Lesson Plan

Class – BCA 2nd Sem **Subject –'C' Programming**

Faculty – Mr. Amit Rathee **Paper Code- BCA-106**

Lesson Plan Duration - From January 2024 to April 2024

Time Period	Topics	Text/ Reference Books
Jan.- Week 1	Overview of C: History of C, Importance of C, Elements of C: C character set, identifiers and keywords	● Yashwant Kanetker, Let us C, BPB ● Gottfried, Byron S., Programming with C, Tata McGraw Hill
Jan.- Week 2	Data types, Constants and Variables, Assignment statement, Symbolic constant, Structure of a C Program, printf(), scanf() Functions	
Jan.- Week 3	Operators & Expression: Arithmetic, relational, logical, bitwise, unary, assignment, shorthand assignment operators, conditional operators and increment and decrement operators	
Jan.- Week 4	Arithmetic expressions, evaluation of arithmetic expression, type casting and conversion, operator hierarchy & associativity	
Jan.- Week 5	**Revision/ Test (Unit-1)**	
Feb.- Week 1	Decision making & branching	
Feb.- Week 2	Algorithm development, Flowcharting and Development of efficient program in C, Decision making with IF statement, IF-ELSE statement	
Feb.- Week 3	Nested IF statement, ELSE-IF ladder, switch statement, goto statement, Decision making & looping: For, while, and do-while loop	
Feb.- Week 4	jumps in loops, break, continue statement, Nested loops	
Feb.- Week 5	**Revision/ Test (Unit-2)**	
Mar.- Week 1	Functions: Standard Mathematical functions	
Mar.- Week 2	Input/output: Unformatted & formatted I/O function in C, Input functions viz. getch(), getche(), getchar(), gets(), output functions viz., putch(), putchar(), puts(), string manipulation functions	
Mar.- Week 3	User defined functions: Introduction/Definition, prototype, Local and global variables, passing parameters, recursion	
Mar.- Week 4	**Revision/ Test (Unit-3)**	
Apr.- Week 1	Arrays, strings and pointers: Definition, types, initialization, processing an array, passing arrays to functions, Array of Strings	
Apr.- Week 2	String constant and variables, Declaration and initialization of string, Input/output of string data, Introduction to pointers	
Apr.- Week 3	Storage classes in C: auto, extern, register and static storage class, their scope, storage, & lifetime.	
Apr.- Week 4	**Revision/ Test**	
Apr.- Week 5	**Revision/ Test**	

(Teacher's Signature)

Lesson Plan

Class – B.Sc 2nd Sem **Subject –Structured Systems Analysis & Design**

Faculty – Mr. Amit Rathee **Paper Code- Paper-2.2**

Lesson Plan Duration - From January 2024 to April 2024

Time Period	Topics	Text/ Reference Books
Jan.- Week 1	Introduction to system, Definition and characteristics of a system, Elements of system, Types of system	
Jan.- Week 2	System development life cycle, Role of system analyst, Analyst/user interface, System planning	
Jan.- Week 3	Initial investigation: Introduction, Bases for planning in system analysis, Sources of project requests	
Jan.- Week 4	Initial investigation, Fact finding, Information gathering, information gathering tools	
Jan.- Week 5	**Revision/ Test (Unit-1)**	
Feb.- Week 1	Structured analysis	
Feb.- Week 2	Tools of structured analysis: DFD, Data dictionary, Flow charts, Gantt charts, decision tree, decision table, structured English, Pros and cons of each tool	
Feb.- Week 3	Feasibility study: Introduction, Objective, Types, Steps in feasibility analysis, Feasibility report, Oral presentation	• System Analysis and Design by Sushil Goel (NPH) • System Analysis and Design by Elias Awad (Galgotia Publications)
Feb.- Week 4	Cost and benefit analysis: Identification of costs and benefits, classification of costs and benefits, Methods of determining costs and benefits, Interpret results of analysis and take final action	
Feb.- Week 5	**Revision/ Test (Unit-2)**	
Mar.- Week 1	System Design: System design objective, Logical and physical design	
Mar.- Week 2	Design Methodologies, structured design, Form-Driven methodology(IPO charts), structured walkthrough, Input/Output and form design: Input design, Objectives of input design, Output design, Objectives of output design, Form design	
Mar.- Week 3	Classification of forms, requirements of form design, Types of forms, Layout considerations, Form control	
Mar.- Week 4	**Revision/ Test (Unit-3)**	
Apr.- Week 1	System testing: Introduction, Objectives of testing, Test plan, testing techniques/Types of system tests	
Apr.- Week 2	Quality assurance goals in system life cycle, System implementation, Process of implementation, System evaluation	
Apr.- Week 3	System maintenance and its types, System documentation, Forms of documentation	
Apr.- Week 4	**Revision/ Test**	
Apr.- Week 5	**Revision/ Test**	

(Teacher's Signature)

Lesson Plan

Class – B.Sc 4th Sem **Subject –Data Structures with C /C++**

Faculty – Mr. Amit Rathee **Paper Code- Paper-4.1**

Lesson Plan Duration - From January 2024 to April 2024

Time Period	Topics	Text/ Reference Books
Jan.- Week 1	Data-Structure: Data-Structure operations, Algorithm, Complexity, Data structure and its essence	● Lipschutz: Data Structures (Schaum's Outline Series), Tata McGraw-Hil ● Tannenbaum: Data Structure Using C, Tata McGraw-Hill
Jan.- Week 2	Introduction to Arrays, Array operations, Multi- dimensional arrays, sequential allocation, address calculations	
Jan.- Week 3	sparse arrays, Stacks-Introduction to Stacks, primitive operations on stacks	
Jan.- Week 4	Representation of stacks as an array and stack-applications	
Jan.- Week 5	**Revision/ Test (Unit-1)**	
Feb.- Week 1	Queues:-Introduction to queues	
Feb.- Week 2	Operations on queue, circular queue, priority queue, Applications of queue	
Feb.- Week 3	Linked List-introduction and basic operations, Header nodes, doubly linked list	
Feb.- Week 4	Circular linked list, Applications of linked list, Representation of linked list as an array, stacks and queues	
Feb.- Week 5	**Revision/ Test (Unit-2)**	
Mar.- Week 1	Tree structures: Basic terminology	
Mar.- Week 2	Binary trees and binary search trees, implementing binary trees, Tree traversal algorithms	
Mar.- Week 3	Threaded trees, trees in search algorithms, AVL Trees, Polish notation and expression trees, applications of binary trees	
Mar.- Week 4	**Revision/ Test (Unit-3)**	
Apr.- Week 1	Graph data structure and their applications. Graph traversals, shortest paths, spanning trees and related algorithms	
Apr.- Week 2	Sorting: Internal and external sorting. Various sorting algorithms, Time and Space complexity of algorithms	
Apr.- Week 3	Searching techniques. Applications of Sorting and Searching in computer science	
Apr.- Week 4	**Revision/ Test**	
Apr.- Week 5	**Revision/ Test**	

(Teacher's Signature)

Lesson Plan

Class – B.Sc 4th Sem **Subject –Operating Systems**

Faculty – Mr. Amit Rathee **Paper Code- Paper-4.2**

Lesson Plan Duration - From January 2024 to April 2024

Time Period	Topics	Text/ Reference Books
Jan.- Week 1	Introductory Concepts: Operating system functions and characteristics	● Silberschatz A., Galvin P.B.,and Gagne G., "Operating System Concepts", John Wiley & Sons, Inc.,New York.
Jan.- Week 2	types of Operating System: Real time, Multiprogramming, Multiprocessing, Batch processing	
Jan.- Week 3	Methodologies for implementation of O/S service system calls, system programs	
Jan.- Week 4	Historical evolution of operating systems	
Jan.- Week 5	**Revision/ Test (Unit-1)**	
Feb.- Week 1	Process management: Process concepts	
Feb.- Week 2	Process management: operations on processes, Process states and Process Control Block	
Feb.- Week 3	CPU Scheduling: Scheduling criteria, Levels of Scheduling, Scheduling algorithms, Multiple processor scheduling	
Feb.- Week 4	Deadlocks: Deadlock characterization, Deadlock prevention and avoidance	
Feb.- Week 5	**Revision/ Test (Unit-2)**	
Mar.- Week 1	Concurrent Processes: Critical section problem, Semaphores	
Mar.- Week 2	Classical process co-ordination problems and their solutions, Inter-process Communications	
Mar.- Week 3	Storage Manage me nt : memory ma na ge me nt o f single-user and mu lti-user operating system, partitioning, swapping, paging and segmentation, Thrashing	
Mar.- Week 4	**Revision/ Test (Unit-3)**	
Apr.- Week 1	File management: File Systems: Functions of the system, File access methods	
Apr.- Week 2	Allocation methods: Contiguous, allocation, linked, indexed allocation	
Apr.- Week 3	Directory Systems: Structured Organizations, directory and file protection mechanisms	
Apr.- Week 4	**Revision/ Test**	
Apr.- Week 5	**Revision/ Test**	

(Teacher's Signature)

LECTURE PLAN

Name of the Faculty: Mr. AMIT RATHEE
Designation: Assistant Professor
Department: Computer Science
Course/ Subject Name: Basics of Computer/ Computer Fundamental (2.06)

S. No.	Week	Topic to be Covered	Reference
1.	Week 1	Fundamental of computers: Model of a digital computer; Functioning of a digital computer;	Basics of Computer (Theory & Practical) by Sushil Goel Lecture Notes
2.	Week 2	Types of a digital computer; Advantages of computers. Difference between digital computer and analog computer, MS-Excel: Applications of a Spreadsheet;	
3.	Week 3	Applications of computers: Computers in Commerce, Marketing, Education and Management. Advantages of an Spreadsheet; Features of Excel;	
4.	Week 4	Software concepts: Types of Software and their role, Different System Software types- Operating systems	
5.	Week 5	Translators, System Utilities; Concept of Application Packages; Types of an Operating system- Multi-user O.S., Multi-tasking O.S..	
6.	Week 6	Multi-Processing O.S; Time – sharing O.S., Multi-Programming O.S.Operating System as a resource Manager, concept of GUI and CUI.	
7.	Week 7	Introduction to Windows: Components of a Application Window; Types of Windows; Rows, Columns, Cell, Menus, Creating worksheet	
8.	Week 8	Windows as an Operating System, Windows explorer, Using Paintbrush, Control Panel, Installing a printer.	
9.	Week 9	User interfaces- CUI and GUI; Concept of a Desktop and Taskbar, My Computer, Recycle Bin, My Documents and Internet Explorer icons.	
10.	Week 10	Formatting, Printing, establishing worksheet links	
11.	Week 11	Table creating and printing graphs, Macros, Using Built-in-functions	
12.	Week 12	**Revision**	