**Name of Teacher : Ms. Pooja Anand**

**Class and Section: BCA 3rd Sem**

**Subject: OPERATING SYSTEM**

 **Paper Code: Paper 201**

**Lesson Plan**: **July 2024 to Nov 2024**

| **Week of Month** | **Topics to be covered** |
| --- | --- |
| 22 July to 31 July | Fundamentals of Operating system: Introduction to Operating System, its need and operating System services. |
| 1st August to 31 August | Early systems, Structures - Simple Batch, Multi programmed, timeshared, Personal Computer, Parallel, Distributed Systems, Real-Time Systems. Deadlocks: Deadlock characterization, Methods for handling deadlocks, Banker’s Algorithm, TEST. |
| 1st September to 31st September | Process concept, Operation on processes, Cooperating Processes, Threads, and Inter-process Communication. CPU Scheduling: Basic concepts, Scheduling criteria, Scheduling algorithms : FCFS, SJF, Round Robin & Queue Algorithms, TEST. |
| 1 October to 30 October | Memory Management: Logical versus Physical address space, Swapping, Contiguous allocation, Paging, Segmentation. Virtual Memory: Demand paging, Performance of demand paging, Page replacement, Page replacement algorithms, Thrashing,Test |
| 1 November to 22 November | File management: File system Structure, Allocation methods: Contiguous allocation, Linked allocation, Indexed allocation, Free space management: Bit vector, Linked list, Grouping, Counting. Device Management: Disk structure, Disk scheduling: FCFS, SSTF, SCAN, C-SCAN, LOOK, C-LOOK.,TEST |

**Name of Teacher: Ms. POOJA ANAND**

**Class and Section: BCA 5th Sem Sec A & B**

**Subject: MANAGEMENT INFORMATION SYSTEM**

**Paper Code: BCA 301**

**Lesson Plan**: **July 2024 to Nov 2024**

| Week of Month | Topics to be covered |
| --- | --- |
| 22 July to 31 July | Introduction to system and Basic System Concepts, Types of Systems, The Systems Approach |
| 1st August to 31 August | Functional MIS: A Study of Personnel, Financial and production MIS, Introduction to e- business systems, ecommerce – technologies, applications, Decision support systems – support systems for planning, control and decision-making |
| 1st September to 31st September | An overview of Management Information System: Definition & Characteristics, Components of MIS, Frame Work for Understanding MIS: Information requirements & Levels of Management, Simon's Model of decision-Making, Structured Vs Un-structured decisions, Formal vs. Informal systems. |
| 1 October to 30 October | Developing Information Systems: Analysis & Design of Information Systems: Implementation & Evaluation, Pitfalls in MIS Development. |
| 1 November to 22 November | Information System: Definition & Characteristics, Types of information, Role of Information in Decision-Making, Sub-Systems of an Information system: EDP and MIS management levels, EDP/MIS/DSS. **Revision and Test**  |

**Name of Teacher: Ms. POOJA ANAND**

**Class and Section: B.SC C.S. 3rd sem**

**Subject:** Object-Oriented Design and C++

**Paper Code: PAPER 3.2**

**Lesson Plan**: **July 2024 to Nov 2024**

| Week of Month | Topics to be covered |
| --- | --- |
| 22 July to 31 July | Object oriented concepts: Class, Object, Methods, Message Passing, Abstraction, Inheritance, Polymorphism |
| 1st August to 31 August | Generosity, Overriding, Abstract Class & methods. Generalization, Aggregation, Associations. Object modeling techniques: Introduction to object model, Dynamic model, Functional Model. Strengths & Weakness of all models. TEST |
| 1st September to 31st September | Introduction to Programming C++: Object-Oriented Features of C++, data types in C++, variables, operators, flow control, recursion, array, Pointers and their manipulation, strings, structures, Class and Objects, Data Hiding & Encapsulation, Data members and Member functions, Inline Functions, Static Data Members and Member Functions, Friend Functions, Preprocessor Directives, Namespace, Comparing C with C++. TEST |
| 1 October to 30 October | Constructors & Destructors: Roles and types of Constructors, Constructor Overloading, Roles of Destructors, Dynamic Memory Allocation: Pointers and their Manipulation, new and delete Operators ‘this’ Pointer. Console I/O: Formatted and Unformatted I/O, Manipulators. TEST |
| 1 November to 22 November |  Compile-Time Polymorphism: Unary and Binary Operators overloading through Member Functions and Friend Functions, Function Overloading, virtual functions, abstract class, virtual class Inheritance: Types of Derivations, Forms of Inheritance, Roles of Constructors and Destructors in Inheritance. **Revision and Test**  |

**Lesson Plan (Odd Semester)**

**Session – 2024-2025**

**Class - B.Sc.(Computer Science) – 5st Semester**

**Faculty –MEENAKSHI DALAL**

**Subject – Database Management System**

**PaperCode: 5.1**

|  |  |
| --- | --- |
| **Time Period** | **Topics** |
| **AUGUST** |
| **(Week 1)** | **(Unit 1):**Basic Concepts – Data, Information, Records and files. Traditional file – based Systems-File Based Approach-Limitations of File Based Approach, Database Approach-Characteristics of Database Approach, |
| **(Week 2)** | Approach, Database Management System (DBMS), Components of DBMS Environment, DBMS Functions, Advantages and Disadvantages of DBMS.  |
| **(Week 3)** | Classification of Database Management System. Roles in the Database Environment - Data and Database Administrator. |
| **(Week 4)** | ***(U*nit 2):**Centralized and Client Server architecture to DBMS. Database System Architecture – Three Levels of Architecture, External, Conceptual and Internal Levels, Schemas, Mappings and Instances. |
| **SEPTEMBER** |
| **(Week 5)** | Decision Making and Looping: While loop, do-while loop, for loop, jumps in loops, break statement, continue statement, nested loops. |
| **(Week 6)** | DataIndependence – Logical and Physical Data Independence. Data Models: Records- based Data Models, Object-based Data Models, Physical Data Models.  |
| **(Week 7)** | Conceptual Modeling. Hierarchical, network and relational model |
| **(Week 8)** | ***(U*nit 3):**Entity-Relationship Model – Entity Types, Entity Sets, Attributes and keys, Relationship, relationship sets, |
| **OCTOBER** |
| **(Week 9)** | User-defined functions: introduction/definition, function prototype, local and global variables, passing parameters, recursion. |
| **(Week 10)** | sets, Role name & recursive relationship and structural constraints, Conceptual designusing E-R Diagrams. |
| **(Week 11)** | E-R Diagrams. Relational Data Model: - Introduction, Properties of Relations, Keys, Integrity Constraints over Relations, Views. |
| **(Week 12)** | Relational Database Design: Functional Dependencies,Normalization: 1st to 3rd Normal Form, BCNF, Lossless Join and Dependency preserving decomposition. |
| **NOVEMBER** |
| **(Week 13)** | **(Unit 4):**SQL: Types & components of SQL, Data Definition and data types, Data definition commands, Data manipulation commands, Data Control Commands Specifying Constraints(Primary Constraint,. storage devices. |
| **(Week 14)** | Foreign key, Unique, Not Null) in SQL, Schema, Basic Queries in SQL, Insert, Delete and Update operations. Inbuilt Date, String functions. Commit, Rollback, Save points. Views: Introduction, Advantages of creating views, Features, Destroying/ Altering table & Views. |
| **(Week 15)** | REVISION and TESTS |
| **(Week 16)** | REVISION and TESTS |

**Class - B.Sc.(Computer Science) – 5st Semester**

**Faculty –MEENAKSHI DALAL**

**Subject – Introduction to Internet & Web Technologies**

**PaperCode: 5.2**

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| --- | --- |
| **Time Period** | **Topics** |
| **August** |
| **Week 1** | **(Unit 1):**Introduction to Internet, Benefits of Internet, WWW, Hardware and software requirement for internet, internet protocols, applications of internet, |
| **Week 2** | Internet Tools- Telnet, FTP, Gopher, Archie, Veronica, Mosaic, WAIS, IRC, Online Chatting, Messaging, and Conferencing Concepts, resources of internet |
| **Week 3** | ***(U*nit 3):**HTML: Internet Language, Understanding HTML, create a Web Page, Linking to other Web Pages, Publishing HTML Pages, |
| **Week 4** | Publishing HTML Pages, Text Alignment and Lists, Text Formatting Fonts Control,  |
| **September** |
| **Week 1** | E-mail Links and link within a Page, Creating HTML Forms. |
| **Week 2** | ***(U*nit 4):**Creating Web Page Graphics, Putting Graphics on a Web Page, |
| **Week 3** | Page, Custom Backgrounds and Colors, Creating Animated Graphics.,  |
| **Week 4** | Web Page Design and layout, Advanced Layout with Tables, Using Style Sheets. |
| **October** |
| **Week 1** | ***(U*nit 2):**E-Mail mailing lists, Internet addressing, internet service provider (ISP), internet in India- Shell account, |
| **Week 2** | TCP/IP account, Home page and Web Site, internet accessing, internet terminology, |
| **Week 3** | internet security problems and solutions. Overview of Intranet and its applications |
| **Week 4** | Web Browsers, Search Engines, Categories of Search Engines, |
| **November** |
| **Week 1** | Searching Criterion, Surfing the Net, Hypertext Transfer Protocol (HTTP), URL. |
| **Week 2** | REVISION and TESTS |
| **Week 3** | REVISION and TESTS |
| **Week 4** | REVISION and TESTS |

**Class - BBA– 5st Semester**

**Faculty –MEENAKSHI DALAL**

**Subject – COMPUTER NETWORKING AND INTERNET**

**PaperCode: BBAN-504**

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| --- | --- |
| **Time Period** | **Topics** |
| **August** |
| **Week 1** | ***(U*nit 1):**Introduction to network, advantages and disadvantages of network. |
| **Week 2** | , network topologies, analog and digital signal |
| **Week 3** | analog and digital transmission, transmission media |
| **Week 4** | network categories, wireless networks. |
| **September** |
| **Week 1** | ***(U*nit 2):**OSI model and TCP/IP model,  |
| **Week 2** | protocols and their classification, routing, Firewall. |
| **Week 3** | flow control and cryptography |
| **Week 4** | ***(U*nit 3):**Overview of internet, internet service provider,  |
| **October** |
| **Week 1** | setting windows environment for dial up networking, search engine, searching web using search engine |
| **Week 2** | audio on internet, newsgroup, subscribing to newsgroups. |
| **Week 3** | ***(U*nit 4):**Intranet concepts and architecture, building corporate world wide web,  |
| **Week 4** | HTTP protocol, intranet infrastructure, fundamental of TCP/IP,  |
| **November** |
| **Week 1** | intranet security design, intranet as a business tool, future of intranet,  |
| **Week 2** | protocols of communication. |
| **Week 3** | REVISION and TESTS |
| **Week 4** | REVISION and TESTS |

**Class - B.Sc.(Physics Hons) – 3rd Semester**

**Faculty –MEENAKSHI DALAL**

**Subject – Computer Fundamentals and Programming-I**

**PaperCode: Phy-306**

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| --- | --- |
| **Time Period** | **Topics** |
| **August** |
| **Week 1** | **(Unit 1):**Basic components of computer system, their function and inter-types of computer systems. Brief idea of data storage and input/output devices  |
| **Week 2** | Hexadecimal number system and arithmetic. |
| **Week 3** | Microprocessor architecture and operations (Intel 8085/8086) Basic concepts, functional block diagram.  |
| **Week 4** | memory, memory organization and addressing, memory interfacing, input/output instruction cycle (timing diagram) |
| **September** |
| **Week 1** | Microprocessor programming algorithm and flowcharts, assembly language, 8085 instructions set and format: data transfer, arithmetic, logical and control operations, |
| **Week 2** | RIM and SIM Addressing modes (register, immediate, direct and indirect). |
| **Week 3** | Simple programming exercises (addition and multiplication, both 8 and 16 bit etc.) |
| **Week 4** | Web Page Design and layout, Advanced Layout with Tables, Using Style Sheets. |
| **October** |
| **Week 1** | ***(U*nit 2):**Introduction of Fortran, Problem solving using Fortran Data types: Integer and Floating-point arithmetic; |
| **Week 2** | Fortran variables; Real and Integer variables; Input and Output statements; Formats; Expressions; Built in functions;  |
| **Week 3** | Executable and non-executable statements; Control statements; Go To statement; Arithmetic IF and logical IF statements;  |
| **Week 4** | Flow charts; Truncation errors, Round off errors; Propagation of errors. Block IF statement; Do statement;  |
| **November** |
| **Week 1** | Character DATA management; Arrays and subscripted variables;  |
| **Week 2** | Subprograms: Function and SUBROUTINE; Double precision; Complex numbers; Common statement |
| **Week 3** | REVISION and TESTS |
| **Week 4** | REVISION and TESTS |

**Lesson Plan (Odd Semester)**

**Session – 2024-2025**

**Class - BCA – 1st Semester**

**Faculty – ARCHANA**

**Subject – Computer Fundamentals & Problem Solving using C**

**Course Code: 23BCA401DS02**

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| --- | --- |
| **Time Period** | **Topics** |
| **JULY** |  |
| **(Week 4)** | **(Unit 2):**  Introduction to the C programming language: History of C, Importance of C |
| **AUGUST** |
| **(Week 1)** | Elements of C: C character set, identifiers and keywords, Data types, Constants and Variables, |
| **(Week 2)** | Assignment statement, Symbolic constant, Structure of a C Program, printf(), scanf() functions, |
| **(Week 3)** | Operators & Expression, type casting and conversion, operator hierarchy & associativity |
| **(Week 4)** | ***(U*nit 3):**Decision making & Branching: Decision making with IF statement, IF-ELSE statement, Nested IF statement, ELSE-IF ladder, switch statement, go to statement. |
| **SEPTEMBER** |
| **(Week 1)** | Decision Making and Looping: While loop, do-while loop, for loop, jumps in loops, break statement, continue statement, nested loops. REVISION AND TEST |
| **(Week 2)** | ***(U*nit 4):**Functions: Standard Mathematical functions, Input/output: Unformatted & formatted I/O function in C, Input functions output functions |
| **(Week 3)** | String manipulation functions. User defined functions: Introduction/Definition, function prototype, Local and global variables, passing parameters, recursion. |
| **(Week 4)** | Arrays & Pointers: Definition, types, initialization, processing an array, passing arrays to functions,  |
| **OCTOBER** |
| **(Week 1)** | Declaration and initialization of string, Input/output of string data, Introduction to pointers. REVISION AND TEST |
| **(Week 2)** | **(Unit 1):**  Computing Fundamentals: Overview of computing fundamentals principles and history, Generations of Computers |
| **(Week 3)** | Computer Fundamentals: Generations of Computers, Block Diagram along with its components, classification of computers, Applications of computers in various fields.  |
| **(Week 4)** | Input/Output Devices, Memory: Concept of primary & secondary memory, Cache Memory, Secondary storage devices. |
| **NOVEMBER** |
| **(Week 1)** | Overview of Networking & Operating System: Introduction to computer networking, Network types, Network topologies, Internet and its applications; Operating system and its functions. |
| **(Week 2)** | ***(U*nit 2):**Planning the Computer Program: Problem definition, Program design, Debugging, Types of errors in programming, Techniques of Problem Solving- Flowcharting, Algorithms |
| **(Week 3)** | REVISION and TESTS |
| **(Week 4)** | REVISION and TESTS |

**Class - BCA – 1st Semester**

**Faculty – ARCHANA**

**Subject – Mathematical Foundations of Computer Science**

**Course Code: 23BCA401DS01**

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| --- | --- |
| **Time Period** | **Topics** |
| **July** |
| **Week 4** | Sets: Sets, Subsets, Equal Sets Universal Sets |
| **August** |  |
| **Week 1** | Finite and Infinite Sets, Operation on Sets, Union, Intersection |
| **Week 2** | Complements of Sets, Cartesian Product, Cardinality of Set, Practical applications of set theory. |
| **Week 3** | Relations And Functions: Properties of Relations, Equivalence Relation, Partial Order Relation. |
| **Week 4** | Function: Domain and Range, Onto, Into and One to One Functions, Composite and Inverse Functions. |
| **September** |
| **Week 1** | Limits & Continuity: Limit at a Point, properties of limit, computation of limits of various types of functions |
| **Week 2** | Continuity of a function at a point, Continuity over an interval. TEST |
| **Week 3** | Trigonometry: Introduction, Measurement of angles, trigonometric functions, relation between trigonometric functions, |
| **Week 4** | signs of trigonometric functions, trigonometric functions of standard angles. Basic of inverse trigonometry. |
| **October** |
| **Week 1** | Differentiation: Derivative of a function, Derivatives of sum, differences, product & quotient of functions |
| **Week 2** | Derivatives of polynomial, trigonometric, exponential, logarithmic, inverse trigonometric |
| **Week 3** |  implicit functions, Logarithmic Differentiation, Chain rule and differentiation by substitution. TEST |
| **Week 4** | Matrices: Definition, Types of Matrices, Addition, Subtraction, Scalar Multiplication and Multiplication of Matrices. |
| **November** |
| **Week 1** | Determinants: Definition, Minors, Cofactors, Properties of Determinants, Applications of determinants in finding area of triangle |
| **Week 2** | Adjoint of matrix, Inverse of matrix, solving a system of linear equations using matrix method |
| **Week 3** | REVISION and TESTS |
| **Week 4** | REVISION and TESTS |

**Name of Assistant Professor: Dr. Suman Ahlawat**

**Class and Section: M.Sc. 1st Sem (Computer Sc.)**

**Subject: Computer Networks**

**Paper Code: 24CSC201DS02**

**Lesson Plan**: **August 2024 to November 2024**

|  |  |  |
| --- | --- | --- |
| **Week of Month** | **Topics to be covered** | **Assignment/Test to be given** |
| 7th Aug to 10th Aug | Introduction to Computer Network: Types of Networks, Network Topologies, | Assignment based on Topics covered |
| 12th Aug to 17th Aug | OSI and TCP/IP Reference Models; Data Communications Concepts: Digital Vs. Analog communication; Parallel and Serial Communication | Assignment based on Topics covered |
| 19th Aug to 24th Aug | Synchronous, Asynchronous and Isochronous Communication; Communication modes: simplex, half duplex, full duplex; Multiplexing | Assignment based on Topics covered |
| 26th Aug to 31st Aug | Transmission media: Wired-Twisted pair, Coaxial cable, Optical Fibre, Wireless transmission: Terrestrial, Microwave, Satellite, and Infrared | Assignment based on Topics covered |
| 2nd Sept. to 7th Sept | Communication Switching Techniques: Circuit Switching, Message Switching, Packet Switching.  | Assignment based on Topics covered |
| 9th Sept. to 14th Sept. | Data Link Layer Fundamentals: Framing, Basics of Error Detection, Forward Error Correction | Assignment based on Topics covered |
| 16th Sept. to 21st Sept. | Cyclic Redundancy Check codes for Error Detection, Flow Control. Media Access Protocols: ALOHA | Assignment based on Topics covered |
| 23rd Sept to 28th Sept. | Carrier Sense Multiple Access (CSMA), CSMA with Collision Detection (CSMA/CD), Token Ring, Token Bus | Assignment based on Topics covered |
| 30th Sept to 5th Oct | High-Speed LAN: Standard Ethernet, Fast Ethernet, Gigabit Ethernet, 10G  | Assignment and test based on Topics covered  |
| 7th Oct to 12th Oct | Wireless LANs: IEEE 802.11, Bluetooth. Network Layer: IP Addressing and Routing | Assignment based on Topics covered |
| 14th Oct to 19th Oct | Network Layer Protocols: IPv4 (Header Format and Services) | Assignment based on Topics covered |
| 21st Oct to 26th Oct | ARP, ICMP (Error Reporting and Query message); IPv6 (Header Format and Addressing) | Assignment based on Topics covered |
| 28th Oct to 2nd Nov | Vacations (Diwali) |  |
| 4th Nov to 9th Nov | Transport Layer: Process-to-Process Delivery: UDP, TCP; Application Layer: Domain Name System (DNS); SMTP; HTTP; WWW | Assignment based on Topics covered |
| 11th Nov to 16th Nov | Network Security: Security Requirements and attacks | Assignment based on Topics covered |
| 18th Nov to 23rd Nov  | Cryptography: Symmetric Key (DES, AES), Public Key Cryptography (RSA); Firewall | Assignment based on Topics covered |
| 25th Nov Onwards | Revision of all Syllabus | Test and Presentation |

**Name of Assistant Professor: Dr. Suman Ahlawat**

**Class and Section: M.Sc. 1st Sem (Computer Sc.)**

**Subject: Database Management Systems**

**Paper Code: 24CSC201DS05**

**Lesson Plan**: **August 2024 to November 2024**

|  |  |  |
| --- | --- | --- |
| **Week of Month** | **Topics to be covered** | **Assignment/Test to be given** |
| 7th Aug to 10th Aug | **Introduction:** Characteristics of database approach, data models,  | Assignment based on Topics covered |
| 12th Aug to 17th Aug | DBMS architecture and Data independence, Database Languages, Classification of DBMS, Database Users and Administrator.  | Assignment based on Topics covered |
| 19th Aug to 24th Aug | DBMS Environment:Database Access for applications Programs, Transaction Management, Database system Structure, Storage Manager, Query Processor | Assignment based on Topics covered |
| 26th Aug to 31st Aug | E-R Modeling: Entity types, Entity set, attribute and key, Relationships, Relation types, Roles and Structural constraints, Weak entities, Enhanced ER Model | Assignment based on Topics covered |
| 2nd Sept. to 7th Sept | Relational Model: Introduction to the Relational Model, Integrity Constraint over Relations, Enforcing Integrity constraints, Querying relational data | Assignment based on Topics covered |
| 9th Sept. to 14th Sept. | Introduction to views, Destroying/altering Tables and Views | Assignment based on Topics covered |
| 16th Sept. to 21st Sept. | Relational Algebra and Calculus: Relational Algebra, Set operations, Selection and projection, renaming, Joins, Division, Examples of Algebra overviews | Assignment based on Topics covered |
| 23rd Sept to 28th Sept. | Relational calculus: Tuple relational Calculus, Domain relational calculus, Expressive Power of Algebra and Calculus | Assignment based on Topics covered |
| 30th Sept to 5th Oct | Schema Refinement, Functional dependencies: Schema refinement in Data base Design, Problems Caused by redundancy, Decompositions &amp; its properties , Problem related to decomposition, Functional Dependency | Assignment and test based on Topics covered  |
| 7th Oct to 12th Oct | Normalization: FIRST, SECOND, THIRD Normal forms, BCNF, Lossless join Decomposition, Dependency preserving Decomposition, Multi valued Dependencies, Fourth Normal Form | Assignment based on Topics covered |
| 14th Oct to 19th Oct | Transaction Management: ACID Properties, Transactions and Schedules, Concurrent Execution of transaction, Serializability and recoverability | Assignment based on Topics covered |
| 21st Oct to 26th Oct | Concurrency Control: Introduction to Lock Management, Lock Conversions, Dealing with Dead Locks, Concurrency without Locking, Recovery Techniques, Database Security | Assignment based on Topics covered |
| 28th Oct to 2nd Nov | Vacations (Diwali) |  |
| 4th Nov to 9th Nov | Introduction to MySQL/Oracle: Working with MySQL/Oracle. Getting started, Modules of MySQL/Oracle  | Assignment based on Topics covered |
| 11th Nov to 16th Nov | Invoking SQL\*Plus/MySQL Command-line client (‘mysql’), Data types, Data Constraints, Operators | Assignment based on Topics covered |
| 18th Nov to 23rd Nov  | Data manipulation - Create, Modify, Insert, Delete and Update; Searching, Matching and Oracle Functions.  | Assignment based on Topics covered |
| 25th Nov Onwards | Revision of all Syllabus | Test and Presentation |

**Name of Assistant Professor: Dr. Suman Ahlawat**

**Class and Section: M.SC 1st Sem(Computer Sc.)**

**Subject: Practical Software Lab**

**Paper Code: 24CSC201DS02, 24CSC201DS05**

**Lesson Plan (Odd Semester)**

**Session – 2024-2025**

**Class - B.COM(Minor in Computer Science) – 1st Semester**

**Faculty –TEENASUNEJA**

**Subject – Computing Fundamentals and C Programming**

**Course Code: 24CSC401MI01**

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| --- | --- |
| **Time Period** | **Topics** |
| **July/August** |
| **Week 1** | Computing Fundamentals: Overview of computing principles and history, Generations of Computers, Block Diagram along with its components, |
| **Week 2** | Classification of computers, Applications of computers in various fields.Input/Output Devices, Memory: Concept of primary & secondary memory, Cache Memory, Secondary storage devices. |
| **Week 3** | Techniques of Problem Solving-Flowcharting, Algorithms & advantages & disadvantages |
| **Week 4** | Introduction to the C programming language: History of C, Importance of C, Elements of C: C character set, identifiers and keywords, Data types, Constants and Variables, Assignment statement, Symbolic constant, Structure of a C Program, printf(), scanf()Functions |
| **September** |  |
| **Week 1** |  Data types, Operators & Expression, type casting and conversion, operator hierarchy & associativity.  |
| **Week 2** | Decision making & Branching: Decision making with IF statement, IF-ELSE statement, Nested IF statement, ELSE-IF ladder, switch statement, go to statement. |
| **Week 3** | Basics of Networking & Operating System: Introduction to computer networking, Network types, Network topologies, Internet and its applications; Operating system and its functions. |
| **Week 4** | Decision making & Looping: while, do-while and for loop, jumps in loops, break, continue statement, Nested loops |
| **October** |
| **Week 1** | Functions and modular programming concepts: Standard Mathematical functions, Input/output: Unformatted & formatted I/O function in C, Input functions, output functions, string manipulation function. |
| **Week 2** | User defined functions: Introduction/Definition, function prototype, Local and global variables, passing parameters, recursion |
| **Week 3** | Arrays & Pointers: Definition, types, initialization, processing an array, passing arrays to functions declaration and initialization of string, Input/output of string data, Introduction to pointers. |
| **Week 4** | Introduction to software development methodologies: Basics of algorithmic thinking and problem-solving strategies. Planning the Computer Program: Problem definition, Program design, Debugging, Types of errors in programming, |
| **November** |
| **Week 1** | Advance Concepts of C Programming: Pointers and memory management in C; File input/output operations in C; Dynamic memory allocation and deallocation; Advanced control structures: switch, break, and continue statements. |
| **Week 2** | Practical applications of C programming in software development: Algorithmic problem-solving using C programming constructs; Design and implementation of C programs; Debugging and testing techniques for C programs; Best practices and coding standards in C programming |
| **Week 3** | REVISION and TESTS |
| **Week 4** | REVISION and TESTS |

**Class –B.SC (Physics Hons)(MDC in Computer Science) – 1st Semester**

**Faculty –TEENASUNEJA**

**Subject – Fundamentals of Computing**

**Course Code: -24CSCX01MD01**

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| --- | --- |
| **Time Period** | **Topics** |
| **July/August** |
| **Week 1** | Historical evolution of computing, Computers and their classification; Working of a computer; Block Diagram and its components; Characteristics, Benefits and Limitations of Computers. |
| **Week 2** | Human being Vs. Computer. Computer Codes and their types. |
| **Week 3** | Computer Applications: Computer applications in Artificial Intelligence, Banking, Education, Marketing, Desktop publishing, CAD/CAM, Project Management, Military, Sports, Research & Development. |
| **Week 4** | Input and Output Devices: Introduction to I/O concepts, Hardcopy and Softcopy Devices; Keyboards, mouse, joysticks, trackballs, digitizer, voice-recognition |
| **September** |  |
| **Week 1** | optical-recognition, scanners, terminals, point-of-sale terminals, machine-vision systems, Printer & its types |
| **Week 2** | Introduction, Software and its types, Language translators, Assemblers, Compliers and Interpreters. |
| **Week 3** | Operating system and its operations, Batch Processing, Multiprogramming, Multi-tasking, Multiprocessing, Time Sharing, DOS, Windows, Unix/Linux. |
| **Week 4** | Memory & Mass Storage Devices: Characteristics of memory systems, types of memory, RAM, ROM, |
| **October** |
| **Week 1** | magnetic disks-floppy disk, hard-disk; optical disks; Magnetic tapes; Concepts of Virtual and Cache memory |
| **Week 2** | Data Communication: Introduction, forms of data transmission, modem and its types, communication channels, data transmission modes. |
| **Week 3** | Computer Networks: Introduction to Computer Network, types of Computer Network, Network Topologies, Network Protocols, Applications of Computer Networks |
| **Week 4** | Internet: Introduction to Internet, WWW, Web Browsers, Evolution of Internet, Applications of Internet, Connecting to Internet, Internet tools. |
| **November** |
| **Week 1** | Problem Solving and Programming Languages: Concept of problem solving, Problem definition, Programming Languages and their classification, Problem solving with computer, Concept of a programming and design techniques, computer program lifecycle and program development process. |
| **Week 2** | Electronic Mail: Introduction to E-mail, Setting Up an E-mail Account, Composing and Sending E-mails, E-mail Etiquette and Best Practices, Managing E-mails, Security and Privacy |
| **Week 3** | REVISION and TESTS |
| **Week 4** | REVISION and TESTS |

**Class –B.A(MDC in Computer Science) – 1st Semester**

**Faculty –TEENASUNEJA**

**Subject – Fundamentals of Computing**

**Course Code: -24CSCX01MD01**

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| --- | --- |
| **Time Period** | **Topics** |
| **July August** |
| **Week 1** | Historical evolution of computing, Computers and their classification; Working of a computer; Block Diagram and its components; Characteristics, Benefits and Limitations of Computers. |
| **Week 2** | Human being Vs. Computer. Computer Codes and their types. |
| **Week 3** | Computer Applications: Computer applications in Artificial Intelligence, Banking, Education, Marketing, Desktop publishing, CAD/CAM, Project Management, Military, Sports, Research & Development. |
| **Week 4** | Input and Output Devices: Introduction to I/O concepts, Hardcopy and Softcopy Devices; Keyboards, mouse, joysticks, trackballs, digitizer, voice-recognition |
| **September** |  |
| **Week 1** | optical-recognition, scanners, terminals, point-of-sale terminals, machine-vision systems, Printer & its types |
| **Week 2** | Introduction, Software and its types, Language translators, Assemblers, Compliers and Interpreters. |
| **Week 3** | Operating system and its operations, Batch Processing, Multiprogramming, Multi-tasking, Multiprocessing, Time Sharing, DOS, Windows, Unix/Linux. |
| **Week 4** | Memory & Mass Storage Devices: Characteristics of memory systems, types of memory, RAM, ROM, |
| **October** |
| **Week 1** | magnetic disks-floppy disk, hard-disk; optical disks; Magnetic tapes; Concepts of Virtual and Cache memory |
| **Week 2** | Data Communication: Introduction, forms of data transmission, modem and its types, communication channels, data transmission modes. |
| **Week 3** | Computer Networks: Introduction to Computer Network, types of Computer Network, Network Topologies, Network Protocols, Applications of Computer Networks |
| **Week 4** | Internet: Introduction to Internet, WWW, Web Browsers, Evolution of Internet, Applications of Internet, Connecting to Internet, Internet tools. |
| **November** |
| **Week 1** | Problem Solving and Programming Languages: Concept of problem solving, Problem definition, Programming Languages and their classification, Problem solving with computer, Concept of a programming and design techniques, computer program lifecycle and program development process. |
| **Week 2** | Electronic Mail: Introduction to E-mail, Setting Up an E-mail Account, Composing and Sending E-mails, E-mail Etiquette and Best Practices, Managing E-mails, Security and Privacy |
| **Week 3** | REVISION and TESTS |
| **Week 4** | REVISION and TESTS |

**Lesson Plan (Odd Semester)**

**Session – 2024-2025**

**Class - B.Sc.(Physical Science) (Major in Computer Science) – 1st Semester**

**Faculty – TARIKA VERMA**

**Subject – Computing Fundamentals and C Programming**

**Course Code: 24CSCM401DS01**

|  |  |
| --- | --- |
| **Time Period** | **Topics** |
| **JULY** |
| **(Week 4)****22 July onwards** | **(Unit 2):**  Introduction to the C programming language: History of C, |
| **AUGUST** |
| **(Week 1)** | Importance of C, Elements of C: C character set, identifiers and keywords,  |
| **(Week 2)** | Data types, Constants and Variables, Assignment statement, Symbolic constant, Structure of a C Program, printf(), scanf() functions, |
| **(Week 3)** | Operators & Expression, type casting and conversion, operator hierarchy & associativity |
| **(Week 4)** | ***(U*nit 3):**Decision making & Branching: Decision making with IF statement, IF-ELSE statement, Nested IF statement, ELSE-IF ladder, switch statement, go to statement. |
| **SEPTEMBER** |
| **(Week 1)** | Decision Making and Looping: While loop, do-while loop, for loop, jumps in loops, break statement, continue statement, nested loops. |
| **(Week 2)** | ***(U*nit 4):**Arrays & Pointers: Definition, types, initialization, processing an array, passing arrays to functions declaration and initialization of string,  |
| **(Week 3)** | Input/output of string data, Introduction to pointers. |
| **(Week 4)** | ***(U*nit 3):**Functions and Modular Programming Concepts: Standard mathematical functions, input/output: unformatted and formatted I/O functions in C, input functions, output functions, string manipulation functions.  |
| **OCTOBER** |
| **(Week 1)** | User-defined functions: introduction/definition, function prototype, local and global variables, passing parameters, recursion. |
| **(Week 2)** | ***(U*nit 4):**Advance Concepts of C Programming: Pointers and memory management in C; File input/output operations in C; Dynamic memory allocation and deallocation; Advanced control structures: switch, break, and continue statements.  |
| **(Week 3)** | Practical applications of C programming in software development: Algorithmic problem-solving using C programming constructs; Design and implementation of C programs; Debugging and testing techniques for C programs; Best practices and coding standards in C programming. |
| **(Week 4)** | **(Unit 2):**  Introduction to software development methodologies: Basics of algorithmic thinking and problem-solving strategies. Planning the Computer Program: Problem definition, Program design, Debugging, Types of errors in programming, Techniques of Problem Solving-Flowcharting, Algorithms |
| **NOVEMBER** |
| **(Week 1)** | **(Unit 1):**  Computing Fundamentals: Overview of computing fundamentals principles and history, Generations of Computers, Major components of Computer, Classification of computers, Applications of computers in various fields. Input/ Output Devices, Memory: Concept of primary & secondary memory, Cache Memory, Secondary storage devices. |
| **(Week 2)** | Basics of Networking & Operating System: Introduction to computer networking, Types of Network, Network Topologies, Internet and its applications; Operating system and its functions |
| **(Week 3)** | REVISION and TESTS |
| **(Week 4)** | REVISION and TESTS |

**Class - B.Sc. (Life Science) (Minor in Computer Science) – 1st Semester**

**Faculty – TARIKA VERMA**

**Subject – Computing Fundamentals and C Programming**

**Course Code: 24CSC401MI01**

|  |  |
| --- | --- |
| **Time Period** | **Topics** |
| **JULY** |
| **(Week 4)****22 July onwards** | **(Unit 2):**  Introduction to the C programming language: History of C, |
| **August** |
| **Week 1** | Importance of C, Elements of C: C character set, identifiers and keywords, |
| **Week 2** | Data types, Constants and Variables, Assignment statement, Symbolic constant, Structure of a C Program, printf(), scanf()Functions,  |
| **Week 3** | Operators & Expression, type casting and conversion, operator hierarchy & associativity. |
| **Week 4** | ***(U*nit 3):**Decision making & Branching: Decision making with IF statement, IF-ELSE statement, Nested IF statement, ELSE-IF ladder, switch statement, go to statement.  |
| **September** |
| **Week 1** | ***(U*nit 3):**Decision making & Looping: while, do-while and for loop, jumps in loops, break, continue statement, Nested loops. |
| **Week 2** | ***(U*nit 4):**Arrays & Pointers: Definition, types, initialization, processing an array, passing arrays to functions declaration and initialization of string,  |
| **Week 3** | Input/output of string data, Introduction to pointers. |
| **Week 4** | ***(U*nit 3):**Functions and modular programming concepts: Standard Mathematical functions, Input/output: Unformatted & formatted I/O function in C, Input functions, output functions, string manipulation functions.  |
| **October** |
| **Week 1** | User defined functions: Introduction/Definition, function prototype, Local and global variables, passing parameters, recursion |
| **Week 2** | ***(U*nit 4):**Advance Concepts of C Programming: Pointers and memory management in C; File input/output operations in C; Dynamic memory allocation and de allocation; Advanced control structures: switch, break, and continue statements. |
| **Week 3** | Practical applications of C programming in software development: Algorithmic problem-solving using C programming constructs; Design and implementation of C programs; Debugging and testing techniques for C programs; Best practices and coding standards in C programming. |
| **Week 4** | ***(U*nit 2):**Introduction to software development methodologies: Basics of algorithmic thinking and problem-solving strategies. Planning the Computer Program: Problem definition, Program design, Debugging, Types of errors in programming, Techniques of Problem Solving-Flowcharting, Algorithms |
| **November** |
| **Week 1** | ***(U*nit 1):**Computing Fundamentals: Overview of computing principles and history, Generations of Computers, Block Diagram along with its components, Classification of computers, Applications of computers in various fields. Input/Output Devices, Memory: Concept of primary & secondary memory, Cache Memory, Secondary storage devices |
| **Week 2** | Basics of Networking & Operating System: Introduction to computer networking, Network types, Network topologies, Internet and its applications; Operating system and its functions |
| **Week 3** | REVISION and TESTS |
| **Week 4** | REVISION and TESTS |

**Class - B.Sc.(Physical Science) (Major in Computer Science) – 1st Sem and BCA 1st Sem**

**Faculty – TARIKA VERMA**

**Subject – Skill Enhancement Courses - Web Development-I**

**Course Code: 24CSC401SE01**

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| --- | --- |
| **Time Period** | **Topics** |
| **July** |
| **(Week 4)****22 July onwards** | ***(U*nit 1):**Introduction to Internet: Overview of Internet, World Wide Web, Evolution and History of WWW; Basic Features; Evolution of Web development.  |
| **August** |
| **Week 1** | Web Browsers: Web Servers; Hypertext Transfer Protocol; URLs; IP Addresses; Domain Names; Searching and Web- Casting Techniques; Search Engines and Search Tools; Internet Security; The Web Programmers; Toolbox. |
| **Week 2** | Web Technologies: Introduction Web Technologies; Introduction to HTML, CSS, and JavaScript; Client-Side vs. Server- Side Scripting |
| **Week 3** | ***(U*nit 2):**Web Publishing: Hosting your Site; Internet Service Provider; Planning and designing your Web Site; Steps for developing your Site; |
| **Week 4** | Choosing the contents; Home Page; Domain Names; Creating a Website and the Markup Languages (HTML, DHTML) |
| **September** |
| **Week 1** | Web Development: Introduction to HTML; Hypertext and HTML; HTML Document Features; HTML command Tags; Creating Links; Headers; Text styles; Text Structuring; Text colors and Background; Formatting text; Page layouts; Lists, Tables; meta element;  |
| **Week 2** | New HTML5 Form input Types; input and data list elements; auto complete Attribute; Page-Structure Elements; Introduction to DHTML and its features. |
| **Week 3** | ***(U*nit 4):**Introduction to CSS: Introduction to CSS, Block and Inline Elements, Inline Styles, using internal CSS, using external CSS, How CSS rules cascade, inheritance, why use external style sheets?.  |
| **Week 4** | CSS3 Basics: CSS selectors, color: foreground color, background color, contrast, opacity; text: Typeface terminology, Specifying Typefaces, fonts; list tables and forms: list-style, table properties, styling forms, styling text input. |
| **October** |
| **Week 1** | Layout and positioning: layout: key concepts in positioning elements, controlling the position of elements: relative positioning, absolute positioning, fixed positioning, z-index, float, clear, creating multi column layout with float, fixed width layout, liquid layout, layout grids,  |
| **Week 2** | Images: controlling size of images in CSS, aligning images using CSS, centering images using CSS, background images, gradients, Media Queries. |
| **Week 3** | ***(U*nit 3):**Brief Introduction to Interactivity tools: CGI; Features of Java; Java Script; Features of ASP; VBScript; Macromedia Flash; Macromedia Dreamweaver; |
| **Week 4** | JavaScript: The JavaScript execution environment; The Document Object Model ; Element access in JavaScript; Events and event handling ;  |
| **November** |
| **Week 1** | Handling events from the Body elements, Button elements, Text box, and Password elements ; |
| **Week 2** | The DOM 2 event model ; The navigator object ; DOM tree traversal and modification; |
| **Week 3** | REVISION and TESTS |
| **Week 4** | REVISION and TESTS |

**Name of Assistant Professor: Dr.Nisha Malik**

**Class and Section: M.Sc. 1st Sem (Computer Sc.)**

**Subject: Computer Organisation and Architecture**

**Paper Code: 24CSC201DS04**

**Lesson Plan**: **August 2024 to November 2024**

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| --- | --- | --- |
| **Week of Month** | **Topics to be covered** | **Assignment/Test to be given** |
| 7th Aug to 10th Aug | Number Systems: Binary, Octal and Hexadecimal  | Assignment based on Topics covered |
| 12th Aug to 17th Aug | Integer and Floating-point representation, Character codes: ASCII and EBCDIC | Assignment based on Topics covered |
| 19th Aug to 24th Aug | Boolean Algebra and Logic Gates: OR, AND, NOT,XOR Gates | Assignment based on Topics covered |
| 26th Aug to 31st Aug | De Morgan’s theorem; Universal building blocks; Simplifying logic circuits: sum of product and product of sum form | Assignment based on Topics covered |
| 2nd Sept. to 7th Sept | Karnaugh Map simplification ion; Combinational logic blocks (Adders, Multiplexers, Encoders, Decoder) | Assignment based on Topics covered |
| 9th Sept. to 14th Sept. | Sequential logic blocks (Latches, Flip-Flops, Registers, Counters), Register Transfer Language, Bus and Memory Transfer | Assignment based on Topics covered |
| 16th Sept. to 21st Sept. | Micro operations: Arithmetic, Logic & Shift Micro operations | Assignment based on Topics covered |
| 23rd Sept to 28th Sept. | Basic Computer Organization and Design: Instructions Codes, Register reference, Memory Reference & Input-Output instructions | Assignment based on Topics covered |
| 30th Sept to 5th Oct | Instruction Cycle, Timing and Control, Interrupts; Design ofControl unit: Hardwired control unit, Micro-programmed control unit | Assignment and test based on Topics covered  |
| 7th Oct to 12th Oct | Register Organization: General Register Organization, StackOrganization, Instruction Formats, Addressing Modes; Data Transfer & Manipulation Instructions,Introduction to x86 Assembly Language programming. | Assignment based on Topics covered |
| 14th Oct to 19th Oct | Memory Organization: Memory Hierarchy, Main Memory, Auxiliary Memory, Cache Memory, Virtual Memory | Assignment based on Topics covered |
| 21st Oct to 26th Oct | Input-Output Organization: Peripheral Devices, Input-Output interface, Asynchronous DataTransfer, Modes of transfer | Assignment based on Topics covered |
| 28th Oct to 2nd Nov | Vacations (Diwali) |  |
|  |  |  |
| 4th Nov to 9th Nov | Priority interrupt, Direct Memory Access (DMA), Input-output processors (IOP), Serial communication | Assignment based on Topics covered |
| 11th Nov to 16th Nov | **Parallel Computing:** CISC and RISC - Features and Comparison, Pipeline and Vector Processing: Parallel processing, Pipelining, Arithmetic Pipeline, Instruction pipeline and Arrays Processors.  | Assignment based on Topics covered |
| 18th Nov to 23rd Nov  | **Advanced Architecture** Multi-processors, characteristics of multi-processors, Interconnection structures, Inter-processor Arbitration, Inter-processor Communication and Synchronization, Cache Coherence  | Assignment based on Topics covered |
| 25th Nov Onwards | Revision of all Syllabus | Test and Presentation |

**Name of Assistant Professor: Dr.Nisha Malik**

**Class and Section: M.Sc. 1st Sem (Computer Sc.)**

**Subject: Computer Fundamentals and Programming in C**

**Paper Code: 24CSC201DS03**

**Lesson Plan**: **August 2024 to November 2024**

|  |  |  |
| --- | --- | --- |
| **Week of Month** | **Topics to be covered** | **Assignment/Test to be given** |
| 7th Aug to 10th Aug | Concept of data and information; Components of Computer: Hardware, Input Device, Output Device | Assignment based on Topics covered |
| 12th Aug to 17th Aug | CPU: Components of CPU; Memory and Storage Devices; Computer Software: System Software and Application Software; Functions of Operating System. Programming Languages: Machine, Assembly, High Level Language, 4GL; Language Translator; Linker, Loader | Assignment based on Topics covered |
| 19th Aug to 24th Aug | Classification of Computers: Micro, Mini, Mainframe, Super computer. Advantages of Computer, Limitations of Computer, Range of Applications of Computer, Social concerns of Computer Technology: Positive and Negative Impacts, Computer Crimes, | Assignment based on Topics covered |
| 26th Aug to 31st Aug | Viruses and their remedial solutions. Problem Solving: Problem Identification, Analysis, Flowcharts, Decision Tables, Pseudo codes and algorithms, Program Coding, Program Testing and Execution | Assignment based on Topics covered |
| 2nd Sept. to 7th Sept | C Programming Fundamentals: Keywords, Variables and Constants, Structure of a C program. Operators & Expressions: Arithmetic, Unary, Logical, Bit-wise, Assignment & Conditional Operators, Library Functions, | Assignment based on Topics covered |
| 9th Sept. to 14th Sept. | Control Statements: Looping using while, do…while, for statements, Nested loops; decision making using if…else, Else If Ladder | Assignment based on Topics covered |
| 16th Sept. to 21st Sept. | Switch, break, Continue and Goto Statements. Declaration, initialization of Multidimensional Arrays | Assignment based on Topics covered |
| 23rd Sept to 28th Sept. | String: Operations ofStrings; Functions: Defining & Accessing User defined functions, Function Prototype | Assignment based on Topics covered |
| 30th Sept to 5th Oct | Passing Arguments, Passing array as argument, Recursion, Use of Library Functions; Macro vs. Functions | Assignment and test based on Topics covered  |
| 7th Oct to 12th Oct | Pointers: Declarations, Operations on Pointers, Passing to a function, Pointers & Arrays | Assignment based on Topics covered |
| 14th Oct to 19th Oct | Array of Pointers, Array accessing through pointers, Pointer to functions, Function returning pointers | Assignment based on Topics covered |
| 21st Oct to 26th Oct | Dynamic Memory Allocations, Structures and Union: Defining and Initializing Structure , Array within Structure ,Array of Structure, Nesting of Structure , Pointer to Structure, Passing structure and its pointer to Functions | Assignment based on Topics covered |
| 28th Oct to 2nd Nov | Vacations (Diwali) |  |
| 4th Nov to 9th Nov | Unions: Introduction to Unions and its Utilities. Files Handing: Opening and closing file in C; Create, Read and Write data to a file | Assignment based on Topics covered |
| 11th Nov to 16th Nov | Modes of Files | Assignment based on Topics covered |
| 18th Nov to 23rd Nov  | Operations on file using C Library Functions; Working with Command Line Arguments. Program Debugging and types of errors | Assignment based on Topics covered |
| 25th Nov Onwards | Revision of all Syllabus | Test and Presentation |

**Name of Assistant Professor: Dr. Nisha Malik**

**Class and Section: M.SC 1st Sem(Computer Sc.)**

**Subject: Practical Software Lab**

**Paper Code: 24CSC201DS03, 24CSC201DS03**

 **Lesson Plan**

**Class - Msc Computer Science 3RDSem**

**Faculty - Ms. Monica Sindhu**

**Subject –Operating System 17MCS23C1**

**Lesson Plan Duration - From** August 2024 – December 2024

|  |  |
| --- | --- |
| **Time Period** | **Topics** |
| **Week1(August)** | Operating systems as an extended machine & resource manager, Operating systems classification; Operating systems and system calls; Operating systems architecture. |
| **Week2(August)** | Process Management functions: Process model, hierarchies, and implementation; process states and transitions; multi-programming |
| **Week3(August)** | , multi-tasking, multi-threading; level of schedulers and scheduling algorithms. Memory management and virtual memory: logical va physical |
| **Week4(August)** | Memory Management and Virtual Memory : Logical versus  |
| **Week1(sept)** | - Physical Address Space, Swapping, Contiguous Allocation, Paging, Segmentation, |
| **Week2(sept)** | Segmentation with Paging, Demand Paging, Performance of Demanding Paging, Page Replacement, Page Replacement Algorithm, Allocation of Frames, Thrashing.Assignment 1. |
| **Week3(sept)** | **Assignment2-**Device Management functions: I/O devices and controllers, interrupt handlers,  |
| **Week4(Sept)** | - Types of I/O Software: Device independent I/O software, User-space I/O software, Terminal I/O software. Disk scheduling. |
| **Week1(Oct)** | Device Management functions: I/O devices and controllers, interrupt handlers,  |
| **Week2(Oct)** | fileTypes of I/O Software: Device independent I/O software, User-space I/O software, Terminal I/O software. Disk scheduling. |
| **Week3(Oct)** | File management functions: file naming, structure, types, access mechanisms, attributes and operations; directory structures and directory operations;. |
| **Week4(Oct)** | file space allocations; file sharing, file locking; symbolic links; file protection and security: distributed file systems. Assignment 2 |
| **Week1(Nov)** | Concurrent programming: sequential and concurrent process; precedence graph, Bernsterins condition; time dependency and critical code section, mutual exclusion problem;  |
| **Week2(Nov)** | classical process coordination problems; deadlock handling, inter-process communication. Unix Operating System: Overview of  |
| **Week 3(Nov)** | UNIX OS in general and implementation of all above functions in Unix Operating System. |
| **Week 4(Nov)** | Revision |

**Class - APGDCA**

**Faculty - Ms. Monica Sindhu**

**Subject - Programming in C and Data Structure APGDCA-103**

**Lesson Plan Duration - From** August 2024 – December 2024

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| **Time Period** | **Topics** |
| **Week2(August)** | Introduction to Problem Solving : Top Down Design, Algorithm, Characteristics of Algorithm, Implementation of Algorithms, ,  |
| **Week3August)** | Efficiency of Algorithms, Analysis of Algorithm.. Fundamental algorithms, Array Techniques |
| **Week4August)** | Merging, Sorting & Searching Techniques, Text Processing and Pattern Search, Dynamic Data Structure Algorithms, Recursive Algorithms. |
| **Week1(sept)** | Elements of Program Style, Flowcharts : Flowchart Symbols, Its Types, Benefits and Limitations; Decision Tables,; Practice of Algorithm Development and Flowcharting |
| **Week2(sept)** | Pseudocodes : Using User Input, Files, Reports and Output on Paper/Console, Assignment 1. |
| **Week3(sept)** | **Assignment2-**Basic concepts of programming, problem solving, algorithm designing and flowcharting, |
| **Week4(sept)** | - concept of structured programming |
| **Week1(Oct)** | Device Management functions: I/O devices and controllers, interrupt handlers,  |
| **Week2 (Oct)** | evolution of C language, advantages of C, variables and constants, operators, expressions, loops, |
| **Week3(Oct)** | arrays, functions, structures, pointers, file-handling. |
| **Week4(Oct)** | Data Structure: Fundamental Notations: Primitive and Composite data types. Time and Space complexity of algorithms. |
| **Week1(nov)** | Data structures: Arrays, Stacks, Queues, Linked Lists, Trees and Graphs. |
| **Week2(Nov)** | File Structures: Concepts of fields, records and files. Sequential file organisation, ISAM, Hashing techniques, Inverted Lists and Multilists. |
| **Week 3(nov)** | Sorting: Internal and External sorting. Searching techniques and Merging algorithms |
| **Week4(Nov)** | Revision |

**Lesson Plan (Odd Semester)**

**Session – 2024-2025**

**Class - BCA – 1st Semester**

**Faculty – SUMAN**

**Subject – Computer Fundamentals & Problem Solving using C**

**Course Code: 23BCA401DS02**

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| --- | --- |
| **Time Period** | **Topics** |
| **JULY** |  |
| **(Week 4)** | **(Unit 2):**  Introduction to the C programming language: History of C, Importance of C |
| **AUGUST** |
| **(Week 1)** | Elements of C: C character set, identifiers and keywords, Data types, Constants and Variables, |
| **(Week 2)** | Assignment statement, Symbolic constant, Structure of a C Program, printf(), scanf() functions, |
| **(Week 3)** | Operators & Expression, type casting and conversion, operator hierarchy & associativity |
| **(Week 4)** | ***(U*nit 3):**Decision making & Branching: Decision making with IF statement, IF-ELSE statement, Nested IF statement, ELSE-IF ladder, switch statement, go to statement. |
| **SEPTEMBER** |
| **(Week 1)** | Decision Making and Looping: While loop, do-while loop, for loop, jumps in loops, break statement, continue statement, nested loops. REVISION AND TEST |
| **(Week 2)** | ***(U*nit 4):**Functions: Standard Mathematical functions, Input/output: Unformatted & formatted I/O function in C, Input functions output functions |
| **(Week 3)** | String manipulation functions. User defined functions: Introduction/Definition, function prototype, Local and global variables, passing parameters, recursion. |
| **(Week 4)** | Arrays & Pointers: Definition, types, initialization, processing an array, passing arrays to functions,  |
| **OCTOBER** |
| **(Week 1)** | Declaration and initialization of string, Input/output of string data, Introduction to pointers. REVISION AND TEST |
| **(Week 2)** | **(Unit 1):**  Computing Fundamentals: Overview of computing fundamentals principles and history, Generations of Computers,  |
| **(Week 3)** | Computer Fundamentals: Generations of Computers, Block Diagram along with its components, classification of computers, Applications of computers in various fields.  |
| **(Week 4)** | Input/Output Devices, Memory: Concept of primary & secondary memory, Cache Memory, Secondary storage devices. |
| **NOVEMBER** |
| **(Week 1)** | Overview of Networking & Operating System: Introduction to computer networking, Network types, Network topologies, Internet and its applications; Operating system and its functions. |
| **(Week 2)** | ***(U*nit 2):**Planning the Computer Program: Problem definition, Program design, Debugging, Types of errors in programming, Techniques of Problem Solving- Flowcharting, Algorithms |
| **(Week 3)** | REVISION and TESTS |
| **(Week 4)** | REVISION and TESTS |

**Class - BCA – 1st Semester**

**Faculty – SUMAN**

**Subject – Mathematical Foundations of Computer Science**

**Course Code: 23BCA401DS01**

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| **Time Period** | **Topics** |
| **July** |
| **Week 4** | Sets: Sets, Subsets, Equal Sets Universal Sets |
| **August** |  |
| **Week 1** | Finite and Infinite Sets, Operation on Sets, Union, Intersection |
| **Week 2** | Complements of Sets, Cartesian Product, Cardinality of Set, Practical applications of set theory. |
| **Week 3** | Relations And Functions: Properties of Relations, Equivalence Relation, Partial Order Relation. |
| **Week 4** | Function: Domain and Range, Onto, Into and One to One Functions, Composite and Inverse Functions. |
| **September** |
| **Week 1** | Limits & Continuity: Limit at a Point, properties of limit, computation of limits of various types of functions |
| **Week 2** | Continuity of a function at a point, Continuity over an interval. TEST |
| **Week 3** | Trigonometry: Introduction, Measurement of angles, trigonometric functions, relation between trigonometric functions, |
| **Week 4** | signs of trigonometric functions, trigonometric functions of standard angles. Basic of inverse trigonometry. |
| **October** |
| **Week 1** | Differentiation: Derivative of a function, Derivatives of sum, differences, product & quotient of functions |
| **Week 2** | Derivatives of polynomial, trigonometric, exponential, logarithmic, inverse trigonometric |
| **Week 3** |  implicit functions, Logarithmic Differentiation, Chain rule and differentiation by substitution. TEST |
| **Week 4** | Matrices: Definition, Types of Matrices, Addition, Subtraction, Scalar Multiplication and Multiplication of Matrices. |
| **November** |
| **Week 1** | Determinants: Definition, Minors, Cofactors, Properties of Determinants, Applications of determinants in finding area of triangle |
| **Week 2** | Adjoint of matrix, Inverse of matrix, solving a system of linear equations using matrix method |
| **Week 3** | REVISION and TESTS |
| **Week 4** | REVISION and TESTS |

**Class - B.A. (Minor in Computer Science) – 1st Semester**

**Faculty – SUMAN**

**Subject – Computing Fundamentals and C Programming**

**Course Code: 24CSC401MI01**

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| --- | --- |
| **Time Period** | **Topics** |
| **July** |
| **Week 4** | Introduction to the C programming language: History of C |
| **August** |  |
| **Week 1** | **(Unit 2):**   Importance of C, Elements of C: C character set, identifiers and keywords, |
| **Week 2** | Data types, Constants and Variables, Assignment statement, Symbolic constant, Structure of a C Program, printf(), scanf()Functions,  |
| **Week 3** | Operators & Expression, type casting and conversion, operator hierarchy & associativity. |
| **Week 4** | ***(U*nit 3):**Decision making & Branching: Decision making with IF statement, IF-ELSE statement, Nested IF statement, ELSE-IF ladder, switch statement, go to statement.  |
| **September** |
| **Week 1** | ***(U*nit 3):**Decision making & Looping: while, do-while and for loop, jumps in loops, break, continue statement, Nested loops. |
| **Week 2** | ***(U*nit 4):**Arrays & Pointers: Definition, types, initialization, processing an array, passing arrays to functions declaration and initialization of string,  |
| **Week 3** | Input/output of string data, Introduction to pointers. |
| **Week 4** | ***(U*nit 3):**Functions and modular programming concepts: Standard Mathematical functions, Input/output: Unformatted & formatted I/O function in C, Input functions, output functions, string manipulation functions.  |
| **October** |
| **Week 1** | User defined functions: Introduction/Definition, function prototype, Local and global variables, passing parameters, recursion |
| **Week 2** | ***(U*nit 4):**Advance Concepts of C Programming: Pointers and memory management in C; File input/output operations in C; Dynamic memory allocation and de allocation; Advanced control structures: switch, break, and continue statements. |
| **Week 3** | Practical applications of C programming in software development: Algorithmic problem-solving using C programming constructs; Design and implementation of C programs; Debugging and testing techniques for C programs; Best practices and coding standards in C programming. |
| **Week 4** | ***(U*nit 2):**Introduction to software development methodologies: Basics of algorithmic thinking and problem-solving strategies. Planning the Computer Program: Problem definition, Program design, Debugging, Types of errors in programming, Techniques of Problem Solving-Flowcharting, Algorithms |
| **November** |
| **Week 1** | ***(U*nit 1):**Computing Fundamentals: Overview of computing principles and history, Generations of Computers, Block Diagram along with its components, Classification of computers, Applications of computers in various fields. Input/Output Devices, Memory: Concept of primary & secondary memory, Cache Memory, Secondary storage devices |
| **Week 2** | Basics of Networking & Operating System: Introduction to computer networking, Network types, Network topologies, Internet and its applications; Operating system and its functions |
| **Week 3** | REVISION and TESTS |
| **Week 4** | REVISION and TESTS |

**Lesson Plan**

**Name of Extension Lecturer- Dr. Jyoti**

**Computer Science Department, GPGCW, Rohtak.**

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| **BCA III****COMPUTER GRAPHICS** **PAPER CODE- BCA 302** |
| **Time Period** | **Topics** |
| **22 July - 28 July** | Introduction to computer graphics, Basics of Graphics systems,Application areas of Computer Graphics, overview of graphics systems,  |
| video-displaydevices |
| **29 July – 4 August** | raster-scan systems, random scan systems, graphics monitors and workstationsand input devices |
| **5 August – 11 August** | Output Primitives: Points and lines, line drawing algorithm: Slope Intercept Form |
| **12 August -18 August** | DDA&Bresenham’s line Drawing Algorithm |
| **19 August-25 August** | Mid Point Circle Drawing Algorithm and Ellipse drawing algorithm. |
| **26 August-1 September** | Filled area primitives: Scan line polygon fill algorithm, boundary fill, flood fill algorithms. |
| **2 September- 8 September** | 2-D Geometrical Transforms: Translation, scaling, rotation, reflection and sheartransformations, matrix representations |
| **9 September- 15 September** | homogeneous coordinates, composite transforms,transformations between coordinate systems |
| **16 September- 22 September** | 3-D Geometric Transformations: Translation, rotation, scaling, reflection and shear transformations, |
| **23 September- 29 September** | composite transformations |
| **30 September – 6 October** | 2-D Viewing: The viewing pipeline, viewing coordinate reference frame, window to view-port coordinate transformation |
| **7 October-13 October** | viewing functions |
| **14 October – 20 October** | Cohen-Sutherland and Cyrus-beck line clipping algorithms, |
| **21 October – 26 October** | Sutherland –Hodgeman polygon clipping algorithm. |
| **27 October -3 November** | **Diwali Break** |
| **4 November -10 November** | 3-D Object Representation: Polygon surfaces, quadric surfaces, spline representation,Hermite curve, Bezier curve and B-Spline curves, |
| **11 November -17 November** | Bezier and B-Spline surfaces. Basicillumination models, polygon-rendering methods. |
| **17 November -22 November** | **Revision** |

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| **BCA II****DATA STRUCTURES-I****PAPER CODE- BCA 202** |
| **Time Period** | **Topics** |
| **22 July - 28 July** | Introduction: Elementary data organization, Data Structure definition, Data type vs. data structure, Categories of data structures, |
| **29 July – 4 August** | Data structure operations, Applications of data structures, Algorithms complexity and time-space tradeoff, Big-O notataion. |
| **5 August – 11 August** | Strings: Introduction, Storing strings, String operations, Pattern matching algorithms. |
| **12 August -18 August** | Arrays: Introduction, Linear arrays, Representation of linear array in memory, address calculations, Traversal, Insertions, Deletion in an array, |
| **19 August-25 August** | Multidimensional arrays, Parallel arrays, Sparse arrays. |
| **26 August-1 September** | Linked List: Introduction, Array vs. linked list, Representation of linked lists in memory |
| **2 September- 8 September** | Traversal, Insertion, Deletion, Searching in a linked list, Header linked list, |
| **9 September- 15 September** | Circular linked list, Two-way linked list, Threaded lists, Garbage collection, Applications of linked lists. |
| **16 September- 22 September** | Stack: Introduction, Array and linked representation of stacks, Operations on stacks, |
| **23 September- 29 September** | Applications of stacks: Polish notation, Recursion. |
| **30 September – 6 October** | Queues: Introduction, Array and linked representation of queues, Operations on queues, |
| **7 October-13 October** | Deques, Priority Queues, Applications of queues |
| **14 October – 20 October** | Tree: Introduction, Definition, Representing Binary tree in memory, Traversing binary trees, |
| **21 October – 26 October** | Traversal algorithms using stacks. |
| **27 October -3 November** | Graph: Introduction, Graph theory terminology, |
| **4 November -10 November** | Sequential and linked representation of graphs. |
| **11 November -17 November** | **Revision** |
| **17 November -22 November** | **Test** |

**Name of Teacher : Ms. Monika Ahlawat**

**Class and Section: B.Sc CS 3rd Sem**

**Subject: Data Communication and Networking Paper Code: Paper 3.1**

**Lesson Plan**: **July 2024 to Nov 2024**

| **Week of Month** | **Topics to be covered** |
| --- | --- |
| 22 July to 31 July | Introduction to Computer Communications and Networking Technologies; Uses of Computer Networks; Network Devices |
| 1st August to 31 August | Nodes, and Hosts; Types of Computer Networks and their Topologies; Network Architecture and the OSI Reference Model, TCP/IP reference model.Test |
| 1st September to 31st September | Analog and Digital Communications: Concept of data, signal, channel, bid-rate , maximum data-rate of channel, Representing Data as Analog Signals, Representing Data as Digital Signals, Data Rate and Bandwidth, Capacity, Baud Rate; Asynchronous and synchronous transmission, data encoding techniques, Modulation techniques, Digital Carrier Systems; Guided and Wireless Transmission Media; Communication Satellites; Switching and Multiplexing; Dialup Networking; Analog Modem Concepts,Test |
| 1 October to 30 October | Data Link Layer: Framing, Flow Control, Error Control; Error Detection and Correction; Media Access Control: Random Access Protocols, Token Passing Protocols; Token Ring; Introduction to Ethernet, FDDI, Wireless LANs. Network Layer and Routing Concepts: Virtual Circuits and Datagram’s; Routing Algorithms: Flooding, Shortest Path Routing, Distance Vector Routing; Internetworking.,Test |
| 1 November to 22 November | Transport layer: Elements of Transport protocol: Addressing, Connection Establishment, Flow Control, Buffering, Crash recovery. Internet Transport protocol: UDP: Introduction, Real time Transport protocol, Remote Procedure Call. Application Layer: Domain Name System, Electronic Mail, World Wide Web. **Revision and Test**  |

**Name of Teacher: Ms. Monika Ahlawat**

**Class and Section: BCA 5th Sem Sec A**

**Subject: Data Communication and Networking**

**Paper Code: BCA 303**

**Lesson Plan**: **July 2024 to Nov 2024**

| Week of Month | Topics to be covered |
| --- | --- |
| 22 July to 31 July | Introduction to Computer Communications and Networking Technologies; Uses of Computer Networks; Network Devices, Nodes, and Hosts |
| 1st August to 31 August | Types of Computer Networks and their Topologies; Network Software: Network Design issues and Protocols; Connection-Oriented and Connectionless Services; Network Applications and Application Protocols; Computer Communications and Networking Models: Decentralized and Centralized Systems, Distributed Systems, Client/Server Model, Peer-to-Peer Model, WebBased Model, Network Architecture and the OSI Reference Model, TCP/IP reference model, Example Networks: The Internet, X.25, Frame Relay, ATM. |
| 1st September to 31st September | Analog and Digital Communications Concepts: Concept of data, signal, channel, bid-rate , maximum data-rate of channel, Representing Data as Analog Signals, Representing Data as Digital Signals, Data Rate and Bandwidth, Capacity, Baud Rate; Asynchrous and synchrous transmission, data encoding techniques, Modulation techniques, Digital Carrier Systems; Guided and Wireless Transmission Media; Communication Satellites; Switching and Multiplexing; Dialup Networking; Analog Modem Concepts; DSL Service |
| 1 October to 30 October | Data Link Layer: Framing, Flow Control, Error Control; Error Detection and Correction; Sliding Window Protocols; Media Access Control: Random Access Protocols, Token Passing Protocols; Token Ring; Introduction to LAN technologies: Ethernet, switched Ethernet, VLAN, fast Ethernet, gigabit Ethernet, token ring, FDDI, Wireless LANs; Bluetooth; Network Hardware Components: Connectors, Transceivers, Repeaters, Hubs, Network Interface Cards and PC Cards, Bridges, Switches, Routers, Gateways |
| 1 November to 22 November | Network Layer and Routing Concepts: Virtual Circuits and Datagrams; Routing Algorithms: Flooding, Shortest Path Routing, Distance Vector Routing; Link State Routing, Hierarchical Routing; Congestion Control Algorithms; Internetworking; Network Security Issues: Security threats; Encryption Methods; Authentication; Symmetric – Key Algorithms; Public-Key Algorithms.**Revision and Test**  |

**Name of Teacher: Ms. Monika Ahlawat**

**Class and Section: B.Com Hon’s 3rd sem**

**Subject: Basics of Information Technology**

**Paper Code: BCH-3-06**

**Lesson Plan**: **July 2024 to Nov 2024**

| Week of Month | Topics to be covered |
| --- | --- |
| 22 July to 31 July | Essentials of Computers: Concept of data, information and data processing, Levels or type of information, Uses of information |
| 1st August to 31 August | Uses of information, Business data Processing Cycle, Methods of data processing, Application of Electronic data processing. Memory and Mass Storage Devices: Introduction of Memory System, Types of Memory-Primary and Secondary Memory, RAM and ROM, Types of Secondary Storage Devices; Software Concepts: Types of Software and their role, System Languages and Translators, Functions and Types an Operating System. |
| 1st September to 31st September | Data Communications: Basic elements of a Communication System, Forms of Data Transmission, Data transmission speed, Modes of Data Transmission:Analog and Digital data transmissions, Data Transmission Media; Wire Cables, Microwave, Fiber-optics, Communication Satellites. Emerging Trends in IT: Electronic Commerce(E-Commerce), Types of E-Commerce, Advantages and Disadvantages of E-commerce, Application of E-commerce, process in ecommerce, Types of an Electronic Payment System, Security issues in E-commerce, Security Schemes; Electronic data Interchange (EDI); Mobile communication, Bluetooth Communication, Infrared communication, Smart Card.,Test |
| 1 October to 30 October | Computer Networks: Introduction to Computer Network, Types of Network; Local Area Network, Wide Area Network, Types of Public and Private Network, Network Topology; Internet and its Application, History of Internet, Benefits of Internet, ISP, Internet Accounts, Internet Addressing, Information Technology: Impact of IT on Business environment; Applications of IT. Multimedia: Concept of Multimedia, Multimedia Components, Multimedia Applications. |
| 1 November to 22 November |  Presentation with Power- Point: Features of Power-point, Creating presentation the easy way, Working with different views, working with graphics in Power Point, Sound effects and Animations effects, Printing in Power-point. Introduction to Accounting Packages-Tally: Features of Tally, Preparation of Vouchers, Salary statement, Maintaining of Inventory records, Maintenance of Accounting Books and final Accounts, Generating and Printing reports.**Revision and Test**  |

**Lesson Plan (Odd Semester)**

**Session – 2024-2025**

**Class - B.A. (Minor in Computer Science) – 1st Semester**

**Faculty – Ritika**

**Subject – Computing Fundamentals and C Programming**

**Course Code: 24CSC401MI01**

|  |  |
| --- | --- |
| **Time Period** | **Topics** |
| **August** |
| **Week 1** | **(Unit 2):**  Introduction to the C programming language: History of C, Importance of C, Elements of C: C character set, identifiers and keywords, |
| **Week 2** | Data types, Constants and Variables, Assignment statement, Symbolic constant, Structure of a C Program, printf(), scanf()Functions,  |
| **Week 3** | Operators & Expression, type casting and conversion, operator hierarchy & associativity. |
| **Week 4** | ***(U*nit 3):**Decision making & Branching: Decision making with IF statement, IF-ELSE statement, Nested IF statement, ELSE-IF ladder, switch statement, go to statement.  |
| **September** |
| **Week 1** | ***(U*nit 3):**Decision making & Looping: while, do-while and for loop, jumps in loops, break, continue statement, Nested loops. |
| **Week 2** | ***(U*nit 4):**Arrays & Pointers: Definition, types, initialization, processing an array, passing arrays to functions declaration and initialization of string,  |
| **Week 3** | Input/output of string data, Introduction to pointers. |
| **Week 4** | ***(U*nit 3):**Functions and modular programming concepts: Standard Mathematical functions, Input/output: Unformatted & formatted I/O function in C, Input functions, output functions, string manipulation functions.  |
| **October** |
| **Week 1** | User defined functions: Introduction/Definition, function prototype, Local and global variables, passing parameters, recursion |
| **Week 2** | ***(U*nit 4):**Advance Concepts of C Programming: Pointers and memory management in C; File input/output operations in C; Dynamic memory allocation and de allocation; Advanced control structures: switch, break, and continue statements. |
| **Week 3** | Practical applications of C programming in software development: Algorithmic problem-solving using C programming constructs; Design and implementation of C programs; Debugging and testing techniques for C programs; Best practices and coding standards in C programming. |
| **Week 4** | ***(U*nit 2):**Introduction to software development methodologies: Basics of algorithmic thinking and problem-solving strategies. Planning the Computer Program: Problem definition, Program design, Debugging, Types of errors in programming, Techniques of Problem Solving-Flowcharting, Algorithms |
| **November** |
| **Week 1** | ***(U*nit 1):**Computing Fundamentals: Overview of computing principles and history, Generations of Computers, Block Diagram along with its components, Classification of computers, Applications of computers in various fields. Input/Output Devices, Memory: Concept of primary & secondary memory, Cache Memory, Secondary storage devices |
| **Week 2** | Basics of Networking & Operating System: Introduction to computer networking, Network types, Network topologies, Internet and its applications; Operating system and its functions |
| **Week 3** | REVISION and TESTS |
| **Week 4** | REVISION and TESTS |

**Class - B.SC(Physical Science) (Minor in Computer Science) – 1st Semester**

**Faculty – Ritika**

**Subject – Computing Fundamentals and C Programming**

**Course Code: 24CSC401MI01**

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| --- | --- |
| **Time Period** | **Topics** |
| **August** |
| **Week 1** | **(Unit 2):**  Introduction to the C programming language: History of C, Importance of C, Elements of C: C character set, identifiers and keywords, |
| **Week 2** | Data types, Constants and Variables, Assignment statement, Symbolic constant, Structure of a C Program, printf(), scanf()Functions,  |
| **Week 3** | Operators & Expression, type casting and conversion, operator hierarchy & associativity. |
| **Week 4** | ***(U*nit 3):**Decision making & Branching: Decision making with IF statement, IF-ELSE statement, Nested IF statement, ELSE-IF ladder, switch statement, go to statement.  |
| **September** |
| **Week 1** | ***(U*nit 3):**Decision making & Looping: while, do-while and for loop, jumps in loops, break, continue statement, Nested loops. |
| **Week 2** | ***(U*nit 4):**Arrays & Pointers: Definition, types, initialization, processing an array, passing arrays to functions declaration and initialization of string,  |
| **Week 3** | Input/output of string data, Introduction to pointers. |
| **Week 4** | ***(U*nit 3):**Functions and modular programming concepts: Standard Mathematical functions, Input/output: Unformatted & formatted I/O function in C, Input functions, output functions, string manipulation functions.  |
| **October** |
| **Week 1** | User defined functions: Introduction/Definition, function prototype, Local and global variables, passing parameters, recursion |
| **Week 2** | ***(U*nit 4):**Advance Concepts of C Programming: Pointers and memory management in C; File input/output operations in C; Dynamic memory allocation and de allocation; Advanced control structures: switch, break, and continue statements. |
| **Week 3** | Practical applications of C programming in software development: Algorithmic problem-solving using C programming constructs; Design and implementation of C programs; Debugging and testing techniques for C programs; Best practices and coding standards in C programming. |
| **Week 4** | ***(U*nit 2):**Introduction to software development methodologies: Basics of algorithmic thinking and problem-solving strategies. Planning the Computer Program: Problem definition, Program design, Debugging, Types of errors in programming, Techniques of Problem Solving-Flowcharting, Algorithms |
| **November** |
| **Week 1** | ***(U*nit 1):**Computing Fundamentals: Overview of computing principles and history, Generations of Computers, Block Diagram along with its components, Classification of computers, Applications of computers in various fields. Input/Output Devices, Memory: Concept of primary & secondary memory, Cache Memory, Secondary storage devices |
| **Week 2** | Basics of Networking & Operating System: Introduction to computer networking, Network types, Network topologies, Internet and its applications; Operating system and its functions |
| **Week 3** | REVISION and TESTS |
| **Week 4** | REVISION and TESTS |

**Class - B.Sc. (Life Science) (Minor in Computer Science) – 1st Semester**

**Faculty – Ritika**

**Subject – Computing Fundamentals and C Programming**

**Course Code: 24CSC401MI01**

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| --- | --- |
| **Time Period** | **Topics** |
| **August** |
| **Week 1** | **(Unit 2):**  Introduction to the C programming language: History of C, Importance of C, Elements of C: C character set, identifiers and keywords, |
| **Week 2** | Data types, Constants and Variables, Assignment statement, Symbolic constant, Structure of a C Program, printf(), scanf()Functions,  |
| **Week 3** | Operators & Expression, type casting and conversion, operator hierarchy & associativity. |
| **Week 4** | ***(U*nit 3):**Decision making & Branching: Decision making with IF statement, IF-ELSE statement, Nested IF statement, ELSE-IF ladder, switch statement, go to statement.  |
| **September** |
| **Week 1** | ***(U*nit 3):**Decision making & Looping: while, do-while and for loop, jumps in loops, break, continue statement, Nested loops. |
| **Week 2** | ***(U*nit 4):**Arrays & Pointers: Definition, types, initialization, processing an array, passing arrays to functions declaration and initialization of string,  |
| **Week 3** | Input/output of string data, Introduction to pointers. |
| **Week 4** | ***(U*nit 3):**Functions and modular programming concepts: Standard Mathematical functions, Input/output: Unformatted & formatted I/O function in C, Input functions, output functions, string manipulation functions.  |
| **October** |
| **Week 1** | User defined functions: Introduction/Definition, function prototype, Local and global variables, passing parameters, recursion |
| **Week 2** | ***(U*nit 4):**Advance Concepts of C Programming: Pointers and memory management in C; File input/output operations in C; Dynamic memory allocation and de allocation; Advanced control structures: switch, break, and continue statements. |
| **Week 3** | Practical applications of C programming in software development: Algorithmic problem-solving using C programming constructs; Design and implementation of C programs; Debugging and testing techniques for C programs; Best practices and coding standards in C programming. |
| **Week 4** | ***(U*nit 2):**Introduction to software development methodologies: Basics of algorithmic thinking and problem-solving strategies. Planning the Computer Program: Problem definition, Program design, Debugging, Types of errors in programming, Techniques of Problem Solving-Flowcharting, Algorithms |
| **November** |
| **Week 1** | ***(U*nit 1):**Computing Fundamentals: Overview of computing principles and history, Generations of Computers, Block Diagram along with its components, Classification of computers, Applications of computers in various fields. Input/Output Devices, Memory: Concept of primary & secondary memory, Cache Memory, Secondary storage devices |
| **Week 2** | Basics of Networking & Operating System: Introduction to computer networking, Network types, Network topologies, Internet and its applications; Operating system and its functions |
| **Week 3** | REVISION and TESTS |
| **Week 4** | REVISION and TESTS |

 **Lesson Plan**

**Class –bcom 1stsem sec b roll no [201-284]**

**Faculty - Ms. NehaNarwal**

**Subject –C [minor] 24CSC401MI01**

**Lesson Plan Duration - From** August 2024 – December 2024

|  |  |
| --- | --- |
| **Time Period** | **Topics** |
| **Week1(August)** | Overview of computing principles and history,generations of computers,blockdiagram along with components |
| **Week2(August)** | Classification of computers,applications of computers in various fields,input output devices,memory concept of primary and secondary memory |
| **Week3(August)** | Cache memory,secondary storage devices |
| **Week4(August)** | Intro to computer networking,networkingtypes,network topologies |
| **Week1(sept)** | Internet and its applications,operating system and its functions. |
| **Week2(sept)** | Introduction to software development methodologies:basics of algo thinking and problem solving,planning the computer program |
| **Week3(sept)** | Problem def,programdesign,debugging,types of errors in programming,technique of problem solving flowchart algo |
| **Week4(Sept)** | History of c,importance of c,elements of c,identifiers and keywords,datatypes,constants,variables |
| **Week1(Oct)** | Assignment statement,symbolicconstant,structure of c program,printfscanffunctions,operators and expression,typecasting,conversion,operatorhiearachy and associativity |
| **Week2(Oct)** | Decision making and branching:ifstatements,if else statements,,else if ladder,switchstatements,goto statements |
| **Week3(Oct)** | While do while and for loop,jump in loops,break continue statements,nested loops |
| **Week4(Oct)** | Std mathematical functions,i/o formatted unformatted i/o functions,stringmanipulationsfunctions,user defined functions,functionprototype,local global variables, |
| **Week1(Nov)** | Passing parameters,recursion,arraypointers,types,passing array to functions, |
| **Week2(Nov)** | pointers memory management in c,file input output,operator in c,dynamic memory allocation and deallocation, |
| **Week 3(Nov)** | Switch , break,continuestatement.debugging and practical applications of c programming in s/w development |
| **Week 4(Nov)** | Revision |

**Class –bca 1stsem**

**Faculty –nehanarwal**

**Subject –SEC html 24CSC401SE01**

**Lesson Plan Duration - From** August 2024 – December 2024

|  |  |
| --- | --- |
| **Time Period** | **Topics** |
| **Week2(August)** | OVERVIEW of internet,www,evolution an history of www,basic features and evolution of web development |
| **Week3August)** | web servers,http,url,ipaddresses,domainname,searching and web casting teq.search engines and tools.internet security  |
| **Week4August)** | Intro to web tech,html,css,javascript,client side server side scripting |
| **Week1(sept)** | web publishing,isp,planning and designing your web sites,choosing the contents,homepage,domainnames,creating a website,htmldhtml |
| **Week2(sept)** | web development: intro to html,alltags,creatinglinks,headers,textstyles,textstructuring,textcolors,background formatting page layouts |
| **Week3(sept)** | Lists,tables,metaelement,new html5 form input types,input and data list elements, |
| **Week4(sept)** | CGI,FEATURES of java,javascript,features of asp,vbscript,macromediaflash,macromediadreamweaver |
| **Week1(Oct)** | Javscript execution env.DOM,element access in javascript, |
| **Week2 (Oct)** | Events and event handling,handling events from the body elements,buttonelements,text box |
| **Week3(Oct)** | Pwd elements,dom2 event element model,navigatorobject,dom tree traversal and modifications |
| **Week4(Oct)** | CSS block and inline elements,inline styles using internal CSS,external CSS css rule cascade,inheritance |
| **Week1(nov)** | CSS basics,CSSselectors,color foreground color,backgroundcolor,stylingforms,styling text input |
| **Week2(Nov)** | Layout and positioning :key concepts,positions of elements, |
| **Week 3(nov)** | Images in css,gradient media queries |
| **Week4(Nov)** | Revision |

**Name of Guest Lecturer: Ms. Shalu Rani**

**Class and Section: BCA 3rd SEM (Computer Sc)**

**Subject: INTRODUCTION TO DATABASE SYSTEM**

**Paper Code: BCA 203**

**Lesson Plan**: **July 2024 to November 2024**

|  |  |  |
| --- | --- | --- |
| Week of Month | Topics to be covered | Assignment/Test to be given |
| 22nd July to 27th July | Basic Concepts – Data, Information, Records and files. Traditional file –based Systems-File Based Approach-Limitations of File Based Approach | Assignment based on Topics covered |
| 29th July to 3rd Aug | Database Approach-Characteristics ofDatabase Approach, advantages and disadvantages of database system, components of database system, Database Management System (DBMS) | Assignment based on Topics covered |
| 5th Aug to 10th Aug | Components of DBMSEnvironment, DBMS Functions and Components, DBMS users, Advantages andDisadvantages of DBMS, DBMS languages | Assignment based on Topics covered |
| 12th Aug to 17th Aug | Roles in the Database Environment - Data and Database Administrator, Database Designers, Applications Developers and Users. | Assignment based on Topics covered |
| 19th Aug to 24th Aug | Database System Architecture –Three Levels of Architecture, External, Conceptual and Internal Levels, Schemas, Mappings and Instances. | Assignment based on Topics covered |
| 26th Aug to 31st Aug | Data Independence – Logical and Physical Data Independence | Assignment based on Topics covered |
| 2nd Sept. to 7th Sept | Classification of Database Management System, Centralized and Client Server architecture to DBMS  | Assignment based on Topics covered |
| 9th Sept. to 14th Sept. | Data Models: Records- based Data Models, Object-based Data Models, Physical Data Models and Conceptual Modelling | Assignment based on Topics covered |
| 16th Sept. to 21st Sept. | Entity-Relationship Model – Entity Types, Entity Sets, Attributes Relationship Types | Assignment based on Topics covered |
| 23rd Sept to 28th Sept. | Relationship Instances and ER Diagrams, abstraction and integration. Basic Concepts of Hierarchical and Network Data Model | Assignment based on Topics covered |
| 30th Sept to 5th Oct | Relational Data Model:-BriefHistory, Relational Model Terminology-Relational Data Structure, Database Relations | Assignment and test based on Topics covered  |
|  | Properties of Relations, Keys, Domains,Integrity Constraints over Relations | Assignment based on Topics covered |
| 7th Oct to 12th Oct | Relational algebra, Relational calculus, Relational database design:Functional dependencies | Assignment based on Topics covered |
| 14th Oct to 19th Oct | Modification anomalies, Ist to 3rd NFs, BCNF, 4th and 5th NFs, computing closures of set FDs | Assignment based on Topics covered |
| 21st Oct to 26th Oct | SQL: Data types, Basic Queries in SQL, Insert, Delete and Update Statements, Views | Assignment and test based on Topics covered |
| 28th Oct to 2nd Nov | Vacations(Diwali) |  |
| 4th Nov to 9th Nov | Query processing: General strategies of query processing, query optimization | Assignment based on Topics covered |
| 11th Nov to 16th Nov | Query processor, concept of security | Assignment based on Topics covered |
| 18th Nov to 23rd Nov  | concurrency and recovery | Assignment based on Topics covered |
| 25th Nov Onwards | Revision | Test and Presentation |

**Name of Guest Lecturer: Ms. Shalu**

**Class and Section: BCA 5th SEM (Computer Sc.)**

**Subject: VISUAL BASIC**

**Paper Code: BCA 304**

**Lesson Plan**: **July 2024 to November 2024**

|  |  |  |
| --- | --- | --- |
| Week of Month | Topics to be covered | Assignment/Test to be given |
| 22nd July to 27th July | Introduction to VB: Visual &Non-Visual programming, Procedural, Object-oriented and Event driven programming languages | Assignment based on Topics covered |
| 29th July to 3rd Aug | VB environment: Menu bar, Toolbar, Project explorer, Toolbox, Properties window  | Assignment based on Topics covered |
| 5th Aug to 10th Aug | Form designer, Form layout, Immediate window, Visual Development and Event Driven Programming | Assignment based on Topics covered |
| 12th Aug to 17th Aug | Basics of Programming: Variables: Declaring variables, Types of variables, Converting variables types, User-defined data types, Forcing variable declaration, Scope & lifetime of variables | Assignment based on Topics covered |
| 19th Aug to 24th Aug | Constants: Named & intrinsic. Operators: Arithmetic ,Relational & Logical Operators | Assignment based on Topics covered |
| 26th Aug to 31st Aug | VB: Various controls for I/O in VB, Message box, Input Box, Print statementWith Example | Assignment based on Topics covered |
| 2nd Sept. to 7th Sept | Programming with VB: Decisions and conditions: If statement, If-then-else, Select-case | Assignment based on Topics covered |
| 9th Sept. to 14th Sept. | Looping statements: Do-loops, For-next, While-wend, Exit statement. Nested control structures | Assignment based on Topics covered |
| 16th Sept. to 21st Sept. | Arrays: Declaring and using arrays, one-dimensional Array with example | Assignment based on Topics covered |
| 23rd Sept to 28th Sept. | Multi-dimensional arrays, Static & dynamic arrays, Arrays of array with example | Assignment based on Topics covered |
| 30th Sept to 5th Oct | Collections: Adding, Removing, Counting, Returning items in a collection, Processing a collection | Assignment and test based on Topics covered  |
| 7th Oct to 12th Oct | Programming with VB: Procedures: General & event procedures, Subroutines, Functions | Assignment based on Topics covered |
| 14th Oct to 19th Oct | Calling procedures, Arguments- passing mechanisms, Optional arguments, NamedArguments, Functions returning custom data types, Functions returning arrays | Assignment based on Topics covered |
| 21st Oct to 26th Oct | Working with forms and menus, How to Add multiple forms in VB, Hiding & showing forms | Assignment based on Topics covered |
| 28th Oct to 2nd Nov | Vacations(Diwali) |  |
| 4th Nov to 9th Nov | How to Load & unload statements, Creation of menu with example | Assignment and test based on Topics covered |
| 11th Nov to 16th Nov | Create a submenu, How to Create popup menus, Activate & deactivate Menu, Events, Form-load event | Assignment based on Topics covered |
| 18th Nov to 23rd Nov  | Menu designing in VB, Simple programs in VB | Assignment based on Topics covered |
| 25th Nov Onwards | Revision | Test and Presentation |

**Name of Guest Lecturer: Ms. Shalu**

**Class and Section: BCA 5th Sem (Computer Sc.)**

**Subject: Practical- Software Lab**

**Paper Code: BCA 305**

Practical Syllabus will be met as per schedule of concerned theory paper i.e. based on BCA 304

 **Lesson Plan**

**Class – M.Sc (Comp. Sc.) 1st Sem.**

**Faculty – Ms. Navita**

**Subject –Paper Code- 24CSC201DS01**

**Lesson Plan Duration - From August 2024 to November 2025**

|  |  |
| --- | --- |
| **Time Period** | **Topics** |
| **August** |
| **Week 2** | Set Theory: Definition of sets, countable and uncountable sets, Venn Diagrams |
| **Week 3** | Proofs of some general identities on sets. |
| **Week 4** | **Problems Solved based on each topic and Test and Assignment** |
| **September** |
| **Week 1** | Relation Definition, Pictorial representation of relation, Operations  |
| **Week 2** | Types of relation, composition of relations, Equivalence relation, partial ordering relation. |
| **Week 3** | **Problems Solved based on each topic and Test and Assignment** |
| **Week 4** | Function: Definition, type of functions, One to one, into and onto function, inverse function, Composition of functions, Recursive Functions |
| **October** |
|  **Week 1** | **Problems Solved based on each topic and Test and Assignment** |
| **Week 2** | Propositional Logic: Proposition logic, basic logic, Logical Connectives, truth tables  |
| **Week 3** | Tautologies, Contradiction, Logical implication |
| **Week 4** | Predicate Calculus: Predicates and quantifiers. Mathematical Induction **Problems Solved based on each topic and Test and Assignment** |
| **November** |
| **Week 1** | Formal Languages: Introduction to defining language, Kleene Closure, Arithmetic expressions, Chomsky Hierarchy, Regular expressions |
| **Week 2** | Automata Theory: Conversion of regular expression to Finite Automata, NFA, DFA  |
| **Week 3** | Conversion of NFA to DFA, FA with output: Moore machine, Mealy machine |
| **Week 4** | **Problems Solved based on each topic and Test and Assignment** |

**Lesson Plan**

**Class – M.Sc (Comp. Sc.) 1st Sem.**

**Faculty – Ms. Navita**

**Subject –Paper Code- 24CSC202MV01**

**Lesson Plan Duration - From August 2024 to November 2025**

|  |  |
| --- | --- |
| **Time Period** | **Topics** |
| **August** |
| **Week 2** | Introduction: Internet, Evolution of Internet, Types of Computer Network: LAN, WAN, MAN Internet Protocol |
| **Week 3** |  Internet Services, WWW, Working of Internet |
| **Week 4** | Introduction to Intranet, DNS working, Configuring Internet Connection, Connecting LAN to Internet; |
| **September** |
| **Week 1** | Client-Server environment: Single User, Multi User, Server, Workstation, Computer Network; Network Topologies; Network Protocols |
| **Week 2** | E-Mail Concepts – Configuring EMail Program, Sending and Receiving Files through E-Mail, Fighting Spam, Sorting Mail, E-Mail mailing lists and avoiding E-Mail viruses**Test and Assignment** |
| **Week 3** | Searching and Web Casting Technique: Popular web servers, Web Browsers; basic features of browsers: bookmarks, cookies, progress indicators  |
| **Week 4** | Customization of browsers, browsing tricks, next generation web browsing, search engines; Hypertext Transfer Protocol (HTTP), URL. |
| **October** |
| **Week 1** | Internet Tools: Online Chatting, Messaging, and Conferencing Concepts, |
| **Week 2** | Usenet newsgroup concepts: Reading UseNet newsgroups, Instant messaging, Web-Based chat rooms and discussion boards, Voice and Video conferencing. |
| **Week 3** | Streamlining Browsing, Keeping track of Favourite Websites, Web Security, Privacy, and SiteBlocking **Test and Assignment** |
| **Week 4** | Web Designing using HTML: Understanding HTML, XHTML Syntax and Semantics, HTML Elements: Paragraph, Lists, Tables, Images, Frames, Forms, |
| **November** |
| **Week 1** | Linking to other Web Pages: External and Internal linking, Email Links; Working with Background colors and Images;. **Test and Assignment** |
| **Week 2** | Marquee; Text Alignment and Text Formatting, Advanced Layout with Tables; Publishing HTML Pages, Cascading Style Sheets (CSS): Introduction, Inline, Internal, External CSS, Linking CSS to Web Page, |
| **Week 3** | Client–Side Programming: Introduction to JavaScript, Basic Syntax, Variables and Data types, Statements, Operators, Literals, Functions, Objects, Arrays. |
| **Week 4** | XML: Relation between XML and HTML, Goals of XML, Structure and Syntax of XML, Well Formed XML, DTD and its Structure, tree structures in data organization, Searching with XPath. **Test and Assignment** |

**Name of Assistant Professor: Ms. Vandna**

**Class: M.SC 3rd sem**

**Subject: VISUAL PROGRAMMING**

**Paper Code: 17MCS23C2**

**Lesson Plan**: **JULY 2024 to NOV 2025**

| Week of Month | Topics to be covered | Assignment/Test to be given |
| --- | --- | --- |
| Week 1 | Introduction to Visual Basic: VB IDE, An overview of VB project types, VB as event-driven & object-based language, |  |
| Week 2 | Default Controls in Tool Box: Label Box, Text Box  |  |
| Week 3 | Command Button, List Box, Combo Box, Picture & Image Box, Shape box, Timer, Option button, Check Box & Frames. |  |
| Week 4 | Programming with VB: Variables, Constants, Data types, Variable Scope, Arithmetic operations, String Operations, Built-in functions, | Assignment and test of Unit covered |
| Week 5 | I/O in VB, Branching & Looping statements, Procedures, Arrays, Collection. |  |
| Week 6 | Working with Forms: Working with multiple forms; Loading, Showing and Hiding forms |  |
| Week 7 | Creating Forms at Run Time. Introduction to MDI forms. Dialog Boxes: Types of Dialog boxes, |  |
| Week 8 | Working with Common Dialog Box. Menu Manipulation: Introduction to Menu Editor, Adding Menus and its manipulation: Modifying and Deleting Menu Items, Creating Submenus. |  |
| Week 9 | Advanced Controls in VB: Introduction: Scroll Bar, Slider Control,  | Assignment and test of Unit based on Topics covered  |
| Week 10 | Tree View, List View, Rich Text Box Control, Toolbar, Status Bar, |  |
| Week 11 | Progress Bar, Cool bar, Image List, Tab Strip. |  |
| Week 12 | Working with Graphics: Using Paint, Line, Circle, RGB and other related method, manipulating graphics | Assignment and test of unit covered |
| Week 13 | File Handling in VB: Creating a File, Saving and Opening files in Rich text box and Picture box, Handling file operations. |  |
| Week`14 | VB & Databases: The Data Controls and Data-Bound Controls; Using DAO, RDO, ADO. | Assignment based on Topics covered |
| Week 15 | ActiveX controls: Creating & Using ActiveX Controls, Creating & Using ActiveX Documents, ActiveX EXE vs. ActiveX DLL. |  |
| Week 16 | Revision |  |
| Week 17 | Revision | Test and Presentation |

**Name of Assistant Professor: Ms. Vandna**

**Class: APGDCA 1ST SEM**

**Subject: COMPUTER NETWORKING & MULTIMEDIA**

**Paper Code: APGDCA-102**

**Lesson Plan**:  **2024 to NOV 2024**

| Week of Month | Topics to be covered | Assignment/Test to be given |
| --- | --- | --- |
| Week 1 | Introduction to Computer Network, Why Computer Network ? Key Issues for Computer Network, Types of Network : LAN, WAN and MAN; |  |
| Week 2 | Criteria for Classification of Computer Network, LANs : Hardware requirements for LAN, |  |
| Week 3 | Transmission Channel for LAN, Network Interface Unit, Servers & Workstations, LAN Software. Introduction to Ethernet, |  |
| Week 4 | Token Ring : Basics and Working, Cables, ring speed. WAN : Transmission Channel for LAN, hardware requirements : Bridges, Routers, Gateways | Assignment and test of Units covered |
| Week 5 | Private Networks, Public Networks : ISDN, PSTN, PSDN, Value Added Networks. |  |
| Week 6 | Connecting PCs : Simple switches, Printer sharing buffers, Zero-slot LANs, Media sharing LANs, Printer Servers, Client and Servers |  |
| Week 7 | Interface Cards, Media Access Control, Operating System features, |  |
| Week 8 | OSI Model, TCP/IP Model, Network topology, Network Protocols, Applications of Computer Network |  |
| Week 9 | Data encoding & Communication Techniques, Multiplexing and Communication Hardware | Assignment and test of Units based on Topics covered  |
| Week 10 | Distributed data rocessing, Teletext and Videotext Networks Communication Channels : Wire cables (Telegraph, telephone, twisted-pair, co-axial), Microwave, Fibre-optics, Communication satellites; Channel sharing, data-transmission |  |
| Week 11 | Introduction to multimedia technology - Computers, Communication and Entertainment; Framework for multimedia systems; M/M devices, presentation devices and the user interface; M/M presentation and authoring; Digital representation of sound and transmission;  |  |
| Week 12 | Brief survey of speech recognition and generation; digital video and image compression; JPEG image compression standards; MPEG motion video compression; DVI technology; time-based media representation and delivery. | Assignment and test of unit covered |
| Week 13 | Audio Compression and Decompression, Audio Synthesis, MIDI, Speech Recognition & Synthesis, Video Capturing, Compression & Decompression, Real-time 3D, LANs and Multimedia. |  |
| Week`4 | Applications of M/M; Intelligent M/M system, Desktop Virtual Reality (VR), VR operating System, Virtual environment displays and orientation tracking;  | Assignment based on Topics covered |
| Week 15 | visually coupled system requirements; intelligent VR software systems. Applications of environments in various fields viz. Entertainment, manufacturing, business, education, etc. |  |
| Week 16 | Revision |  |
| Week 17 | Revision | Test and Presentation |

**Lesson Plan (odd Semester)**

**Class - MASTER OF SCIENCE (COMPUTER SCIENCE) – (3rd -Sem)**

**Faculty - Dr. Rohini Sharma**

**Subject – ARTIFICIAL INTELLIGENCE (Code: 17MCS23DB3)**

|  |  |
| --- | --- |
| **Time Period** | **Topics** |
| **AUGUST** |
| **(Week 1)** | ***(Unit-1):***Definition and applications of Artificial Intelligence, Problem solving: Defining the problem as State space search |
| **(Week 2)** | Production systems, Problem characteristics, Search techniques: Brute force and Heuristic search and their different searching techniques |
| **(Week 3)** | Knowledge representation: Types of knowledge, Inference rule, Knowledge Representation: Logicbased Knowledge representation, Rule-based knowledge representation;Test of Unit 1 |
| **(Week 4)** | **(Unit -2):** Knowledge representation: Non-Monotonic reasoning, Knowledge representation based onprobability and uncertainty |
| **SEPTEMBER** |
| **(Week 5)** | Knowledge representation schemes: Formal logic, Inference Engine,Semantic net, Frame, Scripts. |
| **(Week 6)** | Expert System: Definition, Role of Knowledge in expert system, Architecture of Expert system, Test of Unit 2 |
| **(Week 7)** | **(Unit 3):**Expert system development life cycle: Problem selection, Prototype construction, Formalization |
| **(Week 8)** | Implementation, Evaluation, Knowledge acquisition: Knowledge engineer, Cognitive behavior,Acquisition techniques |
| **OCTOBER** |
| **(Week 9)** | Perception: Sensing, Speech recognition, Vision, Action  |
| **(Week 10)** | Learning, Planning and Understanding: Learning and its different types, Planning, understanding Test of unit 3 |
| **(Week 11)** | **(unit 4):** Neural Networks: Introduction, Comparison of artificial neural networks with biological neuralnetworks, |
| **(Week 12)** | Learning in neural networks, Perceptions, Back propagation networks, application of neuralnetworks. |
| **NOVEMBER** |
| **(Week 13)** | Fuzzy logic: Definition, Difference between Boolean and Fuzzy logic |
| **(Week 14)** | fuzzy subset, fuzzy membership function, fuzzy expert system |
| **(Week 15)** | Inference process for fuzzy expert system, fuzzy controller Test of Unit 4, last year question papers. |
| **(Week 16)** | Revision& Tests |

**Class – APGDCA -1st Sem**

**Faculty - Dr. Rohini Sharma**

**Subject – (104:Computer Organization and Architecture)**

|  |  |
| --- | --- |
| **Time Period** | **Topics** |
| **August** |
| **Week 2** | **(Unit 1):**Representation of Information : Number Systems, Integer and Floating-point representation,Character codes – ASCII and EBCDIC,Basic Building Blocks and Circuit Design: OR, AND, NOT, XOR Gates; De Morgan’sTheorem. Universal building blocks |
| **Week 3** | laws and theorems of boolean algebra. Simplifying logiccircuits – sum of product and product of sum form, algebraic simplification, Karnaugh simplification;arithmetic circuits; flip-flops, counters; shift registers; encoder, decoder, multiplexor, demulti-plexorcircuits. |
| **Week 4** | Register transfer and Micro-operations: Register Transfer Language, Bus and memory.Transfers, Arithmetic. Logic Micro-operations, Shift Micro-operations.Test and assignments |
| **September** |
| **Week 1** | ***(U*nit 2):**Basic Computer Organization and Design: Instruction and instructions Codes, Computerinstructions, Timing and Control |
| **Week 2** | Instruction Cycle, Memory Reference Instructions, Input-Outputand Interrupts; Complete Computer Description. |
| **Week 3** | Programming the Basic Computer: Machine Language, Assembly Language, The assembler,program loops, programming Arithmetic and Logic |
| **Week 4** | Subroutines, Inputs-Outputs programming.Micro-programmed Control; Control Memory, Address Sequencing, Micro-programe Example,Design of Control Unit.Test and Assignment |
| **October** |
| **Week 1** | **(Unit-3):**Central Processing Unit: General Register Organization Stack Organization Instruction Formats,Addressing Modes. |
| **Week 2** | Data and Transfer Manipulation, Program Control, Reduced Instruction SetComputer.  |
| **Week 3** | Pipeline and Vector Processing parallel processing Pipelining, Arithmetic Pipeline |
| **Week 4** | RISCOuoekubem Vector Processing, Arrays Processors |
| **November** |
| **Week 1** | **(unit 4):**Computer Arithmetic: Addition and Subtraction, Multiplication Algorithms, Division algorithm,Floating-Point Arithmetic Operations, decimal arithmetic Unit, Decimal Arithmetic Operations. |
| **Week 2** | Input-Output Organization: Peripheral Devices, Input-Output interface, Asynchronous DataTransfer, Modes of transfer. |
| **Week 3** | Priority interrupt, Direct Memory Access(DMA), input-outputprocessors(IOP), serial communication multi-processors, characteristics of multi-processors. |
| **Week 4** | Interconnectionstructures, Inter-processor Arbitration, Inter-processor Communication andSynchronization, Cache Coherence. |

 **Lesson Plan**

**Class – M.Sc.(Comp. Sc.) 3rd Sem.**

**Faculty – Mr Chain Singh**

**Subject –Paper Code- 17MCS23DA3 (Computer Graphics)**

**Lesson Plan Duration - From August 2024 to November 2025**

|  |  |
| --- | --- |
| **Time Period** | **Topics** |
| **August** |
| **Week 1** | Computer Graphics and Its Types, Applications of Computer |
| **Week2** | Graphics: Graphics Display Devices: CRT (Random-Scan and Raster Scan Monitor), Color CRT |
| **Week 3** | Monitors, Refresh CRT and Interlacing; DVST, Emissive and Non- Emissive Display devices;  |
| **Week 4** | Hardcopy devices; Graphics Software Standards**Test and Assignment** |
| **September** |
| **Week 1** | **Scan Conversion:** Scan Converting a Point, Line: Slope Method, DDA and Bresenham’s Algorithm, |
| **Week 2** | Circle: Mid-Point and Bresenham’s Algorithm, Anti- aliasing. |
| **Week 3** | **2-D Graphics Transformations:** Rotations, Scaling, Translation, Reflection, Shearing;Homogeneous coordinates: Need,  |
| **Week 4** | Transformations in Homogeneous Coordinates. CompositeTransformation. **Problems Solved based on each topic and Test and Assignment** |
| **October** |
| **Week 1** | **Polygon Filling**: Scan-Line Polygon Fill Algorithm, Inside-Outside tests, Boundary-Fill Algorithm,Flood Fill Algorithm, Cell Array, Character Generation. |
| **Week 2** | **Two-Dimensional Viewing:** The Viewing Pipeline, Window to View port coordinate transformation, |
| **Week 3** | Clipping Operations, Point Clipping, Line Clipping, Polygon Clipping for convex and concavepolygons, Text Clipping, Exterior Clipping. |
| **Week 4** | **Problems Solved based on each topic and Test and Assignment** |
| **November** |
| **Week 1** | **Interactive Picture-Construction Techniques**: Basic Positioning Method, Constraints, Grids,Gravity field, Rubber Band Methods, Dragging, Painting and Drawing. |
| **Week 2** | **Three–Dimensional Concepts:** Three Dimensional Display Methods: Parallel Projection and Perspective Projection;  |
| **Week 3** | 3D Transformations: Translation, Rotation & Scaling. Applications of 3D graphics. |
| **Week 4** | **Problems Solved based on each topic and Test and Assignment** |

**Lesson Plan**

**Class – APGDCA-1st Sem.**

**Faculty – Mr Chain Singh**

**Subject –Paper Code- APGDCA-101(Foundation Course in IT And MS-Office -2000)**

**Lesson Plan Duration - From August 2024 to November 2025**

|  |  |
| --- | --- |
| **Time Period** | **Topics** |
| **August** |
| **Week 2** | ***Introduction:*** Historical evolution of computers, Classification of computers, Model of a digitalcomputer, functioning of a digital computer, Why computers are useful? Human being Vs. computer,Computer as a tool, Applications of computers (desktop publishing, sports, design and manufacturing,research and design, military, robotics, planning & management, marketing, medicine & health care,arts, communications). |
| **Week 3** | ***Number systems and Boolean Algebra:***What is Number system, necessity of binary number system, binary, octal and hexadecimal number system, |
| **Week 4** | Inter-conversion of numbers, binary arithmetic.**Test and Assignment** |
| **September** |
| **Week 1** | ***Input/outputDevices:***Punched cards, card-readers, key-punching machines, keyboards, mouse, joysticks, trackballs, digitizer, voice-recognition, optical- recognition, scanners, terminals, point-of-saleterminals, machine-vision systems. |
| **Week 2** | Hard- copy devices : Print quality, Impact printers - DMPs, Daisy-wheel printers, Line-printers, Drum printers, Chain printers; Non-impact printers - Inkjet, Laser, Thermal, LED; Plotters. Soft-copy devices: monitors, video-standards (VGA and SVGA). |
| **Week 3** | ***Memory & Mass Storage Devices:*** Characteristics of memory systems, types of memory, RAM, ROM, magnetic disks - floppy disk, hard-disk; optical disks - CD, CD-I, CD-ROM;  |
| **Week 4** | Magnetic tapes; Concepts of Virtual and Cache memory.**Test and Assignment** |
| **October** |
| **Week 1** | ***Software Concepts :*** Introduction, types of software - System & Application software; Languagetranslators - Compiler, Interpreter, Assembler;  |
| **Week 2** | Operating system - Characteristics, bootstrapping, types of operating, operating system as a resource manager; BIOS; System utilities - Editor, Loader, Linker, File Manager. Concept of GUI, GUI standards.  |
| **Week 3** | ***Social Concerns :*** Positive and Negative Impacts of Computer Technology, Viruses and their types, Computer Crimes. |
| **Week 4** | **Problems Solved based on each topic and Test and Assignment** |
| **November** |
| **Week 1** | ***MS-Word :*** Introduction to MS-Word, Standard Toolbar, Word-wrap, Text formatting, FormattingParagraphs, Applying Effects to Text, Applying Animation to Text. |
| **Week 2** | ***MS-Excel :*** Introduction to MS-Excel, Working with Toolbars, Formatting, Formulas, Data Management, Graphs & Chart, Macros, and other additional Functions. |
| **Week 3** | ***MS-PowerPoint:***Introduction, PowerPoint Slide Creation, Slide-show, Adding Graphics, Formatting, Customizing and Printing. |
| **Week 4** | **Problems Solved based on each topic and Test and Assignment** |

 **Lesson Plan**

**Class - BBA 5th sem.**

**Faculty – ASHISH MALIK**

**Subject – BBAN 506 — Cyber Security**

**Lesson Plan Duration - Odd sem. 2024-25**

| **Time Period** | **Topics** |
| --- | --- |
| **Week3(August)** | Concept of information society, knowledge society, cyber space |
| **Week4(August)** | Digital economy, critical infrastructure. Critical information infrastructure |
| **Week1(sept)** | **Internet as global Information infrastructure.** |
| **Week2(sept)** | Revision of Unit 1 & Assignment 1. |
| **Week3(sept)** | **Cyber terrorism, terrorist atrocities, the role of IT by terrorist.** |
| **Week4(Sept)** | the power of cyber terrorism, characteristic of cyber terrorism |
| **Week1(Oct)** | existence of cyber terrorism, real examples of cyber terrorism |
| **Week2(Oct)** | orientation of terrorism, economic consequences.Class test 1 |
| **Week3(Oct)** | Cybercrime, types of cybercrime: hacking, virus, worm, Trojan horse |
| **Week4(Oct)** | Mallware, fraud and theft, cyber homicide, current cyber-attack methods |
| **Week1(Nov)** | threats toIT infrastructure, web security, basic cyber forensics , internalpenetration, external penetration, your role on cyber-attacks. |
| **Week2(Nov)** | **Fundamental concepts of information security, information warfare, levels of information war, cost of information warfare, cyber disaster planning** |
| **Week 3(Nov)** | disaster planning, companywide disaster planning, business impact analysis.Class test 2 |
| **Week 4(Nov)** | Revision |

**Class – B. Sc. Maths (Hons.) 3rd sem**

**Faculty – ASHISH MALIK**

**Subject – BHM 236 DATABASE MANAGEMENT SYSTEM**

**Lesson Plan Duration - Odd sem. 2024-25**

| **Time Period** | **Topics** |
| --- | --- |
| **Week4 August)** | Terminologies of database, Drawbacks of conventional file systems |
| **Week1(sept)** | Data administrator (Role and functions), Characteristics of databases, Data redundancy, Data integrity |
| **Week2(sept)** | **Data independence. DBMS and its functions. Advantages and disadvantages of database.** |
| **Week3(sept)** | **Three levels of the architecture: External level, Conceptual level and Internal level** |
| **Week4(sept)** | Mappings and Schemas, Client/Server architecture, Distributed processing. |
| **Week1(Oct)** | Data model, Relational data model, Hierarchical data model, Network data model. |
| **Week2 (Oct)** | Relational model, Basic structure, Terminology. |
| **Week3(Oct)** | Normalization, First Normal Form, Second Normal Form, Third Normal Form, BCNF |
| **Week4(Oct)** | Relational algebra and Relational Calculus |
| **Week1(nov)** | PL/SQL Blocks, Data types, PL/SQL functions,Cursors, Error handling inPL/SQL, |
| **Week2(Nov)** | Package functions, Package procedures.Database Triggers: Use & type of database Triggers, Database Triggers Vs. Declarative |
| **Week 3(nov)** | Integrity Constraints, Creatinga Trigger, BEFORE vs AFTER Trigger Combinations. Dropping a Trigger. |
| **Week4(Nov)** | Revision |