

Course: BCA-3rd Semester

Subject: Operating System

Faculty Name: Ms.Esha Bansal

Month	Week	Syllabus
July 2023	3 rd	Introduction and Process Management: Operating System Services, System Calls
	4 th	System Programs, Process concepts, Process operations
Aug. 2023	1 st	Interprocess Communication, Scheduling Criteria, Scheduling Algorithms
	2 nd	Comparative Study of Scheduling Algorithms
	3 rd	Concurrent Processes: Critical Section Problem, Semaphores
	4 th	Classical Process Co-ordination Problems and their Solutions, Monitors, Synchronization Examples
Sept. 2023	1 st	Deadlocks: Deadlock Characterization, Deadlock Prevention and Avoidance, Deadlock detection and Recovery
	2 nd	Memory Management: Swapping, Paging, Segmentation
	3 rd	Virtual Memory Concepts: Demand Paging
	4 th	Page Replacement Algorithms, Thrashing
Oct. 2023	1 st	Storage Management: File Concepts, File Access and Allocation Methods
	2 nd	Secondary Storage : Disk Structure
	3 rd	Disk Scheduling algorithm: FCFS, SSTF, SCAN, LOOK, C-SCAN, C-LOOK.
	4 th	Protection & Security: Goals & Principles of Protection, Domains of Protection, Access Matrix, Access Controls. Security: Security problem
Nov-Dec. 2023	1 st	Threats, Security tools, Classification.
	2 nd	Revision
	3 rd	Revision
	4 th	Revision

Course: BCA-3rd Semester

Subject: Object Oriented Programming using C++

Faculty Name: Ms.Esha Bansal

Month	Week	Syllabus
July 2023	3 rd	Structure of C++ program: Data-types, Variables, Static Variables, Operators in C++, Arrays, Strings, Structure, Functions,
	4 th	Recursion, Control Statements. Introduction to Class: Class Definition, Classes and Objects
Aug. 2023	1 st	Access Specifiers: Private, Public and Protected, Member functions of the class,
	2 nd	Constructor and Destructor, Parameterized Constructor, Copy Constructors. Assignment-1
	3 rd	Inheritance: Reusability, Types of Inheritance: Single inheritance, Multiple, Multilevel, Hybrid Inheritance,
	4 th	Public, Private, and Protected Derivations, Using derived class, Constructor and destructor in derived class,
Sept. 2023	1 st	Object initialization and conversion, Nested classes(Container classes), Virtual Inheritance and Virtual base class. Test
	2 nd	Polymorphism: Function Overloading, Static Class Members, Static Member Functions,
	3 rd	Friend Functions, Operator Overloading: Unary and Binary Operator Overloading.
	4 th	Abstract class, Virtual function, Pure virtual function, Overloading vs. Overriding.
Oct. 2023	1 st	Memory management: new, delete, object Creation at Run Time, This Pointer.
	2 nd	Exception handling: Throwing, Catching, Rethrowing an exception, specifying exceptions, processing unexpected exceptions, Exceptions when handling exceptions, resource capture and release. Assignment-2
	3 rd	Templates: Introduction, Class templates and Function templates,

	4 th	Overloading of template function, namespaces. TEST
Nov-Dec. 2023	1 st	Introduction to STL: Standard Template Library: benefits of STL, containers
	2 nd	adapters, iterator, vector, list.
	3 rd	Revision
	4 th	Revision

Course: B.A(CS) -3rd Semester

Subject: Software Engineering

Faculty Name: Ms.Esha Bansal

Month	Week	Syllabus
July 2023	3 rd	Introduction: Program vs. Software, Software Engineering, Programming paradigms, Software Crisis – problem and causes
	4 th	Phases in Software Development: Requirement Analysis, Software Design, Coding, Testing, Maintenance.
Aug. 2023	1 st	Software Development Process Models: Waterfall, Prototype, Evolutionary and Spiral models,
	2 nd	Role of Metrics. Feasibility Study, Software Requirement Analysis and Specifications: SRS, Assignment 1
	3 rd	Need for SRS, Characteristics of an SRS, Components of an SRS
	4 th	Problem Analysis, Information gathering tools, Organizing and structuring information,
Sept. 2023	1 st	Requirement specification, validation and Verification.
	2 nd	SCM, Structured Analysis and Tools: Data Flow Diagram, Data Dictionary,
	3 rd	Decision table, Decision tress, Structured English, Entity-Relationship diagrams,
	4 th	Cohesion and Coupling. Gantt chart, PERT Chart.

		Assignment 2
Oct. 2023	1 st	Software Maintenance: Type of maintenance, Management of Maintenance, Maintenance Process, maintenance characteristics.
	2 nd	Software Project Planning: Cost estimation: COCOMO model, Project scheduling,
	3 rd	Staffing and personnel planning, team structure, Software configuration management,
	4 th	Quality assurance plans, TEST
Nov-Dec. 2023	1 st	Project monitoring plans, Risk Management.
	2 nd	Software testing strategies: unit testing, integration testing, Validation testing, System testing, Alpha and Beta testing.
	3 rd	Revision
	4 th	Revision

NAME OF THE FACULTY: Ms. JYOTI

DATE	CLASS: B.Sc. Phys. Sc. I SUBJECT: Logical Organization of Computer	CLASS: B.C.A. I SUBJECT: Foundation of Computer Science	CLASS: B.A. I SUBJECT: Logical Organization of Computer
July 2023	Number Systems: Binary, Octal, Hexadecimal etc. Conversions from one number system to another, BCD Number	Computer Fundamentals: Evolution of Computers through generations, Characteristics of Computers, Strengths and Limitations of Computers, Classification of Computers, Functional Components of a Computer System	Number Systems: Binary, Octal, Hexadecimal etc. Conversions from one number system to another, BCD Number
Aug 2023	System. BCD Codes: Natural Binary Code, Weighted Code, Self-Complimenting Code, Cyclic Code. Error Detecting and Correcting Codes. Character representations: ASCII, EBCDIC and Unicode. Number Representations: Integer numbers - sign-magnitude, 1's & 2's complement representation. Real Numbers normalized floating point representations.	Applications of computers in Various Fields. Types of Software: System software, Application software, Utility Software, Shareware, Freeware, Firmware, Free Software. Memory Systems: Concept of bit, byte, word, nibble, storage locations and addresses, measuring units of storage capacity, access time, concept of memory hierarchy. Primary Memory - RAM, ROM, PROM, EPROM. Secondary Memory - Types of storage devices, Magnetic Tape, Hard Disk, Optical Disk, Flash Memory	System. BCD Codes: Natural Binary Code, Weighted Code, Self-Complimenting Code, Cyclic Code. Error Detecting and Correcting Codes. Character representations: ASCII, EBCDIC and Unicode. Number Representations: Integer numbers - sign-magnitude, 1's & 2's complement representation. Real Numbers normalized floating point representations.
Sept 2023	Binary Arithmetic: Binary Addition, Binary Subtraction, Binary Multiplication, Binary Division using 1's and 2's Compliment representations,	I/O Devices: I/O Ports of a Desk Top Computer, Device Controller, Device Driver. Input Devices: classification and use, keyboard, pointing devices - mouse, touch pad and track ball, joystick,	Binary Arithmetic: Binary Addition, Binary Subtraction, Binary Multiplication, Binary Division using 1's and 2's Compliment representations, Addition and subtraction with BCD

	<p>Addition and subtraction with BCD representations.</p> <p>Boolean Algebra: Boolean Algebra Postulates, basic Boolean Theorems, Boolean Expressions, Boolean Functions, Truth Tables, Canonical Representation of Boolean Expressions: SOP and POS, Simplification of Boolean Expressions using Boolean Postulates & Theorems, Karnaugh-Maps (upto four variables), Handling Don't Care conditions</p>	<p>magnetic stripes, scanner, digital camera, and microphone</p> <p>Output Devices: speaker, monitor, printers: classification, laser, ink jet, dot-matrix. Plotter.</p> <p>Introduction to Operating System: Definition, Functions, Features of Operating System, Icon, Folder, File, Start Button, Task Bar, Status Buttons, Folders, Shortcuts, Recycle Bin, Desktop, My Computer, My Documents, Windows Explorer, Control Panel.</p>	<p>representations.</p> <p>Boolean Algebra: Boolean Algebra Postulates, basic Boolean Theorems, Boolean Expressions, Boolean Functions, Truth Tables, Canonical Representation of Boolean Expressions: SOP and POS, Simplification of Boolean Expressions using Boolean Postulates & Theorems, Karnaugh-Maps (upto four variables), Handling Don't Care conditions</p>
Oct 2023	<p>Logic Gates: Basic Logic Gates – AND, OR, NOT, Universal Gates – NAND, NOR, Other Gates – XOR, XNOR etc. Their symbols, truth tables and Boolean expressions.</p> <p>Combinational Circuits: Design Procedures, Half Adder, Full Adder, Half Subtractor, Full Subtractor, Multiplexers, Demultiplexers, Decoder, Encoder, Comparators, Code Converters</p>	<p>The Internet: Introduction to networks and internet, history, Internet, Intranet & Extranet, Working of Internet, Modes of Connecting to Internet.</p> <p>Electronic Mail: Introduction, advantages and disadvantages, User Ids, Passwords, e-mail addresses, message components, message composition, mailer features. Browsers and search engines</p>	<p>Logic Gates: Basic Logic Gates – AND, OR, NOT, Universal Gates – NAND, NOR, Other Gates – XOR, XNOR etc. Their symbols, truth tables and Boolean expressions.</p> <p>Combinational Circuits: Design Procedures, Half Adder, Full Adder, Half Subtractor, Full Subtractor, Multiplexers, Demultiplexers, Decoder, Encoder, Comparators, Code Converters</p>
Nov-Dec 2023	<p>Sequential Circuits: Basic Flip-Flops and their working. Synchronous and</p>	<p>Threats: Physical & non-physical threats, Virus, Worm, Trojan, Spyware, Keyloggers, Rootkits,</p>	<p>Sequential Circuits: Basic Flip-Flops and their working. Synchronous and Asynchronous Flip –Flops,</p>

	<p>Asynchronous Flip – Flops, Triggering of Flip-Flops, Clocked RS, D Type, JK, T type and Master-Slave Flip-Flops. State Table, State Diagram and State Equations. Flip-flops characteristics & Excitation Tables. Sequential Circuits: Designing registers – Serial-In Serial-Out (SISO), Serial-In Parallel-Out (SIPO), Parallel-In Serial-Out (PISO) Parallel-In Parallel-Out (PIPO) and shift registers Revision</p>	<p>Adware, Cookies, Phishing, Hacking, Cracking. Computer Security Fundamentals: Confidentiality, Integrity, Authentication, Non-Repudiation, Security Mechanisms, Security Awareness, Security Policy, anti-virus software & Firewalls, backup & recovery. Revision</p>	<p>Triggering of Flip-Flops, Clocked RS, D Type, JK, T type and Master-Slave Flip-Flops. State Table, State Diagram and State Equations. Flip-flops characteristics & Excitation Tables. Sequential Circuits: Designing registers –Serial-In Serial-Out (SISO), Serial-In Parallel-Out (SIPO), Parallel-In Serial-Out (PISO) Parallel-In Parallel-Out (PIPO) and shift registers Revision</p>
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NAME OF THE FACULTY: MS PRIYANKA

DATE	CLASS: B.C.A. I SUBJECT: Logical Organization of Computer	CLASS: B.C.A. I SUBJECT: Problem Solving through C	CLASS: B.C.A. II SUBJECT: Information Security
July 2023	Number Systems: Binary, Octal, Hexadecimal etc. Conversions from one number system to another, BCD Number	Overview of C: History, Importance, Structure of C Program, Character Set, Constants and Variables, Identifiers and Keywords, Data Types, Assignment Statement, Symbolic Constant.	Basic Encryption and Decryption: Introduction to Ciphers, Mon alphabetic Substitutions Such as the Caesar Cipher, Cryptanalysis' of Monoalphabetic Ciphers
Aug 2023	System. BCD Codes: Natural Binary Code, Weighted Code, Self-Complimenting Code, Cyclic Code. Error Detecting and Correcting Codes. Character representations: ASCII, EBCDIC and Unicode. Number Representations: Integer numbers - sign-magnitude, 1's & 2's complement representation. Real Numbers normalized floating point representations.	Input/output: Formatted I/O Function-, Input Functions viz. scanf(), getch(), getche(), getchar(), gets(), output functions viz. printf(), putchar(), puts(). Operators & Expression: Arithmetic, Relational, Logical, Bitwise, Unary, Assignment, Conditional Operators and Special Operators Operator Hierarchy;. Arithmetic Expressions, Evaluation of Arithmetic Expression,	Polyalphabetic Ciphers such as Vigenere Tableaux , Cryptanalysis of Polyalphabetic Ciphers, Perfect Substitution Cipher Such as the Vernam Cipher, stream and block Ciphers.
Sept 2023	Binary Arithmetic: Binary Addition, Binary Subtraction, Binary Multiplication, Binary Division using 1's and 2's Compliment representations, Addition and	Type Casting and Conversion. Decision making with if statement, if-else statement, nested if statement, else-if ladder, switch and break statement, goto statement, Looping Statements: for, while,	Properties of Arithmetic Operations: Inverses, Primes, Greatest common Divisor, Euclidean Algorithm, Modular Arithmetic, Properties of Modular Arithmetic, Computing the inverse,

	<p>subtraction with BCD representations.</p> <p>Boolean Algebra: Boolean Algebra Postulates, basic Boolean Theorems, Boolean Expressions, Boolean Functions, Truth Tables, Canonical Representation of Boolean Expressions: SOP and POS, Simplification of Boolean Expressions using Boolean Postulates & Theorems, Karnaugh-Maps (upto four variables), Handling Don't Care conditions</p>	<p>and do-while loop, jumps in loops.</p> <p>Arrays: One Dimensional arrays - Declaration, Initialization and Memory representation; Two Dimensional arrays -Declaration, Initialization and Memory representation.</p> <p>Functions: definition, prototype, function call, passing arguments to a function: call by value; call by reference, recursive functions.</p>	<p>Fermat Theorem, Algorithm for Computing Inverses, Random number generation.</p>
Oct 2023	<p>Logic Gates: Basic Logic Gates – AND, OR, NOT, Universal Gates – NAND, NOR, Other Gates – XOR, XNOR etc. Their symbols, truth tables and Boolean expressions.</p> <p>Combinational Circuits: Design Procedures, Half Adder, Full Adder, Half Subtractor, Full Subtractor, Multiplexers, Demultiplexers, Decoder, Encoder, Comparators, Code Converters</p>	<p>Strings: Declaration and Initialization, String I/O, Array of Strings, String Manipulation Functions: String Length, Copy, Compare, Concatenate etc., Search for a Substring.</p> <p>Pointers in C: Declaring and initializing pointers, accessing address and value of variables using pointers; Pointers and Arrays.</p>	<p>Secure Secret key (Symmetric) Systems : Data Encryption standard (DES),Analyzing and Strengthening of DES, Public Key (Asymmetric key)Encryption Systems: Concept of Public key Encryption system, Introduction to Merkle, Hellman Knapsacks, Rivest, Shamir, Adelman (RSA) Encryption.</p>
Nov-Dec 2023	<p>Sequential Circuits: Basic Flip- Flops and their working. Synchronous and</p>	<p>User defined data types: Structures - Definition, Advantages of Structure, declaring structure</p>	<p>Digital Signature Algorithms (DSA), Hash Algorithms: Hash concept,Description of</p>

	<p>Asynchronous Flip – Flops, Triggering of Flip-Flops, Clocked RS, D Type, JK, T type and Master-Slave Flip-Flops. State Table, State Diagram and State Equations. Flip-flops characteristics & Excitation tables. Sequential Circuits: Designing registers –Serial-In Serial-Out (SISO), Serial-In Parallel-Out (SIPO), Parallel-In Serial-Out (PISO) Parallel-In Parallel-Out (PIPO) and shift registers Revision</p>	<p>variables, accessing structure members, Structure members initialization, Array of Structures; Unions - Union definition; difference between Structure and Union. Revision</p>	<p>Hash Algorithms, Algorithms such as MD4 and MD5, Secure Hash Algorithms (SHA). Revision</p>
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Course: BA CS 5th semester

Subject: Web Designing

Faculty Name: Mr. Ashish Kumar

Month	Week	Syllabus
July 2023	3 rd	Introduction to Internet and World Wide Web; Evolution and History of World Wide Web; Basic Features
	4 th	Web Browsers; Introduction to HTML; Hypertext and HTML; HTML Document Features;
August 2023	1 st	Web Servers; Hypertext Transfer Protocol; URLs; Searching and Web-Casting Techniques; HTML Tags; Header, Title, Body, Paragraph, Steps for Developing Website; Choosing the Contents; Home Page; Domain Names; Internet
	2 nd	Service Provider; Ordered/Unordered Line
	3 rd	Creating Links; Headers; Text Styles; Text Structuring;
	4 th	Text Colors and Background; Formatting Text;
September 2023	1 st	Images: Types of Images, Page layouts
	2 nd	Insertion of Text, Movement of Text
	3 rd	Insertion of Image, Movement of Image
	4 th	Ordered and Unordered lists;
Oct. 2023	1 st	Planning and Designing Web Site
	2 nd	Inserting Graphics;
	3 rd	Table Handling Functions like Columns, Rows, Width, Colours;
	4 th	Frame Creation and Layouts;
Nov. 2023	1 st	Working with Forms and Menus;
	2 nd	Working with Buttons like Radio, Check Box; Creating a Website; Web Publishing; Hosting Site;
	3 rd	

	4 th	Search Engines and Search Tools,
Dec. 2023	1 st	Revision
	2 nd	Revision
	3 rd	Revision
	4 th	Revision

Course: BSc 5th semester

Subject: Database Management System

Faculty Name: Mr. Ashish Kumar

Month	Week	Syllabus
July 2023	3 rd	Data, Information, Records and files.
	4 th	Traditional file Based Approach- Limitations of Traditional File Based Approach,
Aug. 2023	1 st	Database Approach-Characteristics of Database Approach, Database Management System (DBMS), Components of DBMS Environment,
	2 nd	DBMS Functions and Components, Advantages and Disadvantages of DBMS. Actors on the Scene - Data and Database Administrator, Database Designers, End users Applications Developers and Workers behind the Scene.
	3 rd	Database System Architecture – Three Levels of Architecture, Schemas – External, Conceptual and Internal Level,
	4 th	Database Languages – VDL, DDL, SDL, DML, SQL, Mappings – External/ Conceptual and Conceptual/Internal, Instances, Data Independence – Logical and Physical Data Independence
Sept. 2023	1 st	Data Models: High Level, Low Level and
	2 nd	Representational Records- based Data Models, Object-based Data Models,
	3 rd	Physical Data Models and Conceptual Models
	4 th	Constraints, Keys , Degree, Cardinality etc

Oct. 2023	1 st	ER Diagrams of any Database Organization- Inventory System, Payroll System
	2 nd	Reservation System, Online Book Store etc.
	3 rd	Classification of Database Management System
	4 th	Centralized and Client Server architecture
Nov. 2023	1 st	Relational Data Model:-Brief History
	2 nd	Terminology in Relational Data Structure
	3 rd	Relations, Properties of Relations, Keys – Primary, Secondary, Composite
	4 th	Candidate, Alternate and Foreign Key, Domains, Integrity Constraints over Relations
Dec. 2023	1 st	Revision
	2 nd	Revision
	3 rd	Revision
	4 th	Revision

Course: BCA-5th Semester

Subject: Big Data Tools

Faculty Name: Mr. Ashish Kumar

Month	Week	Syllabus
July 2023	3 rd	Types of Digital Data
	4 th	Introduction to Big Data, Big Data Analytics
Aug. 2023	1 st	Apache Hadoop, Analysing data with UNIX/ LINUX tools

	2 nd	Analysing data with Hadoop, Hadoop Ecosystem
	3 rd	The concept and design of Hadoop Distributed File System
	4 th	Command Line Interface, Data Flow
Sept. 2023	1 st	Data ingest with Floom and Scoop and Hadoop archives
	2 nd	adoop I/O: Compression, Serialization, Avro and File Based Data Structure
	3 rd	Anatomy of MapReduce job run
	4 th	failures, Job Scheduling, Shuffle and Sort
Oct. 2023	1 st	Task Execution, MapReduce types and formats
	2 nd	MapReduce features
	3 rd	Introduction to PIG, Execution modes of PIG
	4 th	Comparison of PIG with databases, Grunt, PIG Latin
Nov. 2023	1 st	User Defined Functions, Database Processing Operators
	2 nd	Hive Shell, Hive Services, Hive Metastore, Comparison with traditional databases
	3 rd	HiveQL, Tables, Querying data and user defined functions
	4 th	Hbase concepts, Clients, Hbase versus RDBMS, Introduction to BigSQL.
Dec. 2023	1 st	Revision
	2 nd	Revision
	3 rd	Revision
	4 th	Revision

NAME OF THE FACULTY: DR. MONIKA

DATE	TOPICS TO BE COVERED			
	CLASS: BCA II SUBJECT: WEB DESIGNING	CLASS: BA III SUBJECT: WEB DESIGNING	CLASS: BA III SUBJECT: FUNDAMENTALS OF DATA BASE SYSTEM	CLASS: BA I SUBJECT: Basic IT Tools
July	Internet Basics: The Internet and its Advantages disadvantages, Basic Internet Protocols, World Wide Web, URL, Web Page, Web Browser, Web Servers, Client-Server model, FTP, Telnet, Search Engine	Introduction to Internet and World Wide Web; Evolution and History of World Wide Web; Basic Features; Web Browsers; Web Servers; Hypertext Transfer Protocol; URLs;	Basic Concepts – Data, Information, Records and files. Traditional file Based Approach- Limitations of Traditional File Based Approach,	NA
Aug	Mark Up Languages: Introduction to HyperText Markup Language (HTML), Elements, Lists, Tables, Linking documents, Frames, Forms, Creating HTML pages.	Searching and Web-Casting Techniques; Search Engines and Search Tools Introduction to HTML; Hypertext and HTML; HTML Document Features; HTML Tags; Header, Title, Body, Paragraph, Ordered/Unordered Line, Creating Links; Headers; Text Styles; Text Structuring; Text Colors and	Actors on the Scene - Data and Database Administrator, Database Designers, End users Applications Developers and Workers behind the Scene. Database System Architecture – Three Levels of Architecture, Schemas – External, Conceptual and Internal Level, Database Languages – VDL, DDL, SDL, DML, SQL, Mappings –	NA

		Background;	External/ Conceptual and Conceptual/Internal, Instances, Data Independence – Logical and Physical Data Independence	
September	Dynamic Hypertext Mark Up language: Cascading Style Sheets: Features, Core Syntax, Types, Style Sheets and HTML, StyleRules - Cascading and Inheritance, Text Properties, CSS Box Model, Normal Flow, Box Layout, Positioning and other useful-Style Properties.	Steps for Developing Website; Choosing the Contents; Home Page; Domain Names; Internet Service Provider; Planning and Designing Web Site; Creating a Website; Web Publishing: Hosting Site; Page layouts; Insertion of Text, Movement of Text	Data Models: High Level, Low Level and Representational – Records- based Data Models, Object-based Data Models, Physical Data Models and Conceptual Models Entity-Relationship Model – Concepts, Entity Types, Entity Sets, Attributes, Relationships, Constraints, Keys , Degree, Cardinality etc.	Introduction to Computer: Computer and Latest IT gadgets, Evolution of Computers & its applications, Basics of Hardware and Software, Application Software, Systems Software, Utility Software. Central Processing Unit, Input devices, Output devices, Computer Memory & storage, Mobile Apps.

October	<p>Client-Side Programming: Introduction to JavaScript, Perspective, Basic Syntax, Data Types, Variables Statements, Operators, Literals, Control statements, Functions, Arrays, Document Object Model, Built-in Objects.</p>	<p>Images: Types of Images, Insertion of Image, Movement of Image, Ordered and Unordered lists; Inserting Graphics; Table Handling Functions like Columns, Rows, Width, Colours;</p>	<p>ER Diagrams of any Database Organization- Inventory System, Payroll System, Reservation System, Online Book Store etc. Classification of Database Management System, Centralized and Client Server architecture Relational Data Model:-Brief History, Terminology in Relational Data Structure, Relations, Properties of Relations</p>	<p>Introduction to Operating System, Functions of the Operating system, Operating Systems for Desktop and Laptop, Operating Systems for Mobile Phone and Tablets, User Interface for Desktop and Laptop, Task Bar, Icons & shortcuts, Running an Application, Operating System Simple Setting, Changing System Date and Time, Changing Display Properties, To Add or Remove Program and Features, Adding, Removing & Sharing Printers, File and Folder Management.</p>
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November	XML: Relation between XML, HTML, SGML, Goals of XML, Structure and Syntax of XML, Well Formed XML, DTD and its Structure Namespaces and Data Typing in XML, Transforming XML Documents. XPATH.	Frame Creation and Layouts; Working with Forms and Menus; Working with Buttons like Radio, Check Box;	Keys – Primary, Secondary, Composite, Candidate, Alternate and Foreign Key, Domains, Integrity Constraints over Relations.	Introduction to Internet and World Wide Web, Basic of Computer Networks, Local Area Network (LAN), Wide Area Network (WAN), Network Topology, Internet, Applications of Internet, Website Address and URL, Popular Web Browsers (Internet Explorer/Edge, Chrome, Mozilla Firefox, Opera etc.), Popular Search Engines, Searching on the Internet.
December	REVISION	REVISION	REVISION	E-mail: Using E-mails, Opening Email account, Mailbox: Inbox and Outbox, Creating and Sending a new Email, replying to an E-mail message, forwarding an E-mail message, searching emails,

				Attaching files with email, Email Signature. Social Networking: Facebook, Twitter, LinkedIn, Instagram, Instant Messaging (WhatsApp, Facebook Messenger, Telegram), Introduction to Blogs, Digital Locker.
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NAME OF THE FACULTY: Dr. Himanshu Garg

DATE	CLASS: BCA 5th Sem. SUBJECT: Angular JS	CLASS: B.C.A. 5th Sem. SUBJECT: Computer Graphics	CLASS: B.A. 3rd Sem. SUBJECT: Data Structures
July 2023	Need of Angular JS, MVC, Angular Expressions, Built in Filters, Using Angular JS Filters	Introduction: Survey of Computer Graphics and its applications, Components and working of Interactive Graphics, Display Processors;	Introduction: Elementary data organization, Data Structure definition, Data type vs. Data Structure, Categories of data structures, Data structure operations, Applications of data Structures, Algorithms complexity and time-space tradeoff, Big-O notation. Strings: Introduction, strings, String operations, Pattern matching algorithms
Aug 2023	Directives, Directive Lifecycle, Binding Controls to Data, Matching Directives, Role of Controller, Controllers and Modules, Nested Controllers, Using Filters in Controllers	Graphic Devices: Raster scan and Random Scan displays, Resolution, Aspect Ratio, Refresh CRT, Color CRT monitors, LookUp tables, Plasma Panel and LCD monitors, interlacing, grey shades; Interactive Input Devices: keyboard, mouse, trackball, joystick, light pen, digitizing tablet, image scanners, voice system; Hard Copy Devices: printers, plotters;	Arrays: Introduction, Linear arrays, Representation of linear array in memory, Traversal, Insertions, Deletion in an array, Multidimensional arrays, Parallel arrays, Sparse matrix. Linked List: Introduction, Array vs. linked list, Representation of linked lists in memory, Traversal, Insertion, Deletion, Searching in a linked list, Header linked list, Circular linked list, Two-way linked list, Garbage collection.
Sept 2023	Introduction to Angular JS Modules, Working with Angular forms, Model Binding Forms, Updating Models with a twist.	Drawing Geometry: Coordinate Systems; Output Primitives: symmetrical and simple DDA line drawing algorithm, Bresenham's line drawing, loading frame buffer; symmetrical DDA for drawing circle, Polynomial method for circle drawing;	Applications of linked lists. Algorithm of Insertion / deletion in SLL. Stack: primitive operation on stack, algorithms for push and pop. Representation of Stack as Linked List and array, Stacks applications: polish notation, recursion. Introduction to queues, Primitive Operations

		circle drawing using polar coordinates, Bresenham's circle drawing; generation of ellipse;	on the Queues, Circular queue, Priority queue
Oct 2023	Scope, Scope Lifecycle, Scope Inheritance, Scope and Controllers, Rootscope, Scope Broadcasting. Dependency Injection, Creating Services, Factory Service and Provider.	2-D Transformations: translation, rotation, scaling, matrix representations and homogeneous coordinates, composite transformations, general pivot point rotation, general fixed point scaling, shearing; reflection about X Axis and Y Axis; Reflection about Straight lines;, Reflection through an Arbitrary Line	Representation of Queues as Linked List and array, Applications of queue. Algorithm on insertion and Deletion in simple queue and circular queue. Trees - Basic Terminology, representation, Binary Trees, Tree Representations using Array & Linked List
Nov-Dec 2023	SPA, Pros and Cons of SPA, Passing Parameters, Changing Location. ngAnimate module, CSS Transforms. Revision	2-D Viewing: window, viewport; 2-D viewing transformation, zooming, panning; Clipping operations: point and line clipping, Cohen-Sutherland line clipping, mid-point subdivision line clipping, Liang-Barsky line clipping, Sutherland-Hodgman polygon clipping. Revision	Basic operation on Binary tree, Traversal of binary trees:- In order, Preorder & post order, Applications of Binary tree. Algorithm of tree traversal with and without recursion. Introduction to graphs, Definition, Terminology, Directed, Undirected & Weighted graph, Representation of graphs. Revision

Course: BCA -3rd sem

Subject: COOT

Faculty Name: Dr. Sonal Jain

Month	Syllabus
July 2023	Introduction: The Historical development, Nature, Meaning and Management
Aug. 2023	Application of Operations research. Modeling, Its Principal and Approximation of O.R.Models, Main characteristic and phases, General Methods of solving models, Scientific Methods, Scope, Role on Decision Making and Development of Operation Research.
	Assignment 1
Sept. 2023	Linear Programming: Formulation, Graphical solution, standard and matrix form of linear programming problems Constraint. Simplex method and its flow chart, Two-phase Simplex method, Degeneracy.
	Assignment 2
Oct. 2023	Assignment Models: Formulation of problem, Hungarian Method for Assignment Problems, Unbalanced Assignment Problems, Restricted Assignment Problems, Travelling Salesman Problem. Transportation Problem : North West Corner Rule, Row Minima, Column Minima, Lowest Cost Entry, Vogel Approximation method, MODI Method, Degeneracy, Unbalanced and Restricted Transportation Problems, Transshipment Problems.
	TEST
Nov-Dec. 2023	PERT and CPM: Basic steps in PERT/CPM, Techniques, Network Diagram Representation, Forward and Backward Pass-computation, Representation in Tabular form, Determination of Critical path, Critical activity, Difference between CPM and PERT, Floats and Slack Times. Dynamic Programming : Developing Optimal Decision Policy, Dynamic Programming under Certainty: Shortest Route Problem, Multiplicative Separable Return Function and Single Additive Constraint, Additive Separable Return Function and Single Additive Constraint, Additively Separable Return Function and Single Multiplicative

	Revision
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Course: BCA V sem.

Subject: CLOUD COMPUTING

Faculty Name: Dr. Sonal Jain

Month	Syllabus
July 2023	Introduction, Layers and Types of Cloud
Aug. 2023	Features of Cloud, Infrastructure as a Service, Platform as a Service, Software as a Service. Broad Approaches of Migrating to a Cloud, Seven Step Model of Migration into a Cloud. The Onset of Knowledge Era, Evolution of SaaS, Challenges of SaaS Paradigm, Assignment 1
Sept. 2023	Approaching the SaaS integration Enigma, New Integration Scenarios, Integration Methodologies, SaaS Integration Products and Platforms, SaaS Integration Services, Business to Business Integration Services. Issues of Enterprise Applications on Cloud, Transition Challenges, Enterprise Cloud Technology and Market Evolution, Business Drivers towards marketplace for Enterprise Cloud Computing, Cloud Supply Chain. Assignment 2
Oct. 2023	Virtual Machine, Provisioning and Manageability, Virtual Machine Migration Services, Anatomy of Cloud Infrastructure, Distributed Management of Virtual Infrastructure, Scheduling Techniques of Advanced Reservation of Capacity, Capacity Management to meet SLA Commitments. Logical Design of Cluster as a Service, Cloud Storage from LAN to WAN, Technologies for Data Security in Cloud. Unit Test

Nov-Dec. 2023	Integration of Private and Public Cloud, Resource Provisioning Service, Hybrid Cloud Implementation, Importance of Quality and Security in Cloud, Business Ready Dynamic Data Centre, Dynamic ICT Services. Workflow Management System and Clouds, Utilizing Clouds for Workflow Execution.
	Revision

Course
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B.C.A-
5th
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Subject: DATA WAREHOUSE

Faculty Name: Dr. Sonal Jain

Month	Syllabus
July 2023	. Introduction to Data Warehouse, Data Warehouse Delivery Methods
Aug. 2023	System Process : Typical Process Flow within a Data Warehouse, Extract and Load Process, Clean and Transform Data, Backup and Archive Process, Query Management Process. Process Architecture: Load Manager, Warehouse Manager, Query Manager, Detailed Information, Summary Information, Metadata, Data Marting
	Assignment 1
Sept. 2023	Database Schema: Starflake Schema, Snowflake Schema, Fact Constellation Schema, Identifying facts and dimensions, Designing Fact Tables, Designing Dimension Table Designing various schema, Query Redirection Partitioning Strategy: Horizontal Partitioning, Vertical Partitioning, Hardware Partitioning, Sizing the partition. Aggregations: Need of Aggregation, designing summary tables
	Assignment 2
Oct. 2023	Data Marting: Introduction, Need of Data Mart, Design of Data Mart, Cost of Data Mart. Metadata: Data Transformation and Load, Data management, Query Generation, Metadata and tools. Process Managers: Need of tools to manage data warehouse, system managers, data warehouse process managers, load

	manager, warehouse manager, query manager.
	Unit Test
Nov-Dec. 2023	Hardware Architecture: Process, Server Hardware, Network Hardware, Client Hardware. Physical Layout: Parallel Technology, Disk Technology, Database Layout, File systems. Backup and Recovery: Backup Strategies, Testing the Strategy, Disaster Recovery
	Revision

Course: B.Sc(CS) -3rd Semester

Subject: Software Engineering

Faculty Name: Ms. Jyoti

Month	Syllabus
July 2023	Introduction: Program vs. Software, Software Engineering, Programming paradigms, Software Crisis – problem and causes
Aug. 2023	Phases in Software Development: Requirement Analysis, Software Design, Coding, Testing, Maintenance. Software Development Process Models: Waterfall, Prototype, Evolutionary and Spiral models, Role of Metrics. Feasibility Study, Software Requirement Analysis and Specifications: SRS, Need for SRS, Characteristics of an SRS, Components of an SRS Problem Analysis, Information gathering tools, Organizing and structuring information,
	Assignment 1
Sept. 2023	Requirement specification, validation and Verification. Decision table, Decision tress, Structured English, Entity-Relationship diagrams, Cohesion and Coupling. Gantt chart, PERT Chart.
	Assignment 2
Oct. 2023	Software Maintenance: Type of maintenance, Management of Maintenance, Maintenance Process, maintenance characteristics. Software Project Planning: Cost estimation: COCOMO model, Project scheduling, Staffing and personnel planning, team structure, Software configuration management, Quality assurance plans,
	TEST
Nov-Dec. 2023	Project monitoring plans, Risk Management. Software testing strategies: unit testing, integration testing, Validation testing, System testing, Alpha and Beta testing.

	Revision
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Course: B.Sc(CS) -3rd Semester

Subject: Data Structure

Faculty Name: Ms. Jyoti

Month	Syllabus
July 2023	Introduction: Elementary data organization, Data Structure definition, Data type vs. data structure, Categories of data structures,
Aug. 2023	Data structure operations, Applications of data structures, Algorithms complexity and time-space tradeoff, Big-O notation. Strings: Introduction, strings, String operations, Pattern matching algorithms
	Assignment 1
Sept. 2023	Arrays: Introduction, Linear arrays, Representation of linear array in memory, Traversal, Insertions, Deletion in an array, Multidimensional arrays, Parallel arrays, Sparse matrix. Linked List: Introduction, Array vs. linked list, Representation of linked lists in memory, Traversal, Insertion, Deletion, Searching in a linked list, Header linked list, Circular linked list, Two-way linked list, Garbage collection, Applications of linked lists. Algorithm of insertion/ deletion in SLL.
	Assignment 2
Oct. 2023	Stack: primitive operation on stack, algorithms for push and pop. Representation of Stack as Linked List and array, Stacks applications : polish notation, recursion. Introduction to queues, Primitive Operations on the Queues, Circular queue, Priority queue, Representation of Queues as Linked List and array, Applications of queue. Algorithm on insertion and deletion in simple queue and circular queue.
	Unit Test

Nov-Dec. 2023	Trees - Basic Terminology, representation, Binary Trees, Tree Representations using Array & Linked List, Basic operation on Binary tree, Traversal of binary trees:- In order, Preorder & post order, Applications of Binary tree. Algorithm of tree traversal with and without recursion. Introduction to graphs, Definition, Terminology, Directed, Undirected & Weighted graph, Representation of graphs
	Revision

Course: B.C.A-5th Semester

Subject: Software Project Management

Faculty Name: Ms. Jyoti

Month	Syllabus
July 2023	Theoretical foundations for software metrics, Introduction to the measurement theory, Data Collection and analysis.
Aug. 2023	Classification of software measures, Application of software metrics Software reliability measures and models, Measuring the software development and maintenance processes, Experimental design and analysis, Software metrics validation, Predication systems
	Assignment 1
Sept. 2023	Calibration and validation of prediction systems, Overview of mature software processes and project management, Role of TQM in software project management, cost and effort estimates, Overall and detailed scheduling
	Assignment 2
Oct. 2023	Quality management, Defect estimation and prevention, Risk management , logging and tracking defects, project management plans, configuration management, project reviews for better project execution, Overcoming the Not Around Here (NAH) syndrome
	Unit Test

Nov-Dec. 2023	Project tracking (including defect tracking, status reports, milestone analysis), defect analysis and prevention (plus Pareto and causal analysis), Process monitoring and audit, Project closure analysis
	Revision