Program
2	Nov. 8-13 , 2021	C character set , identifiers and keywords, Data types
3	Nov.15-20 , 2021	Constants and Variables , Assignment statement, Symbolic constant, scanf(), printf()
4	Nov. 22-27, 2021	putch(), putchar(), puts() ), getch(), getche(), getchar(), gets() )
5	Nov. 29-Dec. 4,2021	Arithmetic, relational, logical, bitwise, unary, assignment,conditional operators and special operators.
6	Dec.6-11, 2021	Arithmetic expressions, evaluation of arithmeticexpression
7	Dec.13-18 , 2021	Type casting and conversion, operator hierarchy & associativity
8	Dec.20- 24, 2021	Decision making with IF statement, IF-ELSE statement, Nested IF statement
9	Dec 27, 2021 - Jan 1,2022	ELSE-IF ladder, switch statement, goto statement
10	Jan 3-8, 2022	Decision making & looping: For, while, and do-while loop
11	Jan.10-15, 2022	jumps in loops, break, continue statement
12	Jan. 17-22, 2022	Functions: Definition, prototype, passing parameters
13	Jan. 24-29, 2022	Recursion, Storage classes in C
14	Jan 31, Feb1-5, 2022	Arrays: Definition, types, initialization, processing an array,
15	Feb. 7-12,2022	passing arrays to functions, Strings.
16	Feb. 14-19, 2022	Arrays
17	Feb. 21-22, 2022	Revison

## CLASS- BCA I (2<sup>nd</sup> Sem.)

### Subject- Advance Programming in C (BCA-121)

Week	Even Sem	Topics
1	April 1-2, 2022	Strings in 'C': Introduction, Declaration and initialization of string, String I/O, Array of strings
2	April 4-9, 2022	String manipulation functions, Introduction, Features of structures, Declaration and initialization of structures
3	April 11-16,2022	Structure within structure, Array of structures, Structure and functions. Union: Introduction, Union of structures. Typedef, Enumerations
4	April 18-23, 2022	Pointers: Introduction, Pointer variables, Pointer operators, Pointer assignment
5	April 25-30, 2022	Pointer conversions, Pointer arithmetic, Pointer comparison
6	May 2-7,2022	Pointers and arrays, Pointers and functions, Pointers and strings
7	May 9-14, 2022	Pointer to pointer, dynamic allocation using pointers.
8	May 16-21,2022	Preprocessor: Introduction, #define, macros, macro versus functions
9	May23-28, 2022	#include, Conditional compilation directives, undefining a macro
10	May 30-31- June 1-4,2022	Command line arguments: defining and using command line arguments.
11	June 6-11, 2022	Files: Introduction, File types
12	June 13-16, 2022	File operations, File I/O,Structure Read and write in a file
13	June 13-18,2022	Errors in file handling, Random-access I/O in files
14	June 20-25, 2022	Revision

15	June 27-30, July 1-2, 2022	Revision
16	July 4- 9, 2022	Sessional

**CLASS- BCA I (2<sup>nd</sup> Sem.)**  
**Subject- Logical Organization of computer-II (BCA-122)**

Week	Even Sem	Topics
1	April 1-2, 2022	Sequential Logic: Characteristics, Flip-Flops
2	April 4-9, 2022	Clocked RS, D type, JK, T type
3	April 11-16, 2022	Master- Slave flip-flops. State table, state diagram
4	April 18-23, 2022	Flip-flop excitation tables, Test
5	April 25-30, 2022	Sequential Circuits: Designing registers – Serial Input Serial Output (SISO)
6	May 2-7, 2022	Serial Input Parallel Output (SIPO), Parallel Input Serial Output (PISO)
7	May 9-14, 2022	Parallel Input Parallel Output (PIPO) and shift registers
8	May 16-21, 2022	Designing counters – Asynchronous and Synchronous Binary Counters
9	May 23-28, 2022	Modulo-N Counters and Up-Down Counters, Test
10	May 30-31- June 1-4, 2022	Memory & I/O Devices: Memory Parameters, Semiconductor RAM, ROM
11	June 6-11, 2022	Magnetic and Optical Storage devices, Flash memory
12	June 13-16, 2022	I/O Devices and their controllers, Instruction Design & I/O Organization: Machine instruction
13	June 13-18, 2022	Instruction set selection, Instruction cycle, Instruction Format
14	June 20-25, 2022	Addressing Modes, I/O Interface, Interrupt structure
15	June 27-30, July 1-2, 2022	Program-controlled, Interrupt-controlled & DMA transfer, I/O Channels, IOP
16	July 4- 9, 2022	Sessional Test

**CLASS- BCA I (2<sup>nd</sup> Sem.)**  
**Subject- Office automation Tools (BCA-124)**

Week	Even Sem	Topics
1	April 1-2, 2022	Desktop Publishing: Concept, Need and Applications; Hardware and Software requirements for DTP,
2	April 4-9, 2022	An Overview and comparison between DTP packages, Common features of DTP. Introduction to Page Maker: Features
3	April 11-16, 2022	System Requirements, Components of Page Maker Window, Introduction to Menu and Toolbars, PageMaker Preferences
4	April 18-23, 2022	Creating of Publications: Starting PageMaker, Setting Page size, Placing the text Formatting the text: Character Specification
5	April 25-30, 2022	Paragraph setting: Paragraph Specification, Paragraph Rules, Spacing, Indents/Tabs, Define Styles, Hyphenation, Header & Footer, Test
6	May 2-7, 2022	Page Numbering, Saving and Closing publication. Editing Publication: Open a publication, Story editor
7	May 9-14, 2022	Find and change the text, Change character Paragraph attributes, spell checking, Selecting text, Cut, Copy, Paste, Paste multiple
8	May 16-21, 2022	Working with columns, Word Processing: Introduction to Office Automation, Test
9	May 23-28, 2022	Creating & Editing Document, Formatting Document, Auto-text, Autocorrect, Spelling and Grammar Tool,
10	May 30-31- June 1-4, 2022	Document Dictionary, Page Formatting, Bookmark, Advance Features of Word-Mail Merge, Macros
11	June 6-11, 2022	Tables, File Management, Printing, Styles, linking and embedding object

12	June 13-16, 2022	Presentation using PowerPoint: Presentations, Creating, Manipulating & Enhancing Slides
13	June 13-18,2022	Organizational Charts, Excel Charts, Word Art, Layering art Objects, Animations and Sounds
14	June 20-25, 2022	Inserting Animated Pictures or Accessing through Object
15	June 27-30, July1-2,2022	Inserting Recorded Sound Effect or In-Built Sound Effect.
16	July 4- 9,2022	Sessional Test

**CLASS- BCA I (2<sup>nd</sup> Sem.)**  
**Subject- Structured System Analysis & Design (BCA-125)**

Week	Even Sem	Topics
1	April 1-2, 2022	System Concept: Definition, Characteristics, Elements of system, Physical and abstract System
2	April 4-9, 2022	open and closed system,man-made information systems,System Development Life Cycle: Various phases of system development
3	April 11-16,2022	Considerations for system planning and control for system success,Role of system analyst
4	April 18-23, 2022	System Planning: Bases for planning in system analysis: Dimensions of Planning
5	April 25-30, 2022	Initial Investigation: Determining user's requirements and analysis, fact finding process and techniques
6	May 2-7,2022	Tools of structured Analysis: Data Flow diagram, data dictionary, IPO and HIPO charts
7	May 9-14, 2022	Gantt charts, pseudo codes, Flow charts, decision tree, decision table
8	May 16-21,2022	Feasibility study: Technical, Operational & Economic Feasibilities.
9	May23-28, 2022	Cost/Benefit Analysis: Data analysis cost and benefit analysis of a system.
10	May 30-31- June 1-4,2022	Input/ Output and Form Design, File Organization and database design: Introduction to files and database
11	June 6-11, 2022	File structures and organization, objectives of database design, logical and physical view of data
12	June 13-16, 2022	System testing: Introduction, objectives of testing, test planning, testing techniques,Quality assurance: Goal of quality assurance
13	June 13-18,2022	levels of quality assurance system,Implementation and software maintenance
14	June 20-25, 2022	primary activities in maintenance,reducing maintenance cost
15	June 27-30, July1-2,2022	Revision test
16	July 4- 9,2022	Sessional Test

**CLASS- BCA II (3<sup>rd</sup> Sem.)**  
**Subject- Object Oriented Programming Using 'C++' (BCA-231)**

Week	Odd Sem	Topics
1	Oct 25-30, 2021	Object-Oriented programming features and benefits.
2	Nov. 8-13 , 2021	Object-Oriented features of C++, Class and Objects, Data Hiding & Encapsulation
3	Nov.15-20 , 2021	Data members and Member functions, Scope resolution operator and its significance
4	Nov. 22-27, 2021	Structures,Static Data Members,Static member functions
5	Nov. 29-Dec. 4,2021	Nested and Local Class, Accessing Members of Class and Structure
6	Dec.6-11, 2021	Constructor, Initialization using constructor, types of constructor– Default, Parameterized constructor
7	Dec.13-18 , 2021	Copy Constructors, Constructor overloading, Default Values to Parameters, Destructors      Assignment-I
8	Dec.20- 24, 2021	Console I/O: Hierarchy of Console Stream Classes, Unformatted I/O Operations
9	Dec 27, 2021 - Jan 1,2022	Formatted I/O Operations
10	Jan 3-8, 2022	Manipulators, Friend Function, Friend Class,

11	Jan.10-15, 2022	Arrays, Array of Objects, Passing and Returning Objects to Functions
12	Jan. 17-22, 2022	String Handling in C++
13	Jan. 24-29, 2022	Dynamic Memory Management: Pointers, new and delete Operator
14	Jan 31, Feb1-5, 2022	this Pointer, Passing Parameters to Functions by Reference & pointers.
15	Feb. 7-12,2022	Polymorphism: Operators in C++, Precedence and Associativity Rules
16	Feb. 14-19, 2022	Operator Overloading, Unary & Binary Operators Overloading, Function Overloading, Inline Functions
17	Feb. 21-22, 2022	Revision, Test

**CLASS- BCA II (3<sup>rd</sup> Sem.)**  
**Subject- Data Structures (BCA-232)**

Week	Odd Sem	Topics
1	Oct 25-30, 2021	Elementary Data Organization, Data Structure Definition, Data type vs Data Structure, Categories of data structure
2	Nov. 8-13 , 2021	Data Structure Operations, Algorithms, Complexity and time-space tradeoff, Big O notation
3	Nov.15-20 , 2021	Arrays, Types of arrays, one dimensional arrays, sequential allocation , address calculation of elements of 1-D array, Operations on 1-D array : Traversing, insertion
4	Nov. 22-27, 2021	Deletion in an array, Searching and sorting, Two dimensional arrays, sequential allocation in memory, address computation.
5	Nov. 29-Dec. 4,2021	Three dimensional arrays, general multi dimensional arrays, sparse arrays, pointers and records
6	Dec.6-11, 2021	Introduction to linked lists, representation of linked lists in memory, traversing a linked list, searching an element in a linked list
7	Dec.13-18 , 2021	free storage lists, garbage collection, insertion, Deletion from a linked list
8	Dec.20- 24, 2021	Implementation of a linked list, Header linked list, Circular Linked lists,Two way linked lists
9	Dec 27, 2021 - Jan 1,2022	Introduction to stacks, array and linked representation of stacks, operations on stacks and their algorithms.
10	Jan 3-8, 2022	Applications of stacks: Polish notation for arithmetic expressions, recursion, Introduction to queues
11	Jan.10-15, 2022	Implementation of queues as array and linked lists, Operations on queue, Deques, Priority queues, applications of queues
12	Jan. 17-22, 2022	Introduction to trees, definition of terms related to trees, Binary trees, storage representation using arrays and linked lists
13	Jan. 24-29, 2022	basic operations, tree traversal
14	Jan 31, Feb1-5, 2022	Expression tree, traversal algorithms.
15	Feb. 7-12,2022	Introduction to graphs, Graph theory terminology, sequential and linked representation of graphs
16	Feb. 14-19, 2022	Traversing a graph
17	Feb. 21-22, 2022	Revision

**CLASS- BCA II (3<sup>rd</sup> Sem.)**  
**Subject- Computer Architecture (BCA-233)**

Week	Odd Sem	Topics
1	Oct 25-30, 2021	Basic Computer Organisation and Design ,Instruction Codes
2	Nov. 8-13 , 2021	Computer,Computer Instructions, Timing and Control registers
3	Nov.15-20 , 2021	Instruction Cycle,Memory reference instructions
4	Nov. 22-27, 2021	Input-Output and Interrupt, Design of Basic computer



5	Nov. 29-Dec. 4,2021	Design of accumulator logic, Design of Control Unit
6	Dec.6-11, 2021	Register Transfer and Microoperations: Register Transfer Language( RTL)
7	Dec.13-18 , 2021	register transfer, Bus and Memory Transfers, ArithmeticMicrooperations
8	Dec.20- 24, 2021	Logic Microoperations, Shift Microoperations,Arithmetic Logic Shift Unit
9	Dec 27, 2021 - Jan 1,2022	Microprogrammed Control: Controlmemory; address sequencing, microprogram sequencer,
10	Jan 3-8, 2022	Central Processing Unit: General registers Organization, StackOrganization
11	Jan.10-15, 2022	Instruction formats, Addressing Modes, Data Transferand Manipulation
12	Jan. 17-22, 2022	Program Control, Program Interrupt, RISC, CISC
13	Jan. 24-29, 2022	Memory hierarchy, Auxiliary Memory,Associative Memory, Interleaved memory, Cache memory
14	Jan 31, Feb1-5, 2022	VirtualMemory, Memory Management Hardware, Input Output Organization
15	Feb. 7-12,2022	Input-Output Interface, Asynchronous datatransfer, Modes of Transfer, Priority Interrupt
16	Feb. 14-19, 2022	Direct MemoryAccess(DMA),Input-Output Processor(IOP).
17	Feb. 21-22, 2022	sessionals

**CLASS- BCA II (3<sup>rd</sup> Sem.)**  
**Subject- Software Engineering (BCA-234)**

Week	Odd Sem	Topics
1	Oct 25-30, 2021	Software Engineering, Programmingparadigms, Software Crisis
2	Nov. 8-13 , 2021	problem and causes, Phases in Softwaredevelopment: Requirement Analysis, Software Design
3	Nov.15-20 , 2021	Coding, Testing,Maintenance, Software Development Process Models
4	Nov. 22-27, 2021	Waterfall,Prototype, Evolutionary and Spiral models, Role of Metrics
5	Nov. 29-Dec. 4,2021	Feasibility Study, Software Requirement Analysis and Specifications: SRS, Need for SRS
6	Dec.6-11, 2021	Characteristics of an SRS, Components of an SRS, Problem Analysis, Information gathering tools
7	Dec.13-18 , 2021	Organizing and structuring information, Requirement specification,validation and Verification.. SCM
8	Dec.20- 24, 2021	Data Flow Diagram, Data Dictionary,Decision table, Decision tress
9	Dec 27, 2021 - Jan 1,2022	Structured English, Entity-Relationship diagrams
10	Jan 3-8, 2022	Cohesion and Coupling.Gantt chart, PERT Chart, Software Maintenance: Type of maintenance
11	Jan.10-15, 2022	Management of Maintenance, Maintenance Process, maintenanccharacteristics
12	Jan. 17-22, 2022	COCOMO model, Projects cheduling, Staffing and personnel planning
13	Jan. 24-29, 2022	team structure, Softwareconfiguration management, Quality assurance plans
14	Jan 31, Feb1-5, 2022	Projectmonitoring plans, Risk Management. Software testing strategies
15	Feb. 7-12,2022	unit testing, integration testing, Validation testing, System testing, Alphaand Beta testing.
16	Feb. 14-19, 2022	Revision
17	Feb. 21-22, 2022	Sessional

## CLASS- BCA II (3<sup>rd</sup> Sem.)

### Subject- Fundamentals of Database Systems (BCA-235)

Week	Odd Sem	Topics
1	Oct 25-30, 2021	Basic Concepts – Data, Information, Records and files
2	Nov. 8-13 , 2021	Traditional file based Systems-File Based Approach, Limitations of File Based Approach
3	Nov.15-20 , 2021	Database Approach-Characteristics of Database Approach
4	Nov. 22-27, 2021	Database Management System (DBMS), Components of DBMS Environment,
5	Nov. 29-Dec. 4,2021	DBMS Functions and Components, Advantages and Disadvantages of DBMS Test
6	Dec.6-11, 2021	Roles in the Database Environment - Data and Database Administrator, Database Designers
7	Dec.13-18 , 2021	Applications Developers and Users Database System Architecture – Three Levels of Architecture Assignment-I
8	Dec.20- 24, 2021	External, Conceptual and Internal Levels, Schemas, Mappings and Instances
9	Dec 27, 2021 - Jan 1,2022	Data Independence – Logical and Physical Data Independence, Classification of Database Management System
10	Jan 3-8, 2022	Centralized and Client Server architecture to DBMS,Data Models: Records- based Data Models
11	Jan.10-15, 2022	Object-based Data Models, Physical Data Models and Conceptual Modeling
12	Jan. 17-22, 2022	Entity-Relationship Model – Entity Types, Entity Sets, Attributes Relationship Types
13	Jan. 24-29, 2022	Relationship Instances and ER Diagrams Assignment-II
14	Jan 31, Feb1-5, 2022	Relational Data Model Brief History, Terminology in Relational Data Structure, Relations
15	Feb. 7-12,2022	Properties of Relations, Keys, Domains, Integrity Constraints over Relations
16	Feb. 14-19, 2022	Base Tables and Views,Basic Concepts of Hierarchical and Network Data Model
17	Feb. 21-22, 2022	Revision,Test

## CLASS- BCA II (3<sup>rd</sup> Sem.)

### Subject- Computer Oriented Numerical Methods (BCA-236)

Week	Odd Sem	Topics
1	Oct 25-30, 2021	Computer Arithmetic: Floating-point representation of numbers,
2	Nov. 8-13 , 2021	arithmetic operations with normalized floating-point numbers and their consequences, significant figures
3	Nov.15-20 , 2021	Error in number representation-inherent error, truncation, absolute, relative, percentage and round-off error
4	Nov. 22-27, 2021	Iterative Methods: Bisection, False position, Newton-Raphson method.Iteration method, discussion of convergence,
5	Nov. 29-Dec. 4,2021	Solution of simultaneous linear equations and ordinary differential equations:
6	Dec.6-11, 2021	Gauss-Elimination methods, pivoting
7	Dec.13-18 , 2021	Ill-conditionedequations, refinement of solution. Gauss-Seidal iterative method,
8	Dec.20- 24, 2021	Eulermethod, Euler modified method, Taylor-series method,
9	Dec 27, 2021 - Jan 1,2022	Runge kutta,predictor-corrector methods
10	Jan 3-8, 2022	Interpolation and Approximation: Polynomial interpolation: Newton, Lagranges, Difference tables,
11	Jan.10-15, 2022	Approximation of functions by Taylor Series.
12	Jan. 17-22, 2022	Chebyshev polynomial: First kind, Second kind and their relations,Orthogonal properties
13	Jan. 24-29, 2022	Numerical Differentiation and integration: Differentiation formulae based on polynomial fit
14	Jan 31, Feb1-5, 2022	pitfalls in differentiation,
15	Feb. 7-12,2022	Trapezoidal & Simpson Rules,
16	Feb. 14-19, 2022	Gaussian Quadrature
17	Feb. 21-22, 2022	REVISION



14	June 20-25, 2022	Files I/O in C++: Class Hierarchy for Files I/O, Text versus Binary Files
15	June 27-30, July 1-2, 2022	Opening and Closing Files, File Pointers, Operation on files.
16	July 4- 9, 2022	Revision, Test

## CLASS- BCA II (4<sup>th</sup> Sem.)

### Subject- E-Commerce (BCA-243)

Week	Even Sem	Topics
1	April 1-2, 2022	Introduction to E-Commerce:-Business operations; E-commerce practices vs.Features of E-Commerce, traditional,business practices; concepts of b2b, b2c,c2c,b2g,g2h,g2c;
2	April 4-9, 2022	Types of Ecommerce Systems, Elements of E-Commerce, principles of E-Commerce, Benefits and Limitations of E-Commerce.
3	April 11-16, 2022	Management Issues relating to e-commerce. Operations of E-commerce: Credit card transaction;
4	April 18-23, 2022	Secure Hypertext Transfer Protocol (SHTTP); Electronic payment systems;(SET) SET's encryption; Process; Cybercash; Smart cards;
5	April 25-30, 2022	Applications in governance: EDI in governance; E-government; E-Governance applications of Internet;
6	May 2-7, 2022	concept of government –to- business, business-to-government and citizen-to-government; E-governance models
7	May 9-14, 2022	Private sector interface in E-governance. Applications in B2C: Consumers shopping procedure on the Internet
8	May 16-21, 2022	Impact on disinter mediation and re-intermediation; Global market; Strategy of traditional department stores.
9	May 23-28, 2022	Products in b2c model; success factors of e-brokers; Broker-based services ;travel tourism services; Benefits and impact of e-commerce on travel industry
10	May 30-31- June 1-4, 2022	Online real estate market; online stock trading and its benefits; Online banking and its benefits, E-auctions – benefits, implementation and impact.
11	June 6-11, 2022	Applications in B2B: Key technologies for b2b; architectural models of b2b, characteristics of the supplier –oriented marketplace
12	June 13-16, 2022	buyer-oriented marketplace and intermediary-oriented marketplace; Just In Time delivery in b2b
13	June 13-18, 2022	Internet-based EDI from traditional EDI; Marketing Issues in b2b. Emerging Business models: Retail model
14	June 20-25, 2022	Media model; advisory model, made-to-order manufacturing model; Do-it- yourself model; Information service model; Emerging hybrid models
15	June 27-30, July 1-2, 2022	Emerging models in India, Internet & E-Commerce scenario in India; Internet security Issues; Legal aspects of E-commerce
16	July 4- 9, 2022	sessional

## CLASS- BCA II (4<sup>th</sup> Sem.)

### Subject- Relational Database Management System (BCA-244)

Week	Even Sem	Topics
1	April 1-2, 2022	Relational Model Concepts, Codd's Rules for Relational Model
2	April 4-9, 2022	Relational Algebra Selection and Projection, Set Operation, Renaming
3	April 11-16, 2022	Join and Division, Relational Calculus: Tuple Relational Calculus
4	April 18-23, 2022	Domain Relational Calculus Test
5	April 25-30, 2022	Functional Dependencies and Normalization Purpose, Data Redundancy and Update Anomalies
6	May 2-7, 2022	Functional Dependencies, Full Functional Dependencies
7	May 9-14, 2022	Transitive Functional Dependencies, Characteristics of Functional Dependencies
8	May 16-21, 2022	Decomposition and Normal Forms (1NF, 2NF, 3NF & BCNF) Assignment-I

9	May23-28, 2022	SQL: Data Definition and data types
10	May 30-31- June 1-4,2022	SQL Operators, Specifying Constraints in SQL, Basic DDL
11	June 6-11, 2022	DML and DCL commands in SQL, Simple Queries
12	June 13-16, 2022	Nested Queries, Tables, Views, Indexes, Aggregate Functions, Clauses <span style="float: right;">Assignment-II</span>
13	June 13-18,2022	PL/SQL architecture, PL/SQL and SQL*Plus, PL/SQL Basics, Advantages of PL/SQL
14	June 20-25, 2022	The Generic PL/SQL Block: PL/SQL Execution Environment, PL/SQL Character set and Data Types
15	June 27-30, July1-2,2022	Control Structure in PL/SQL, Cursors in PL/SQL, Triggers in PL/SQL, Programming using PL/SQL
16	July 4- 9,2022	Revision, Test

**CLASS- BCA II (4<sup>th</sup> Sem.)**  
**Subject- Computer Oriented Statistical Methods (BCA-245)**

Week	Even Sem	Topics
1	April 1-2, 2022	Basic Statistics: Preparing Frequency Distribution Table and Cumulative frequency
2	April 4-9, 2022	, Measure of Central Tendency, Types: Arithmetic mean, Geometric Mean, Harmonic Mean, Median, Mode.
3	April 11-16,2022	Measure of Dispersion: Range, Quartile Deviation, mean deviation, Coefficient of mean Deviation, Standard Deviation
4	April 18-23, 2022	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.
5	April 25-30, 2022	Probability Distribution: Random Variable- Discrete Random and Continuous Random variable,
6	May 2-7,2022	Probability Distribution of a Random Variable, Mathematical Expectation
7	May 9-14, 2022	Types: Binomial, Poisson, Normal Distribution, Mean and Variance of Binomial, Poisson, and Normal Distribution.
8	May 16-21,2022	Correlation: Introduction, Types, Properties, Methods of Correlation: Karl Pearson's Coefficient of Correlation, Rank Correlation.
9	May23-28, 2022	Concurrent Deviation method, Probable error. Regression: Introduction, Aim of Regression Analysis, Types of Regression Analysis, Lines of Regression.
10	May 30-31- June 1-4,2022	Properties of Regression ,Curve Fitting: Straight Line, Parabolic curve, Geometric Curve and Exponential Curve
11	June 6-11, 2022	Baye's Theorem in Decision Making, Forecasting Technique, Sample introduction, Sampling: Meaning, methods of Sampling
12	June 13-16, 2022	Statistical Inference: Test of Hypothesis, Types of hypothesis, Procedure of hypothesis Testing, Type I and Type II error, One Tailed and two tailed Test,
13	June 13-18,2022	Types of test of Significance: Test of significance for Attribute-Test of No. of success and test of proportion of success,
14	June 20-25, 2022	Test of significance for large samples - Test of significance for single mean and Difference of mean
15	June 27-30, July12,2022	Test of significance for small samples( t-test) – test the significance between the mean of a random sample, between the mean of two independent samples
16	July 4- 9,2022	REVISION & CLASS TESTS

**CLASS- BCA II (4<sup>th</sup> Sem.)**  
**Subject- Management Information System (BCA-246)**

Week	Even Sem	Topics
1	April 1-2, 2022	Introduction to system and Basic System Concepts, Types of Systems, The Systems Approach
2	April 4-9, 2022	Information System: Definition & Characteristics, Types of information, Role of Information in Decision-Making
3	April 11-16, 2022	Sub-Systems of an Information system: EDP and MIS management levels, EDP/MIS/DSS.
4	April 18-23, 2022	Definition & Characteristics, Components of MIS, Frame Work for Understanding MIS
5	April 25-30, 2022	Information requirements & Levels of Management,
6	May 2-7, 2022	Formal vs. Informal systems, Developing Information Systems: Analysis & Design of Information Systems
7	May 9-14, 2022	Implementation & Evaluation, Pitfalls in MIS Development
8	May 16-21, 2022	Simon's Model of decision-Making, Functional MIS: A Study of Personnel
9	May 23-28, 2022	Financial and production MIS
10	May 30-31- June 1-4, 2022	Introduction to e-business systems
11	June 6-11, 2022	ecommerce – technologies, applications
12	June 13-16, 2022	Decision support systems, support systems for planning
13	June 13-18, 2022	control and decision-making
14	June 20-25, 2022	Structured Vs Un-structured decisions,
15	June 27-30, July 1-2, 2022	Revision
16	July 4- 9, 2022	Sessional

**CLASS- BCA III (5<sup>th</sup> Sem.)**  
**Subject- Web Designing Fundamentals (BCA-351)**

Week	Odd Sem	Topics
1	Oct 25-30, 2021	Introduction to Internet and World Wide Web; Evolution and History of World Wide Web; Basic
2	Nov. 8-13, 2021	Features; Web Browsers;
3	Nov. 15-20, 2021	Web Servers; Hypertext Transfer Protocol; URLs; Searching
4	Nov. 22-27, 2021	Web-Casting Techniques; Search Engines and Search Tools
5	Nov. 29-Dec. 4, 2021	Steps for Developing Website; Choosing the Contents; Home Page; Domain Names;
6	Dec. 6-11, 2021	Internet Service Provider; Planning and Designing Web Site;
7	Dec. 13-18, 2021	Creating a Website; Web Publishing; Hosting Site;
8	Dec. 20- 24, 2021	Introduction to HTML; Hypertext and HTML; HTML Document Features; HTML Tags;
9	Dec 27, 2021 - Jan 1, 2022	Header, Title, Body, Paragraph, Ordered/Unordered Line
10	Jan 3-8, 2022	Creating Links; Headers; Text Styles; Text Structuring; Text Colors and Background;
11	Jan. 10-15, 2022	Formatting Text; Page layouts; Insertion of Text, Movement of Text
12	Jan. 17-22, 2022	Images: Types of Images, Insertion of Image, Movement of Image,
13	Jan. 24-29, 2022	Ordered and Unordered lists; Inserting Graphics; Table Handling Functions
14	Jan 31, Feb 1-5, 2022	Frame Creation and Layouts; Working with Forms and menus
15	Feb. 7-12, 2022	Working with Buttons like Radio, Check Box, submit, reset; Drop down menu
16	Feb. 14-19, 2022	Revision
17	Feb. 21-22, 2022	Test

**CLASS- BCA III (5<sup>th</sup> Sem.)**  
**Subject- Operating System-1 (BCA-352)**

Week	Odd Sem	Topics
1	Oct 25-30, 2021	Operating System: Definition, Characteristics, Components, Functions, Examples; Types of Operating System: Single User/Multi User,
2	Nov. 8-13 , 2021	Classification of Operating System: Batch, Multiprogrammed, Timesharing, Multiprocessing, Parallel, , Distributed, Real Time;
3	Nov.15-20 , 2021	System Calls and System Programs: Process Control, File Manipulation, Device Manipulation, , Information Maintenance, Communications
4	Nov. 22-27, 2021	Process Management: Process concept, Process states and Process Control Block; Process Scheduling:
5	Nov. 29-Dec. 4,2021	Scheduling Queues, Schedulers, Context Switch; Operation on Processes: Process Creation,
6	Dec.6-11, 2021	Process Termination; Cooperating Processes, Introduction to Threads;Inter-process Communication;
7	Dec.13-19 , 2021	CPU Scheduling: Basic Concepts, Scheduling Criteria, Scheduling Algorithms: FCFS, SJF,
8	Dec.20- 24, 2021	Priority, Round-Robin, Multilevel Queue, Multilevel Feedback Queue Scheduling
9	Dec 27, 2021 - Jan 1,2022	Deadlocks: System Model, Deadlock Characterization, Methods of Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection and Recovery
10	Jan 3-8, 2022	Memory Management: Introduction, Swapping, Contiguous Allocation: Single-Partition/Multiple
11	Jan.10-15, 2022	Partition Allocation, External/Internal Fragmentation; Paging: Basic Method, Hardware,
12	Jan. 17-22, 2022	Implementation of Page table; Segmentation: Basic Method, Hardware, Implementation of Segment
13	Jan. 24-29, 2022	Table, Advantages/Disadvantages of Paging/Segmentation,Virtual Memory: Introduction, Demand Demand Paging, Page Replacement, Page Replacement Algorithms: FIFO
14	Jan 31, Feb1-5, 2022	Optimal, LRU, Counting; Thrashing and its cause; File Management: File Concepts,File Attributes
15	Feb. 7-12,2022	File Operations, File Types, File Access/Allocation Methods, File Protection, File Recovery
16	Feb. 14-19, 2022	Revision
17	Feb. 21-22, 2022	Test

**CLASS- BCA III (5<sup>th</sup> Sem.)**  
**Subject- Artificial Intelligence (BCA-353)**

Week	Odd Sem	Topics
1	Oct 25-30, 2021	Artificial Intelligence : Intelligence, AI Concepts, Various definitions of AI, Knowledge, Knowledge Pyramid,
2	Nov. 8-13 , 2021	People and Computers: What computers can do better than people, what people can do better than computers; Characteristics of AI Problems
3	Nov.15-20 , 2021	Problem Representation in AI, Components of AI, AI Evolution, Application Areas of AI
4	Nov. 22-27, 2021	History of AI, The Turing Test, The Revised Turing Test
5	Nov. 29-Dec. 4,2021	Expert System: Components of Expert System: Knowledge Base, Inference Engine, User Interface, Features of Expert System
6	Dec.6-11, 2021	Expert System Life Cycle, Categories of Expert System, Rule Based vs. Model Based Expert Systems, Advantages/Limitations of Expert System
7	Dec.13-18 , 2021	Developing an Expert System: Identification, Conceptualization, Formalization, Implementation, Testing,
8	Dec.20- 24, 2021	Using an Expert System, Application Areas of Expert System
9	Dec 27, 2021 - Jan 1,2022	AI and Search Process: Brute Force Search – Depth First/Breadth First Search, Heuristic Search: Hill Climbing
10	Jan 3-8, 2022	Constraint Satisfaction, Mean End Analysis, Best First Search, A* Algorithm, AO* Algorithm, Beam Search.
11	Jan.10-15, 2022	Natural Language Processing: Introduction, Need, Goal, Fundamental Problems in Natural Language Understanding

12	Jan. 17-22, 2022	How People overcome Natural Language Problems,
13	Jan. 24-29, 2022	Speech Recognition: Introduction, Advantages and Approaches
14	Jan 31, Feb1-5, 2022	Introduction to Robotics: Parts of a Robot, Controlling a Robot, Intelligent Robots, Mobile Robots
15	Feb. 7-12,2022	Revision
16	Feb. 14-19, 2022	Revision
17	Feb. 21-22, 2022	Test

**CLASS- BCA III (5<sup>th</sup> Sem.)**  
**Subject- Computer Networks (BCA-354)**

<b>Week</b>	<b>Odd Sem</b>	<b>Topics</b>
1	Oct 25-30, 2021	Introduction to Data Communication and Computer Networks, Uses of Computer Networks, Types of Computer and Topologies
2	Nov. 8-13 , 2021	Network Hardware Components, Connectors, Transceivers, Repeaters, Hubs, Network Interface Cards and PC Cards, Bridges, Switches, Routers, Gateways
3	Nov.15-20 , 2021	Network Software: Network Design issues and Protocols, Connection-Oriented and Connectionless Services, OSI Reference Model
4	Nov. 22-27, 2021	Computer Hardware& software:I/o Devices,Relation Between Harware& Software
5	Nov. 29-Dec. 4,2021	Networking Models: Distributed Systems, Client/Server Model, Peer-to-Peer Model, Web-Based Model and Emerging File-Sharing Model,
6	Dec.6-11, 2021	Analog and Digital data and signals, Bandwidth and Data Rate, Capacity, Baud Rate, Transmission Impairment, Data Rate Limits
7	Dec.13-18 , 2021	Guided Transmission Media, Wireless Transmission , Communication Satellites, Switching and Multiplexing
8	Dec.20- 24, 2021	Modems and Modulation techniques, ADSL and Cable Modems
9	Dec 27, 2021 - Jan 1,2022	Data Link Layer Design issues, Error Detection and Correction, Sliding Window Protocols: One-bit, Go Back N and Selective Repeat,
10	Jan 3-8, 2022	Media Access Control: ALOHA, Slotted ALOHA, CSMA, Collision free protocols
11	Jan.10-15, 2022	Introduction to LAN technologies: Ethernet, Switched Ethernet, Fast Ethernet, Gigabit Ethernet, Token Ring
12	Jan. 17-22, 2022	Introduction to Wireless LANs and Bluetooth, VLANs
13	Jan. 24-29, 2022	Routing Algorithms: Flooding, Shortest Path Routing, Distance Vector Routing, Link State Routing, Hierarchical Routing,
14	Jan 31, Feb1-5, 2022	Congestion Control, Traffic shaping, Choke packets, Load shedding, Elements of Transport Protocols,
15	Feb. 7-12,2022	Network Security Issues: Security attacks, Encryption methods, Digital Signature, Digital Certificate
16	Feb. 14-19, 2022	Revision Test
17	Feb. 21-22, 2022	Sessional Test

**CLASS- BCA III (5<sup>th</sup> Sem.)**  
**Subject- Programming Using Visual Basic (BCA-355)**

<b>Week</b>	<b>Odd Sem</b>	<b>Topics</b>
1	Oct 25-30, 2021	Visual & Non-Visual programming, Procedural, Object-Based and Event-Driven Programming Languages
2	Nov. 8-13 , 2021	Object-Based and Event-Driven Programming Languages
3	Nov.15-20 , 2021	VB as Even-Driven and Object-Based Language
4	Nov. 22-27, 2021	Menu bar, Toolbar, Project explorer, Toolbox, Properties Window, Form Designer
5	Nov. 29-Dec. 4,2021	Form Layout, Immediate window, Default Controls in Tool Box Visual Development
6	Dec.6-11, 2021	Event Driven programming and Test



7	Dec.13-18 , 2021	Variables: Declaring Variables, Types of variables, Converting Variables Types
8	Dec.20- 24, 2021	User Defined Data Types, Forcing Variable Declaration, Scope & Lifetime of Variables
9	Dec 27, 2021 - Jan 1,2022	Constants: Named & Intrinsic, Operators: Arithmetic, Relational & Logical operators
10	Jan 3-8, 2022	Input/output in VB: Various Controls for I/O, Message box, Input Box, Print statement.
11	Jan.10-15, 2022	Decision Statement and Looping Structure in Visual Basic
12	Jan. 17-22, 2022	Nested Control Structure; Arrays: Declaring and using Arrays
13	Jan. 24-29, 2022	One-dimensional, Two-dimensional and Multi-dimensional Arrays, Static and Dynamic arrays, Array of Arrays.
14	Jan 31, Feb1-5, 2022	General & Event Procedures, Subroutines, Functions, Calling Procedures,
15	Feb. 7-12,2022	Arguments - Passing Mechanisms, Optional Arguments, Named Arguments, Functions Returning Custom Data Types
16	Feb. 14-19, 2022	Optional Arguments, Named Arguments, Functions Returning Custom Data Types
17	Feb. 21-22, 2022	Sessional test

## CLASS- BCA III (5<sup>th</sup> Sem.)

### Subject- Multimedia Tools (BCA-356)

Week	Odd Sem	Topics
1	Oct 25-30, 2021	Multimedia: Basic Concept, Definition, Components & Applications of Multimedia; Hypermedia and Multimedia
2	Nov. 8-13 , 2021	Multimedia Hardware and Software; Multimedia Software Tools; Presentation Tools
3	Nov.15-20 , 2021	Multimedia Authoring: Introduction, Features, Types of Authoring Tools: Card or Page-Based
4	Nov. 22-27, 2021	IconBased, Time-Based, Object-Oriented; VRML: History, Features, <b>Class Test</b>
5	Nov. 29-Dec. 4,2021	Image Data Types, File Formats
6	Dec.6-11, 2021	Color Models in Images and Video; <b>Assignment-1</b>
7	Dec.13-18 , 2021	Video: Introduction, Types of Video Signals; Analog and Digital Video,Analog Video Standards:NTSC,PAL,SECAM
8	Dec.20- 24, 2021	Digital Video Standards: Chroma Subsampling, CCIR Standards, HDTV , <b>Class Test</b>
9	Dec 27, 2021 - Jan 1,2022	Digital Audio: Basic Concepts, Analog vs. Digital Audio, Digitization of Sound; Digital Audio File Formats,
10	Jan 3-8, 2022	MIDI Quantization and Transmission of Audio: Coding of Audio; Pulse Code Modulation
11	Jan.10-15, 2022	Differential Coding of Audio; Lossless Predictive Coding; DPCM; DM; ADPCM, <b>Revision</b>
12	Jan. 17-22, 2022	Compression Techniques: Introduction, Types of Data Compression, Run-Length Coding
13	Jan. 24-29, 2022	VariableLength Coding, Dictionary-Based Coding and <b>Class Test</b>
14	Jan 31, Feb1-5, 2022	Transform Coding Image ,downsample chrominance components,DCT, Quantization
15	Feb. 7-12,2022	Video Compression Techniques, <b>Revision and Class Test ,Assignment-2</b>
16	Feb. 14-19, 2022	JPEG Standard for Image Compression; JPEG Mode, Video Compression Techniques: H.261, H.263, MPEG
17	Feb. 21-22, 2022	Revision of Syllabus

## CLASS- BCA III (6<sup>th</sup> Sem.)

### Subject- Web Designing Using Advanced Tools (BCA-361)

Week	Even Sem	Topics
1	April 1-2, 2022	Interactivity Tool - JavaScript: Introduction, Features, Data types, Operators, Statements
2	April 4-9, 2022	Functions, Event Handling, Use of Predefined Object and Methods, Frames, Windows, Tables
3	April 11-16,2022	Images, Links Interactivity Tool - VBScript: Introduction, Features, Variables, Data Types, Numeric and Literal Constants, Arrays, Operators, Subroutine Procedures, Function Procedures, Control StatementsStrings, Message and Input Boxes,

4	April 18-23, 2022	Date and Time, Event Handlers, Embedding VBScript in HTML, Interactivity Tool - Active Script Pages – Introduction, Features,
5	April 25-30, 2022	Client-Server Model, Data Types, Decision Making Statements, Control statements, Use of Various Objects of ASP, Various Techniques of Connecting to Database,
6	May 2-7, 2022	Other Interactivity Tools - Macromedia Flash, Macromedia Dreamweaver, PHP: Basic Introduction and Features, DHTML: Introduction, Features
7	May 9-14, 2022	, Events, Dynamic Positioning, Layer Object, Properties of STYLE, Dynamic Styles, Inline Styles, Event Handlers; Cascading Style Sheets (CSS): Basic Concepts, Properties, Creating Style Sheets; Common
8	May 16-21, 2022	Tasks with CSS: Text, Fonts, Margins, Links, Tables, Adding Links; Adding Tables; Adding Forms; Adding Image and Sound; Use of CSS in HTML Documents Linking and Embedding of CSS in HTML Document
9	May 23-28, 2022	Microsoft FrontPage: Introduction, Features, Title Bar, Menu bar, FrontPage Tool Bar, Style, Font FontFace and Formatting Bar, Scroll Bars
10	May 30-31- June 1-4, 2022	XML: Introduction, Features, XML Support and Usage, Structure of XML Documents, XML, Creating Document Type Declarations, Flow Objects,
11	June 6-11, 2022	Working with Text and Font, Color and Background Properties;
12	June 13-16, 2022	Revision

## CLASS- BCA III (6<sup>th</sup> Sem.)

### Subject- Operating System-II (BCA-362)

Week	Even Sem	Topics
1	April 1-2, 2022	Process Synchronization: The Critical Section Problem – Single Process/Two Process Solutions ; Semaphores – Types, Implementation
2	April 4-9, 2022	Deadlocks and Starvation; Classical Problems of Synchronization – The Bounded Buffer Problem, The Readers and Writers Problem, The Dining Philosophers Problem, Critical Regions, Monitors
3	April 11-16, 2022	Directory Structure: Single Level, Two Level, Tree Structures, Acyclic Graph, General Graph; Directory Implementation, Recovery
4	April 18-23, 2022	Secondary Storage Structure: Disk Structure, Disk Scheduling: FCFS, SSTF, SCAN, C-SCAN, LOOK; Selection of Disk Scheduling Algorithm; Disk Management; Swap Space Management Network
5	April 25-30, 2022	Operating Systems: Remote Login, Remote File Transfer; Distributed Operating System: Data Migration, Computation Migration, Process Migration, Linux:
6	May 2-7, 2022	Introduction, Features, Architecture, Distributions, Accessing Linux System, Login/Logout/Shutting Down, Comparison of Linux with other Operating Systems, Commands in Linux: General-Purpose Commands,
7	May 9-14, 2022	File Oriented Commands, Directory Oriented Commands, Communication Oriented Commands, Process Oriented Commands, Redirection of Input and Output, Pipes
8	May 16-21, 2022	Linux File System: Types of Files in Linux, File Attributes, Structure of File System, inode, File Permission, File System Components,
9	May 23-28, 2022	Standard File System, File System Types, Disk Related , Processes in Linux: Introduction job Control in Linux using at, batch, cron & time command
10	May 30-31- June 1-4, 2022	The vi editor: Introduction, Modes of vi Editor, Command in vi Editor Shell Programming: Introduction, Shell Variables, Shell Keywords, Operators
11	June 6-11, 2022	Assigning Values to the Variables, I/O in Shell, Control Structures, Creating & Executing Shell Programs in Linux.
12	June 13-16, 2022	Revision

**CLASS- BCA III (6<sup>th</sup> Sem.)**  
**Subject- Computer Graphics (BCA-363)**

Week	Even	Topics
1	April 1-2, 2022	<b>Introduction to Computer Graphics</b> ; Interactive and Passive Graphics; Applications of Computer Graphics Display Devices: CRT; Random Scan, Raster Scan, ;
2	April 4-9, 2022	Refresh Rate and Interlacing, Bit Planes, Color Depth, Color Palette, Color CRT Monitor,
3	April 11-16,2022	DVST, Flat-Panel Displays: Plasma Panel, LED, LCD; Lookup Table, Interactive Input Devices, Display Processor and <b>Revision and Test</b>
4	April 18-23, 2022	General Purpose Graphics Software, Coordinate Representations;Point-Plotting Techniques: Scan Conversion,Scan-Converting a Straight Line: The Symmetrical DDA,The Simple DDA
5	April 25-30, 2022	Bresenham's Line Algorithm, <b>Assignment-1</b> , Converting a Circle: Circle drawing using Polar Coordinates, Bresenham's Circle Algorithm, Scan-Converting an Ellipse: Polynomial Method,
6	May 2-7,2022	Polygon Clipping: Sutherland-Hodgman Polygon Clipping Algorithm; Three-Dimensional Graphics: Three-Dimensional Display Methods; 3-D Transformations: Translation, Rotation, Scaling; Composite Transformations
7	May 9-14, 2022	Trigonometric Method; Polygon Area Filling: Scan-line Fill and Flood Fill Algorithms; <b>Revision</b>
8	May 16-21,2022	Homogeneous Coordinates; Other Transformations: Reflection, Shearing; Coordinate Transformations; Composite Transformations; Inverse Transformation;
9	May23-28, 2022	Affine Transformations; Raster Transformation; Graphical Input: Pointing and Positioning Devices and Techniques
10	May 30-31- June 1-4,2022	Dimensional Viewing: Window and Viewport, 2-D Viewing Transformation Clipping: Point Clipping;
11	June 6-11, 2022	Line Clipping: Cohen-Sutherland Line Clipping Algorithm, Mid-Point Subdivision Line Clipping Algorithm
12	June 13-16, 2022	<b>Revision of the syllabus</b>

**CLASS- BCA III (6<sup>th</sup> Sem.)**  
**Subject- Internet Technologies (BCA-364)**

Week	Even Sem	Topics
1	April 1-2, 2022	Internet: Introduction; History; Internet Services; TCP/IP: Architecture, Layers, Protocols; TCP/IP model versus OSI Model
2	April 4-9, 2022	World Wide Web (WWW) - The Client Side, The Server Side, Creating and Searching Information on the Web, Popular Search Engines
3	April 11-16,2022	URL, HTTP, Web Browsers, Chat & Bulletin Board, USENET & NNTP (Network News Transfer Protocol); Internet vs. Intranet;
4	April 18-23, 2022	TCP, UDP and IP Protocols, Port Numbers; Format of TCP, UDP and IP; IPv4 addressing; The need for IPv6; IPv6 addressing
5	April 25-30, 2022	Remote Procedure Call; IP Address Resolution- DNS; Domain Name Space; DNS Mapping; Recursive and Iterative Resolution;
6	May 2-7,2022	Mapping Internet Addresses to Physical Addresses: ARP, RARP, DHCP; ICMP; IGMP;Application Layer: Electronic Mail: Architecture
7	May 9-14, 2022	Protocols - SMTP, MIME, POP, IMAP; Web Based Mail; File Access and Transfer,FTP, Anonymous FTP,
8	May 16-21,2022	TFTP, NFS; Remote Login using TELNET,Voice and Video over IP: RTP, RTCP, IP Telephony and Signaling, RSVP
9	May23-28, 2022	Routing in Internet: RIP, OSPF, BGP; Internet Multicasting; Mobile IP; Private Network Interconnection,Network Address Translation
10	May 30-31- June 1-4,2022	, Virtual Private Network (VPN); Internet Management and SNMP,Internet Multicasting; Mobile IP; Private Network Interconnection
11	June 6-11, 2022	Internet Security: E-Mail Security; Web Security; Firewall; Introduction to IPSec and SSL; Internet Management and SNMP;
12	June 13-16, 2022	Introduction to IPSec and SSL; Internet Management and SNMP;

**CLASS- BCA III (6<sup>th</sup> Sem.)**  
**Subject- Advanced Programming with Visual Basic (BCA-365)**

Week	Even Sem	Topics
1	April 1-2, 2022	Adding, Removing, Counting, Returning Items in a Collection, Processing a Collection, Working with Forms: Form Properties
2	April 4-9, 2022	Creating, Adding, Removing Forms in Project, Adding Multiple Forms, Managing Forms at Run Time, Hiding & Showing Forms
3	April 11-16, 2022	Load & Unload Statements, Drag and Drop Operation, Activate & Deactivate events, Form-load event, Example using Forms
4	April 18-23, 2022	Programs in VB using Forms, Menu Designing in VB, Adding a Menu to a Form, Modifying and Deleting Menu Items
5	April 25-30, 2022	Adding Access Characters, Adding Shortcut Keys, Manipulating Menus using Common Dialog Box, Attaching Code to Events
6	May 2-7, 2022	Creating Submenus, Dynamic Menu Appearance, Scroll Bar, Slider Control, Tree View, List View, Rich Text Box Control, Toolbar
7	May 9-14, 2022	Status Bar, Progress Bar, Cool bar, Image List, Program Development in VB using Menus and Advance Controls
8	May 16-21, 2022	: Sequential & Random files, Opening and Closing Data Files, Viewing the Data in a File, Performing Operations on a File
9	May 23-28, 2022	Creating and Writing Data to a Sequential File, Reading the Data in a Sequential File, Finding the End of a Data File
		Locating a File, Reading and Writing a Random File
10	May 30-31- June 1-4, 2022	Using Paint, Line, Circle, Manipulating Graphics Program Development in VB using Files and Graphics
11	June 6-11, 2022	Data Controls, Data-Bound Controls, DAO, RDO, ADO, Creating the Database, Setting Properties
12	June 13-16, 2022	Applying Operations on Database, Viewing the Database, Updating the Database (adding, deleting records)

**CLASS- BCA III (6<sup>th</sup> Sem.)**  
**Subject- Programming In Core Java (BCA-366)**

Week	Even Sem	Topics
1	April 1-2, 2022	Basic Principles of Object Oriented Programming, Introduction to Java, History and Features of Java, Java Virtual Machine (JVM),
2	April 4-9, 2022	Java's Magic Bytecode; The Java Runtime Environment; Basic Language Elements: Lexical Tokens, Identifiers, Keywords
3	April 11-16, 2022	Literals, Comments, Primitive Data types, Operators, Assignments; Input/output in Java, Basics, I/O Classes, Reading Console Input
4	April 18-23, 2022	, Control Structures in Java: Decision and Loop Control Statements, Class and Object in Java: Defining Class in Java, Creating Objects of a Class, Defining Methods, Argument Passing Mechanism
5	April 25-30, 2022	Using Class and Objects, Constructors, Nested Class, Inner Class, Abstract Class, Dealing with Static Members; Array & tring in Java: Defining an Array, Initializing & Accessing Array, Multi -Dimensional Array
6	May 2-7, 2022	Defining String, Operation on Array and String, Creating Strings using String Class, Creating Strings using StringBuffer Class Polymorphism in Java: Basic Concept, Types, Overriding vs. Overloading, Implementation
7	May 9-14, 2022	Extending Classes and Inheritance in Java: Benefits of Inheritance, Types of Inheritance in Java, Access Attributes, Inheriting Data Members and Methods
8	May 16-21, 2022	Role of Constructors in Inheritance, Use of "super"; Packages & Interfaces: Basic Concepts of Package and Interface, Organizing Classes and Interfaces in Packages,
9	May 23-28, 2022	Defining Package, Adding Classes from a Package to Your Program, CLASSPATH Setting for Packages, Import Package, Naming Convention For Packages , Access Protection in Packages, Standard Packages
10	May 30-31- June 1-4, 2022	Exception Handling in Java: The Idea behind Exception, Types of Exception, Use of try, catch, finally, throw, throws in Exception Handling, In-built and User Defined Exceptions
11	June 6-11, 2022	Checked and Un-Checked Exceptions, Catching more than one Exception; Applet in Java: Applet Basics, Applet Architecture, Applet Life Cycle, Applet Tag, Parameters to Applet, Embedding Applets in Web page
12	June 13-16, 2022	Creating Simple Applets; GUI Programming: Designing Graphical User Interfaces in Java, Components and Containers, Using Containers, Layout Managers, AWT Components, AWT Classes, AWT Controls,

**LESSON PLANS**  
**B.Sc. (Computer Science)**  
**SESSION (2021-22)**

**CLASS- B.Sc. I (1<sup>st</sup> Sem.)**  
**Paper-I: Computer and Programming Fundamentals**

<b>Week</b>	<b>Odd Sem</b>	<b>Topics</b>
1	Oct 25-30, 2021	Computer Fundamentals: Definition, Functional components of computer, characteristics & classification of computers
2	Nov. 8-13, 2021	Applications of computers in various fields, Concept of primary & secondary memory, RAM
3	Nov.15-20, 2021	ROM, types of ROM, Cache memory, CPU Registers, flash memory
4	Nov. 22-27, 2021	Secondary storage devices: Sequential & direct access devices viz. magnetic tape, magnetic disk, CD, DVD
5	Nov. 29-Dec. 4, 2021	Computer hardware & software: I/O devices, definition of software, relationship between hardware and software, types of software
6	Dec.6-11, 2021	motherboard, ports, Overview of operating system: Definition, functions of operating system, concept of multiprogramming, multitasking
7	Dec.13-18, 2021	multithreading, multiprocessing, time-sharing, real time, single-user & multi-user operating system
8	Dec.20- 24, 2021	examples of various operating systems, Planning the Computer Program: Concept of problem solving, Problem definition
9	Dec 27, 2021 - Jan 1, 2022	Program design, Debugging, Types of errors in programming, Documentation. Techniques of Problem Solving: Flowcharting, algorithms
10	Jan 3-8, 2022	pseudo code, decision table, Structured programming concepts
11	Jan.10-15, 2022	Programming methodologies viz. top-down and bottom-up programming
12	Jan. 17-22, 2022	Searching, Sorting, and Merging: Linear & Binary Searching
13	Jan. 24-29, 2022	Bubble, Selection Sort
14	Jan 31, Feb 1-5, 2022	Insertion Sorting, Merging,
15	Feb. 7-12, 2022	high-level language, language translators, characteristics of a good programming language
16	Feb. 14-19, 2022	Computer Languages: Analogy with natural language, machine language, assembly language
17	Feb. 21-22, 2022	Revision, Sessional

**CLASS- B.Sc. I (1<sup>st</sup> Sem.)**  
**Paper-II: PC Software**

<b>Week</b>	<b>Odd Sem</b>	<b>Topics</b>
1	Oct 25-30, 2021	Windows: Basics of Windows. Windows History, Basic components of windows, icons, types of icons, taskbar, activating windows,
2	Nov. 8-13, 2021	using desktop, title bar, running applications, Windows explorer, managing files and folders,
3	Nov.15-20, 2021	Configuring System devices. Control panel, using windows accessories.
4	Nov. 22-27, 2021	Documentation Using Word - Introduction to Office Automation, Creating & Editing Document, Formatting Document,
5	Nov. 29-Dec. 4, 2021	Auto-text, Autocorrect, Spelling and Grammar Tool, Document Dictionary, Printing, Styles, linking and embedding object.
6	Dec.6-11, 2021	Page Formatting, Bookmark, Advance Features of MS-Word-Mail Merge,
7	Dec.13-18, 2021	Macros, Tables, File Management,
8	Dec.20- 24, 2021	Revision and Test
9	Dec 27, 2021 - Jan 1, 2022	Electronic Spread Sheet using Excel - Introduction to MS-Excel, Creating & Editing Worksheet, Formatting and Essential Operations,
10	Jan 3-8, 2022	Formulas and Functions, Charts,

11	Jan.10-15, 2022	Advance features of MS-Excel-Pivot table & Pivot Chart, Linking and Consolidation,
12	Jan. 17-22, 2022	Database Management using Excel-Sorting, Filtering, Table, Validation, Goal Seek, Scenario.
13	Jan. 24-29, 2022	Presentation using PowerPoint: Presentations, Creating, Manipulating & Enhancing Slides, Organizational Charts, Excel Charts,
14	Jan 31, Feb1-5, 2022	Animations and Sounds, Inserting Animated Pictures or Accessing through Object, Word Art, Layering art Objects,
15	Feb. 7-12,2022	Inserting Recorded Sound Effect or In-Built Sound Effect.
16	Feb. 14-19, 2022	Revision
17	Feb. 21-22, 2022	Revision,Sessional

## CLASS- B.Sc. I (2<sup>nd</sup> Sem.)

### Paper-I: Programming in C

Week	Even Sem	Topics
1	April 1-2, 2022	Overview of C: History & Importance of C, Structure of a C Program
2	April 4-9, 2022	Elements of C: C character set, identifiers and keywords, Data types, Constants and Variables
3	April 11-16,2022	Assignment statement, Symbolic constant. Input/output: Unformatted I/O function
4	April 18-23, 2022	Input functions (scanf(), getch(), getche(), getchar(), gets()), output functions (printf(), putchar(), puts())
5	April 25-30, 2022	Operators & Expression: Arithmetic, relational, logical, bitwise, unary
6	May 2-7,2022	assignment,conditional operators and special operators. Arithmetic expressions, evaluation of arithmetic expression
7	May 9-14, 2022	type casting and conversion, operator hierarchy & associativity
8	May 16-21,2022	Decision making & branching: Decision making with IF statement, IF-ELSE statement
9	May23-28, 2022	Nested IF statement, ELSE-IF ladder, switch statement, goto statement
10	May 30-31- June 1-4,2022	Decision making & looping: For, while, and do-while loop
11	June 6-11, 2022	jumps in loops, break, continue statement
12	June 13-16, 2022	Storage classes in C: auto, extern, register and static storage class, their scope, storage, & lifetime
13	June 13-18,2022	formatted I/O Functions,Arrays: Definition, types, initialization, processing an array
14	June 20-25, 2022	Structure and Union
15	June 27-30, July1-2,2022	Revision
16	July 4- 9,2022	Sessional

## CLASS- B.Sc. I (2<sup>nd</sup> Sem.)

### Paper-II: Logical Organization of Computer

Week	Even Sem	Topics
1	April 1-2, 2022	Information Representation: Number Systems, Binary Arithmetic, Fixed-point and Floatingpoint representation of numbers
2	April 4-9, 2022	BCD Codes, Error detecting and correcting codes, Character Representation – ASCII, EBCDIC.
3	April 11-16,2022	Binary Logic: Boolean Algebra, Boolean Theorems, Boolean Functions
4	April 18-23, 2022	Truth Tables, Canonical and Standard forms of Boolean functions,
5	April 25-30, 2022	Simplification of Boolean Functions – Venn Diagram, Karnaugh Maps.
6	May 2-7,2022	Revision and Test
7	May 9-14, 2022	Digital Logic: Basic Gates – AND, OR, NOT, Universal Gates – NAND, NOR,
8	May 16-21,2022	Other Gates – XOR, XNOR etc,Combinational Circuits: Half-Adder
9	May23-28, 2022	Full-Adder, HalfSubtractor,Full-Subtractor, Encoders, Decoders,Multiplexers, Demultiplexers,
10	May 30-31- June 1-4,2022	Comparators, Code Converters.
11	June 6-11, 2022	Sequential Logic: Characteristics, Flip-Flops, Clocked RS, D type,

12	June 13-16, 2022	JK, T type and MasterSlave flip-flops. State table, state diagram
13	June 13-18,2022	Flip-flop excitation tables Shift registers : serial in parallel out and parallel in parallel out.. Designing counters – Asynchronous
14	June 20-25, 2022	Synchronous Binary Counters, Modulo-N Counters and Up-Down Counters
15	June 27-30, July1-2,2022	Revision
16	July 4- 9,2022	Sessional

## CLASS- B.Sc. II (3<sup>rd</sup> Sem.)

### Paper-I: Data Structures

Week	Odd Sem	Topics
1	Oct 25-30, 2021	Introduction: Elementary data organization, Data Structure definition, Data type vs. data structure, Categories of data structures, Data structure opera
2	Nov. 8-13 , 2021	Applications of data structures, Algorithms complexity and time-space tradeoff, Big-O notation.
3	Nov.15-20 , 2021	Strings: Introduction, strings, String operations, Pattern matching algorithms
4	Nov. 22-27, 2021	Arrays: Introduction, Linear arrays, Representation of linear array in memory, Traversal, Insertions, Deletion in an array
5	Nov. 29-Dec. 4,2021	Multidimensional arrays, Parallel arrays, Sparse matrix. Linked List: Introduction, Array vs. linked list
6	Dec.6-11, 2021	Representation of linked lists in memory, Traversal, Insertion
7	Dec.13-18 , 2021	Deletion, Searching in a linked list, Header linked list, Circular linked list
8	Dec.20- 24, 2021	Two-way linked list, Garbage collection, Applications of linked lists. Algorithm of insertion/ deletion in SLL.
9	Dec 27, 2021 - Jan 1,2022	Stack: primitive operation on stack, algorithms for push and pop. Representation of Stack as Linked List and array, Stacks applications : polish notat
10	Jan 3-8, 2022	recursion. Introduction to queues, Primitive Operations on the Queues, Circular queue
11	Jan.10-15, 2022	Priority queue, Representation of Queues as Linked List and array, Applications of queue
12	Jan. 17-22, 2022	Algorithm on insertion and deletion in simple queue and circular queue
13	Jan. 24-29, 2022	Trees - Basic Terminology, representation, Binary Trees, Tree Representations using Array & Linked List
14	Jan 31, Feb1-5, 2022	Basic operation on Binary tree, Traversal of binary trees:- In order, Preorder & post order, Applications of Binary tree.
15	Feb. 7-12,2022	Algorithm of tree traversal with and without recursion.
16	Feb. 14-19, 2022	Introduction to graphs, Definition, Terminology, Directed, Undirected & Weighted graph, Representation of graphs.
17	Feb. 21-22, 2022	Sessional Test

## CLASS- B.Sc. II (3<sup>rd</sup> Sem.)

### Paper-II: Software Engineering

Week	Odd Sem	Topics
1	Oct 25-30, 2021	Introduction: Program vs. Software, Software Engineering, Programming paradigms, Software Crisis – problem and causes
2	Nov. 8-13 , 2021	Phases in Software development: Requirement Analysis, Software Design, Coding, Testing, Maintenance
3	Nov.15-20 , 2021	Software Development Process Models: Waterfall, Prototype, Evolutionary and Spiral models, Role of Metrics.
4	Nov. 22-27, 2021	Feasibility Study, Software Requirement Analysis and Specifications: SRS, Need for SRS
5	Nov. 29-Dec. 4,2021	Characteristics of an SRS, Components of an SRS, Problem Analysis, Information gathering tools
6	Dec.6-11, 2021	Organising and structuring information
7	Dec.13-18 , 2021	Requirement specification, validation and metrics
8	Dec.20- 24, 2021	Structured Analysis and Tools: Data Flow Diagram, Data Dictionary, Decision table, Decision trees, Structured English
9	Dec 27, 2021 - Jan 1,2022	Entity-Relationship diagrams .Software Project Planning: Cost estimation: COCOMO mode

10	Jan 3-8, 2022	Project scheduling, Staffing and personnel planning, team structure,
11	Jan.10-15, 2022	Software configuration management, Quality assurance plans
12	Jan. 17-22, 2022	Project monitoring plans, Risk Management
13	Jan. 24-29, 2022	Software testing strategies: unit testing, integration testing, V and V , System testing, Alpha and Beta testing
14	Jan 31, Feb1-5, 2022	Black box, white box testing. Cyclomatic Complexity.
15	Feb. 7-12,2022	Software Implementation and Maintenance: Type of maintenance, Management of Maintenance
16	Feb. 14-19, 2022	Maintenance Process, maintenance characteristics.
17	Feb. 21-22, 2022	Revision, Sessional Test

## CLASS- B.Sc. II (4th Sem.)

### Paper-I: Object Oriented Programming With ‘C++’

Week	Even Sem	Topics
1	April 1-2, 2022	Object oriented Programming: Object-Oriented programming features and benefits. Object-Oriented features of C++
2	April 4-9, 2022	Class and Objects, Data Hiding & Encapsulation, Structures, Data members and Member functions, Scope resolution operator and its significance
3	April 11-16,2022	Static Data Members, Static member functions, Nested and Local Class, Accessing Members of Class and Structure
4	April 18-23, 2022	Constructor, Initialization using constructor, types of constructor– Default, Parameterized & Copy Constructors, Constructor overloading
5	April 25-30, 2022	Default Values to Parameters, Destructors
6	May 2-7,2022	Console I/O: Hierarchy of Console Stream Classes, Unformatted and Formatted I/O Operations
7	May 9-14, 2022	Manipulators, Friend Function, Friend Class, Arrays, Array of Objects, Passing and Returning Objects to Functions
8	May 16-21,2022	String Handling in C++
9	May23-28, 2022	Dynamic Memory Management: Pointers, new and delete Operator, Array of Pointers to Objects,
10	May 30-31- June 1-4,2022	this Pointer, Passing Parameters to Functions by Reference & pointers
11	June 6-11, 2022	Static Polymorphism: Operators in C++, Precedence and Associativity Rules, Operator Overloading
12	June 13-16, 2022	Unary & Binary Operators Overloading
13	June 13-18,2022	Function Overloading,Inline Functions,
14	June 20-25, 2022	Merits/Demerits of Static Polymorphism
15	June 27-30, July1-2,2022	Revision
16	July 4- 9,2022	Sessional Test

## CLASS- B.Sc. II (4th Sem.)

### Paper-II: Operating System

Week	Even Sem	Topics
1	April 1-2, 2022	Introduction: operating system, architecture, functions, characteristics, historical evolution
2	April 4-9, 2022	Types: Serial batch, multiprogramming, time sharing, real time, distributed and parallel. OS as resource Manager
3	April 11-16,2022	Computer system structures: I/O structure, storage structure, storage hierarchy
4	April 18-23, 2022	Operating system structure: system components, services, system calls, system programs, system structures
5	April 25-30, 2022	Process management: process concepts, process state, process control block, operations, process scheduling



6	May 2-7,2022	Inter process communication.
7	May 9-14, 2022	CPU Scheduling: scheduling criteria, levels of scheduling, scheduling algorithms, multiple processor scheduling
8	May 16-21,2022	Deadlocks: Characterization, methods of handling, deadlock detection, prevention, avoidance, recovery
9	May23-28, 2022	Storage Management: memory management of single-user and multiuser operating system, partitioning, swapping,
10	May 30-31- June 1-4,2022	Paging and segmentation, virtual memory
11	June 6-11, 2022	Page replacement Algorithms, Thrashing.
12	June 13-16, 2022	Process synchronization: critical section problems, semaphores. Mutual exclusion
13	June 13-18,2022	Device and file management: Disk scheduling, Disk structure, Disk management
14	June 20-25, 2022	File Systems: Functions of the system, File access and allocation methods
15	June 27-30, July1-2,2022	Directory Systems: Structured Organizations, directory and file protection mechanisms
16	July 4- 9,2022	Revision

## CLASS- B.Sc. III (5<sup>th</sup> Sem.)

### Paper-I: Fundamentals of Database Systems

Week	Odd Sem	Topics
1	Oct 25-30, 2021	Basic Concepts – Data, Information, Records and files. Traditional file Based Approach
2	Nov. 8-13 , 2021	Limitations of Traditional File Based Approach, Database Approach-Characteristics of Database Approach
3	Nov.15-20 , 2021	Database Management System (DBMS), Components of DBMS Environment, DBMS Functions and Components, Advantages of DBMS
4	Nov. 22-27, 2021	Disadvantages of DBMS. Actors on the Scene - Data and Database Administrator, Database Designers
5	Nov. 29-Dec. 4,2021	End users Applications Developers and Workers behind the Scene. Database System Architecture – Three Levels of Architecture
6	Dec.6-11, 2021	Schemas – External, Conceptual and Internal Level, Database Languages – VDL, DDL, SDL, DML, SQL, Mappings – External/ Conceptual
7	Dec.13-18 , 2021	Conceptual/Internal mapping,Instances, Data Independence – Logical and Physical Data Independence
8	Dec.20- 24, 2021	Data Models: High Level, Low Level and Representational – Records- based Data Models
9	Dec 27, 2021 - Jan 1,2022	Object-based Data Models, Physical Data Models and Conceptual Models Entity-Relationship Model – Concepts, Entity Types, Entity Sets.
10	Jan 3-8, 2022	Attributes, Relationships,Constraints, Keys , Degree, Cardinality etc. ER Diagrams of any Database Organization.
11	Jan.10-15, 2022	Inventory System, Payroll System,Reservation System, Online Book Store etc.
12	Jan. 17-22, 2022	Classification of Database Management System, Centralized and Client Server architecture
13	Jan. 24-29, 2022	Relational Data Model:-Brief History, Terminology in Relational Data Structure, Relations, Properties of Relations,
14	Jan 31, Feb1-5, 2022	Keys – Primary, Secondary, Composite, Candidate Keys
15	Feb. 7-12,2022	Alternate and Foreign Key, Domains, Integrity Constraints over Relations.
16	Feb. 14-19, 2022	Revision
17	Feb. 21-22, 2022	Sessional

## CLASS- B.Sc. III (5<sup>th</sup> Sem.)

### Paper-II: Web Designing

Week	Odd Sem	Topics
1	Oct 25-30, 2021	Introduction to Internet and World Wide Web; Evolution and History of World Wide Web
2	Nov. 8-13 , 2021	Basic Features; Web Browsers; Web Servers; Hypertext Transfer Protocol
3	Nov.15-20 , 2021	URLs; Searching and WebCasting Techniques; Search Engines and Search Tools
4	Nov. 22-27, 2021	Steps for Developing Website; Choosing the Contents; Home Page
5	Nov. 29-Dec. 4,2021	Domain Names; Internet Service Provider; Planning and Designing Web Site
6	Dec.6-11, 2021	Creating a Website; Web Publishing: Hosting Site
7	Dec.13-18 , 2021	Introduction to HTML; Hypertext and HTML; HTML Document Features
8	Dec.20- 24, 2021	HTML Tags; Header, Title, Body, Paragraph, Ordered/Unordered Line
9	Dec 27, 2021 - Jan 1,2022	Creating Links; Headers; Text Styles; Text Structuring; Text Colors and Background
10	Jan 3-8, 2022	Formatting Text; Page layouts; Insertion of Text, Movement of Text
11	Jan.10-15, 2022	Images: Types of Images, Insertion of Image, Movement of Image
12	Jan. 17-22, 2022	Ordered and Unordered lists; Inserting Graphics; Table Handling Functions like Columns, Rows, Width
13	Jan. 24-29, 2022	Frame Creation and Layouts
14	Jan 31, Feb1-5, 2022	Working with Forms and Menus
15	Feb. 7-12,2022	Working with Buttons like Radio, Check Box
16	Feb. 14-19, 2022	Revision
17	Feb. 21-22, 2022	Sessional

## CLASS- B.Sc. III (6<sup>th</sup> Sem.)

### Paper-I: Relational Database Management Systems

Week	Even Sem	Topics
1	April 1-2, 2022	Relational Model Concepts, Codd's Rules for Relational Model, Hierarchical Data Model– Introduction
2	April 4-9, 2022	Features, Components, Example, Network Data Model– Introduction, Features, Components
3	April 11-16,2022	Example, Differences between Hierarchical Data Model and Network Data Model
4	April 18-23, 2022	Comparison of Relational Data Model with Hierarchical Data Model and Network Data Model
5	April 25-30, 2022	Relational Algebra:-Selection and Projection, Set Operation, Join and Division.
6	May 2-7,2022	Relational Calculus: Tuple Relational Calculus and Domain Relational Calculus,Functional Dependencies and Normalization
7	May 9-14, 2022	Purpose, Data Redundancy, Update Anomalies,Partial/Fully Functional Dependencies, Transitive Functional Dependencies
8	May 16-21,2022	Characteristics of Functional Dependencies,Decomposition and Normal Forms (1NF, 2NF, 3NF & BCNF)
9	May23-28, 2022	SQL: Data Definition and data types, Create Table, Insert Data,Viewing Data, Filtering Table,Data, Sorting data, Creating Table from a Table
10	May 30-31- June 1-4,2022	Destroy table, Update, View, Delete, Join,Concatenating data , Primary Key,Foreign KeyUnique Key, Check Constraint, Using Functions
11	June 6-11, 2022	PL/SQL-Introduction, Advantages of PL/SQL,The Generic PL/SQL Block: PL/SQL Execution Environment, PL/SQL Character Set and Data Types
12	June 13-16, 2022	Declaration and Assignment of Variables Control Structure in PL/SQL: Conditional Control, Iterative Control, Sequential Control

**CLASS- B.Sc. III (6<sup>th</sup> Sem.)**  
**Paper-II: Computer Networks**

<b>Week</b>	<b>Even Sem</b>	<b>Topics</b>
1	April 1-2, 2022	Introduction to Data Communication and Computer Networks; Uses of Computer Networks; Types of Computer Networks
2	April 4-9, 2022	Topologies; Network Hardware Components: Connectors, Transceivers, Repeaters, Hubs, Network Interface Cards
3	April 11-16,2022	PC Cards, Bridges, Switches, Routers, Gateways; Network Software:
4	April 18-23, 2022	Network Design issues and Protocols; Connection-Oriented and Connectionless Services;
5	April 25-30, 2022	OSI Reference Model; TCP/IP Model; Analog and Digital Communications Concepts: Analog and Digital data and signals;
6	May 2-7,2022	Bandwidth and Data Rate, Capacity, Baud Rate;Guided and Wireless Transmission Media,Communication Satellites
7	May 9-14, 2022	Switching and Multiplexing,Modems and modulation techniques,Data Link Layer Design issues
8	May 16-21,2022	Error Detection and Correction methods;Sliding Window Protocols: One-bit, Go Back N and Selective Repeat
9	May23-28, 2022	Media Access Control: ALOHA, Slotted ALOHA,CSMA, Collision free protocols; Introduction to LAN technologies: Ethernet, Switched Ethernet
10	May 30-31- June 1-4,2022	Fast Ethernet, Gigabit Ethernet; Token Ring; Introduction to Wireless LANs and Bluetooth,Routing Algorithms: Flooding, Shortest Path Routing
11	June 6-11, 2022	Distance Vector Routing, Link State Routing, Hierarchical Routing; Congestion Control; Traffic shaping; Choke packetsLoad shedding
12	June 13-16, 2022	E-Mail and WWW services,Network Security Issues: Security attacks; Encryption methods; Firewalls; Digital Signatures.

# LESSON PLANS

## B.Com. (Gen.)

### SESSION (2021-22)

#### CLASS- B.Com. I (Gen.) (1<sup>st</sup> Sem.)

#### Subject- Computer Applications In Business

Week	Odd Sem	Topics
1	Oct 25-30, 2021	Introduction to Computers: definition, components and characteristics of computers; Input Devices
2	Nov. 8-13 , 2021	output devices: memory and mass storage devices;
3	Nov.15-20 , 2021	Various Portable devices Introduction to modern CPU and processors.
4	Nov. 22-27, 2021	Computer software: introduction, types of software: system, application and utility software;
5	Nov. 29-Dec. 4,2021	Revision and Class Test of Previous Topics, Application and utility software
6	Dec.6-11, 2021	Programming languages, language interpreters, difference, <b>Assignment-1</b>
7	Dec.13-18 , 2021	Introduction to operating system: types and function of operating system
8	Dec.20- 24, 2021	Classification of various operating System
9	Dec 27, 2021 - Jan 1,2022	Real-time applications and revision of Previous topics
10	Jan 3-8, 2022	Operating systems for Tabs, mobile phones, Android, etc.
11	Jan.10-15, 2022	Open source software: An overview. <b>Assignment-2</b>
12	Jan. 17-22, 2022	Application software: Spreadsheets, applications, functions
13	Jan. 24-29, 2022	Application software:Word processors, Applications, functions, advantages and disadvantages,Database management software;
14	Jan 31, Feb1-5, 2022	Networks basic, types of networks, topologies,
15	Feb. 7-12,2022	Wired and Wireless media,hardware and software required for networking
16	Feb. 14-19, 2022	Revision of syllabus.
17	Feb. 21-22, 2022	Sessional Test

#### CLASS- B.Com. I (Gen.) (2<sup>nd</sup> Sem.)

#### Subject- E-Commerce

Week	Even Sem	Topics
1	April 1-2, 2022	Introduction to Internet: Concept, Application and Uses of Internet.
2	April 4-9, 2022	Introduction to Internet:Internet Services.
3	April 11-16,2022	Information Technology and Business: Concepts of data, Information and Information System
4	April 18-23, 2022	Information Technology and Business:Effects of IT on Business;Types of Information System
5	April 25-30, 2022	Revision
6	May 2-7,2022	Transaction Processing System (TPS), Management Information System (MIS).
7	May 9-14, 2022	Assignment-1
8	May 16-21,2022	Introduction to E-commerce:E-Commerce and World Wide Web.
9	May23-28, 2022	Introduction to E-commerce:E-Commerce Application Services.
10	May 30-31- June 1-4,2022	E-Commerce Models: B2B, B2C, C2C;

11	June 6-11, 2022	Electronic Data Interchange: Benefits, Components of EDI, EDI implementation.
12	June 13-16, 2022	Electronic Data Interchange: Security Issues in E-Commerce.
13	June 13-18, 2022	M-commerce: An Overview, E-Governance: An Overview.
14	June 20-25, 2022	Assignment-2
15	June 27-30, July 1-2, 2022	Revision & Test Series
16	July 4- 9, 2022	Sessional Test

# LESSON PLANS

## B.Com. (Tax and Honors)

### SESSION (2021-22)

#### CLASS- B.Com. I (Tax and Honors) (1<sup>st</sup> Sem.)

#### Subject- Computer Applications In Business

Week	Odd Sem	Topics
1	Oct 25-30, 2021	Introduction to Computers: definition, components and characteristics of computers; Input Devices
2	Nov. 8-13 , 2021	output devices: memory and mass storage devices;
3	Nov.15-20 , 2021	Various Portable devices Introduction to modern CPU and processors.
4	Nov. 22-27, 2021	Computer software: introduction, types of software: system, application and utility software;
5	Nov. 29-Dec. 4,2021	Revision and Class Test of Previous Topics, Application and utility software
6	Dec.6-11, 2021	Programming languages, language interpreters, difference, <b>Assignment-1</b>
7	Dec.13-18 , 2021	Introduction to operating system: types and function of operating system
8	Dec.20- 24, 2021	Classification of various operating System
9	Dec 27, 2021 - Jan 1,2022	Real-time applications and revision of Previous topics
10	Jan 3-8, 2022	Operating systems for Tabs, mobile phones, Android, etc.
11	Jan.10-15, 2022	Open source software: An overview. <b>Assignment-2</b>
12	Jan. 17-22, 2022	Application software: Spreadsheets, applications, functions
13	Jan. 24-29, 2022	Application software:Word processors, Applications, functions, advantages and disadvantages,Database management software;
14	Jan 31, Feb1-5, 2022	Networks basic, types of networks, topologies,
15	Feb. 7-12,2022	Wired and Wireless media,hardware and software required for networking
16	Feb. 14-19, 2022	Revision of syllabus.
17	Feb. 21-22, 2022	Sessional Test

#### CLASS- B.Com. I (Tax and Honors) (2<sup>nd</sup> Sem.)

#### Subject- E-Commerce

Week	Even Sem	Topics
1	April 1-2, 2022	Introduction to Internet: Concept, Application and Uses of Internet.
2	April 4-9, 2022	Introduction to Internet:Internet Services.
3	April 11-16,2022	Information Technology and Business: Concepts of data, Information and Information System
4	April 18-23, 2022	Information Technology and Business:Effects of IT on Business;Types of Information System
5	April 25-30, 2022	Revision
6	May 2-7,2022	Transaction Processing System (TPS), Management Information System (MIS).
7	May 9-14, 2022	Assignment-1
8	May 16-21,2022	Introduction to E-commerce:E-Commerce and World Wide Web.

9	May23-28, 2022	Introduction to E-commerce:E-Commerce Application Services.
10	May 30-31- June 1-4,2022	E-Commerce Models: B2B, B2C, C2C;
11	June 6-11, 2022	Electronic Data Interchange: Benefits, Components of EDI, EDI implementation.
12	June 13-16, 2022	Electronic Data Interchange:Security Issues in E-Commerce.
13	June 13-18,2022	M-commerce: An Overview, E-Governance: An Overview.
14	June 20-25, 2022	Assignment-2
15	June 27-30, July1-2,2022	Revision & Test Series
16	July 4- 9,2022	Sessional Test

# LESSON PLANS

## B.Com. (Voc)

### SESSION (2021-22)

#### CLASS- B.Com. I (Voc) (1<sup>st</sup> Sem.)

#### Subject- Computer Applications In Business

Week	Odd Sem	Topics
1	Oct 25-30, 2021	Introduction to Computers: definition, components and characteristics of computers; Input Devices
2	Nov. 8-13 , 2021	output devices: memory and mass storage devices;
3	Nov.15-20 , 2021	Various Portable devices Introduction to modern CPU and processors.
4	Nov. 22-27, 2021	Computer software: introduction, types of software: system, application and utility software;
5	Nov. 29-Dec. 4,2021	Revision and Class Test of Previous Topics, Application and utility software
6	Dec.6-11, 2021	Programming languages, language interpreters, difference, <b>Assignment-1</b>
7	Dec.13-18 , 2021	Introduction to operating system: types and function of operating system
8	Dec.20- 24, 2021	Classification of various operating System
9	Dec 27, 2021 - Jan 1,2022	Real-time applications and revision of Previous topics
10	Jan 3-8, 2022	Operating systems for Tabs, mobile phones, Android, etc.
11	Jan.10-15, 2022	Open source software: An overview. <b>Assignment-2</b>
12	Jan. 17-22, 2022	Application software: Spreadsheets, applications, functions
13	Jan. 24-29, 2022	Application software:Word processors, Applications, functions, advantages and disadvantages,Database management software;
14	Jan 31, Feb1-5, 2022	Networks basic, types of networks, topologies,
15	Feb. 7-12,2022	Wired and Wireless media,hardware and software required for networking
16	Feb. 14-19, 2022	Revision of syllabus.
17	Feb. 21-22, 2022	Sessional Test

#### CLASS- B.Com. I (Voc) (2nd Sem.)

#### Subject- E-Commerce

Week	Even Sem	Topics
1	April 1-2, 2022	Introduction to Internet: Concept, Application and Uses of Internet.
2	April 4-9, 2022	Introduction to Internet:Internet Services.
3	April 11-16,2022	Information Technology and Business: Concepts of data, Information and Information System
4	April 18-23, 2022	Information Technology and Business:Effects of IT on Business;Types of Information System
5	April 25-30, 2022	Revision



6	May 2-7,2022	Transaction Processing System (TPS), Management Information System (MIS).
7	May 9-14, 2022	Assignment-1
8	May 16-21,2022	Introduction to E-commerce:E-Commerce and World Wide Web.
9	May23-28, 2022	Introduction to E-commerce:E-Commerce Application Services.
10	May 30-31- June 1-4,2022	E-Commerce Models: B2B, B2C, C2C;
11	June 6-11, 2022	Electronic Data Interchange: Benefits, Components of EDI, EDI implementation.
12	June 13-16, 2022	Electronic Data Interchange:Security Issues in E-Commerce.
13	June 13-18,2022	M-commerce: An Overview, E-Governance: An Overview.
14	June 20-25, 2022	Assignment-2
15	June 27-30, July1-2,2022	Revision & Test Series
16	July 4- 9,2022	Sessional Test

**LESSON PLANS**  
**M.Com. (Final)**  
**SESSION (2021-22)**

**CLASS- M.Com. II (3<sup>rd</sup> Sem.)**  
**Subject- Computer Applications in Business**

<b>Week</b>	<b>Odd Sem</b>	<b>Topics</b>
1	Oct 25-30, 2021	Computer System: Meaning, scope, types
2	Nov. 8-13 , 2021	Basic computer organization: Central Processing Unit,input, output
3	Nov.15-20 , 2021	storage devices; Introduction to software; System software
4	Nov. 22-27, 2021	operating system, user interface and its types; Application software - word processing
5	Nov. 29-Dec. 4,2021	Revision and class Test
6	Dec.6-11, 2021	spreadsheets; Introduction to databases, tables, queries, reports
7	Dec.13-18 , 2021	form generation, Information Technology in Business: Concept of information technology
8	Dec.20- 24, 2021	Local Area Network,MAN, Wide Area Networks
9	Dec 27, 2021 - Jan 1,2022	Network Topologies, Electronic data processing
10	Jan 3-8, 2022	Various Transmission media
11	Jan.10-15, 2022	Intranet and extranet, EDI concept and evolution
12	Jan. 17-22, 2022	Revision and class Test
13	Jan. 24-29, 2022	World Wide Web; Multimedia technologies
14	Jan 31, Feb1-5, 2022	Video conferencing, Broadband networks, Planning and designing web pages
15	Feb. 7-12,2022	Fuzzy Logic, Fuzzy operations, Applications , Advantages & limitations.
16	Feb. 14-19, 2022	Revision and class Test
17	Feb. 21-22, 2022	Sessional

**CLASS- M.Com. II ( 4<sup>th</sup> Sem.)**  
**Subject- IT and E-Commerce**

<b>Week</b>	<b>Even Sem</b>	<b>Topics</b>
1	April 1-2, 2022	Introduction to E-commerce: Meaning of electronic commerce, business applications of e-commerce
2	April 4-9, 2022	comparison with traditional commerce; Business models in E-commerce
3	April 11-16,2022	e-shops, e-procurement, e-auctions, value chain integrators
4	April 18-23, 2022	information brokerage, telecommunication, collaboration platforms
5	April 25-30, 2022	Electronic payment system; E-Banking –concept, operations

6	May 2-7,2022	Online fund transfer – RTGC, ATM, etc., Online share market operations
7	May 9-14, 2022	Online marketing, Web-based advertising – concept, advantages; Types of online advertisements
8	May 16-21,2022	Search engine – as an advertising media, search engine optimisation – concept and techniques
9	May23-28, 2022	Email marketing; Social Networking and marketing – promotion, opinion formulation
10	May 30-31- June 1-4,2022	Viral Marketing, E-retailing-concept, advantages, limitations
11	June 6-11, 2022	CRM and Information Technology, Tools to conducting online research – secondary research
12	June 13-16, 2022	online focus groups, web based surveys, data mining from social networking sites
13	June 13-18,2022	Cloud computing – Concept, uses in business; Enterprise Resource Planning
14	June 20-25, 2022	Security issues in e-commerce - Online frauds, Privacy issues
15	June 27-30, July1-2,2022	Cyber laws including Information Technology Act
16	July 4- 9,2022	Revision

*(Signature)*  
 ( Sushil Goel )  
 Head  
 Deptt. of Computer Sc.

**HOD**

**Department of Computer Science**

