

Lesson Plan (Session 2020-21)

Department of Computer Science, GCW, Hisar

Name of Teacher: Ms. Bhanu Priya

Class: - BSc-1st Sem

Subjects:-Computer Science (Computer Fundamental and Programming in C)

Date	Topics
November-2020	<p>Computer Fundamentals: Introduction to Computers: Characteristics and Limitations of Computers, Evolution of Computers, Classification of Computers. Computer Languages. Computer Programs, Structured Programming Concepts</p> <p>Basic Computer Organization: Units of a computer, CPU, ALU, Memory Hierarchy, Registers, I/O devices. Mother</p> <p>Introduction to C Programming: History of C, Character Set, Identifiers and Keywords, Constants, Types of C Constants, Rules for Constructing Integer, Real and character Constants, Variables, Data Types, rules for constructing variables. Input/output: Unformatted & formatted I/O function, Input functions: scanf(), getch(), getche(), getchar(), gets(); output functions: printf(), putchar(), puts().</p> <p>Operators and Expressions: Arithmetic, relational, logical, bitwise, unary, assignment, conditional operators and special operators, Type Conversion in Assignments, Hierarchy of Operations, Structure of a C program.</p>
December-2020	<p>Word Processing: Introduction to MS-Word, Creating & Editing: Formatting Document, Page, Table; Bookmark, Mail Merge, Macros.</p> <p>Spread Sheets: Introduction to MS-Excel, Creating & Editing Worksheet, Formatting data, Formulas and Functions, Creating Charts, Pivot Tables.</p> <p>Power Point Presentations: Creating, Manipulating & Enhancing Slides, Organizational Charts, Animations & Sounds, Inserting Animated Pictures.</p> <p>Decision Control Structure: Decision making Decision making with IF statement, IF-ELSE statement, Nested IF statement, ELSE-IF ladder.</p> <p>Loop Control Structure: While and do-while, for loop and Nested for loop,</p> <p>Case Control Structure: Decision using switch; goto, break and continue statements.</p> <p>Functions: Library functions and user defined functions, Global and Local variables, Function Declaration, Calling and definition of function, Methods of parameter passing to functions, recursion, Storage Classes in C.</p>
January-2021	<p>Operating Systems: Introduction to Operating System: Functions of Operating System, Services; Properties: Batch Processing, Multitasking, Multiprogramming, Interactivity, Distributed environment, Spooling; Types of Operating System:Single user and Multiuser, Batch OS, Multiprogramming OS, Multitasking OS, Real-Time OS, Time-Sharing OS, Distributed OS, Network OS.</p> <p>Arrays: Introduction, Array declaration, Accessing values in an array, Initializing values in an array, Single and Two Dimensional Arrays, Initializing a 2-Dimensional Array, Passing array elements to a function: Call by value and call by reference, Arrays of characters, Insertion and deletion operations, Searching the elements in an array, Using matrices in arrays, Passing an Entire Array to a Function.</p> <p>Pointers:Pointer declaration, Address operator "&", Indirection operator "*", Pointer and arrays, Pointers and 2-Dimensional Arrays, Pointer to an Array, Passing 2-D array to a Function, Array of Pointers.</p> <p>Dynamic Memory Allocation: malloc(), calloc(), realloc(), free() functions.</p>
Feburary-2021	<p>Internet Basics: History of Internet, Web Browsers, Web Servers, Hypertext Transfer Protocol, Internet Protocols Addressing, Internet Connection Types, How Internet Works, ISPs, Search Engines, Emails and Its Working, Internet Security, Uses of Internet, Computer Networks and their advantages, Types of Computer Network, Network Topologies, Basics of Transmission Media. Cloud Computing Basics: Overview, Applications, Intranets and the Cloud. Benefits, Limitations and Security Concerns.</p> <p>String Manipulation in C:Declaring and Initializing string variables, Reading and writing strings, String Handling functions (strlen(), strcpy(), strcmp(), strcat(), strev()).</p> <p>Structures and Unions: Declaration of structures, Structure Initialization, Accessing structure members, Arrays of structure, Nested structures, Structure with pointers, Union.</p> <p>Files in C: Introduction, Opening and Closing files, Basic I/O operation on files.</p>

Name of Teacher: Mr. Vipin Babbar

Class:- B.Sc-3rd Sem.

Subject:- Operating system

Date	Topics
Nov 9-11	Layers-MS-DOS Layer Structure, Traditional UNIX System Structure; Running Multiple Operating Systems, Running a Virtual Operating System, Operating System Modes, System Boot.
Nov-16-18	Introductory Concepts: Operating system functions .
Nov-23-25	characteristics, historical evolution of operating systems
Nov 30, Dec1-2	Introduction to Process, Attributes of a process, Process States, Operations on the Process,
Dec 7-9	Process management: Process concepts, Process states and Process Control Block., Process Schedulers, CPU Scheduling, Scheduling Algorithms, Purpose of a Scheduling algorithms
Dec- 14-16	Introduction to FCFS, Shortest Job First (SJF), Round Robin Scheduling Algorithms.
Dec 21-23	Fixed and Dynamic partition, Physical and Logical Address Space, Page Table, Mapping from page table to main memory,
Dec-28-30	Page Table Entry, Size of the page table, Finding Optimal Page Size. Virtual Memory Concepts, Advantages and disadvantage of Virtual Memory.
Jan 4-6	Segmentation, Translation of Logical address into physical address by segment table, Advantages and disadvantage of Segmentation. Paging VS Segmentation
Jan 11-13	Deadlocks: Deadlock characterization, Deadlock prevention and avoidance,
Jan 18-20	Deadlock detection and recovery, practical considerations
Jan 25-27	Attributes of File, Operations on File; File Access Methods- Sequential, Direct and Indexed Access; Directory Structure, File Systems, File System Structure- different layers;
Feb 1-3	Master Boot Record, Directory Implementation-Linear List and Hash Table; Disk space Allocation Methods- Contiguous Allocation and FAT.
Feb 8-10	What is shell and various type of shell, Various editors present in Linux/Unix;
Feb 15-17	Different modes of operation in vi editor;
Feb 22-24	Shell script, Writing and executing the shell script, Shell variable (user defined and system variables)
March 1-3	System calls, Pipes and Filters, Decision making in Shell Scripts (If else, switch)
March 8-10	Loops in shell, Utility programs (cut, paste, join, tr , uniq utilities), Pattern matching utility (grep)
March 15-17	Revision of Syllabus

Name of Teacher: Sh. Anil Kumar
 Class: BSc-3rd Sem
 Paper: Computer Science (DBMS)

Month	Topics
November 2020	Introduction of Topics of DBMS and Operating System A Historical perspective, File Systems vs. DBMS, Characteristics of the Data Base Approach, Abstraction and Data Integration, Database users Advantages and Disadvantages of DBMS, DBMS architecture, Data Models Schemas and Instances, Data Independence
December 2020	Basic Concepts-Entity, Attributes, Types of Attributes, Entity set and Keys Relationships-Relationship set, Degree of Relationship, Mapping Cardinalities. ER diagram representation-Representation of Entity, Attributes and Relationship Binary Representation and Cardinality, Participation Constraints
January 2021	Relational model concepts (Tables, Tuple, Relation instance, Relation schema, Relation key, Attribute domain) Constraints- Key constraints, Domain constraints, Referential integrity constraints Relational algebra, Basic operations: Select,Project,Union, Set differennce, Cartesianproduct, Rename
February 2020	Mapping ER model to relational database functional dependencies, Lossless decomposition Desirable properties of decomposition, Normal forms (1 NF, 2 NF, 3 NF and BCNF)Why SQL, Data Types; DDL-Create, Alter and Drop table Commands
March 2021	DML-SELECT/ FROM/ WHERE, INSERT INTO/ VALUES, UPDATE /SET/ WHERE, DELETE Commands UNION [ALL], INTERSECTION and MINUS Operators.

Name of Teacher: Mr. Amit Bansal

Class: - BSc-5thSem

Subjects:-Computer Science (OOP with C++ and Data Analytics)

Date	Topics
September-2020	<p>Procedure Oriented Programming, Object-Oriented programming Paradigm, difference between Procedure Oriented Programming and Object-Oriented programming, Basic concepts of Object-Oriented programming, Benefits of OOP, Object Oriented Languages, and application of OOP. Structure of a C++ Program, Insertion operator, Extraction operator, Unformatted and Formatted I/O Operations, inline functions.</p> <p>Data Analytics: Introduction to Data Analytics, Business Intelligence (BI) for better decisions, Decisiontypes, BI tools, BI skills, BI applications.</p> <p>Data warehousing: Introduction to Data warehousing (DW), Design considerations for DW, DWdevelopment approaches, DW architecture.</p> <p>Data Mining: Introduction to Data mining, Data cleaning and preparation, outputs of Data mining,evaluation of data mining results, Data Mining Techniques.</p>
October-2020	<p>C structure revisited, specifying a Class, Creating Objects, Defining member function, Memory allocation for objects, Scope resolution operator and its significance, Static Data Members, Static member functions, Friend Function, Friend Class.</p> <p>Decision Trees: Introduction to Decision tree, Decision tree problem, Decision tree construction, Lessonsfrom constructing trees, Decision tree algorithms.</p> <p>Regression: Introduction, Correlations and Relationships, Visual Look at Relationships, Logistic regression,Advantages and disadvantages of regression models.</p> <p>Artificial Neural Networks: Introduction, business applications of ANN, Design principles of an ANN,Representation of a neural network, Architecting a neural network, Developing an ANN, Advantages anddisadvantages of using ANN.</p>
November-2020	<p>Dynamic Memory Management using new and delete Operator , Constructor, type of constructors, Dynamic initialization of objects, Constructor overloading, Constructor with default arguments, Destructors, function overloading, Operator Overloading, Overloading unary and binary operators.</p> <p>Cluster analysis: Introduction, Applications of cluster analysis, Definition of a cluster, Representing clusters,Clustering techniques, K-means algorithm for clustering, Selecting the number of clusters.</p> <p>Association rule Mining: Introduction, Business applications of association rules, Representing associationrules, Algorithms for association rule, Apriori algorithm, Creating association rules.</p> <p>Web Mining: Introduction, Web content mining, Web structure mining, Web usage mining, Web miningalgorithms.</p>
December-2020	<p>Inheritance, Single Inheritance, Making a private member inheritable, Multilevel Inheritance, Multiple Inheritance, Hierarchical Inheritance, Hybrid Inheritance, Virtual Base Class. Abstract Classes, Constructors in derived classes.</p> <p>Big data: Introduction, Defining big data, Big data landscape, Business implications of big data, Technologyimplications of big data, Big data technologies, Management of big data.</p>
January-2021	<p>Hierarchy of Console Stream Classes, Manipulators</p> <p>Naïve-base analysis: Introduction, Probability, Naïve base model, Text classification example.Support vector machines: Introduction, SVM model, The kernel method,</p>

Name of Teachers: Amit Bansal/Vipin Babbar/ Anil Kumar
 Class: - BCom-1st Sem
 Subjects:-Computer Application in Business

Date	Topics
November-2020	Definition of computer; components of computer; characteristics of computers. Input and Output devices.
December-2020	Memory and mass storage devices, Introduction to modern CPU and processors, Windows, Computer Software – introduction; types of software - system, application and utility software, Introduction to operating system, types of operating systems, function of operating system. Realtime applications, Programming languages, Operating systems for Tabs, mobile phones, Android, etc.
January-2021	Introduction to Word Processor, Create and Save a new File, Editing a document, Formating a Document.Creating table, Macro, Mail Merge etc. Introduction to Spread Sheet, Create and Save a workbook, data types, Formating a worksheet, Fill Series, Macro.Creating Charts, Built-in Functions, data tables etc.
Feburary-2021	Introduction to Power Point. Create and Save a Presentation, Different views of Powerpoint, Different types of Slide, Inserting Audio and Video.Applying different Animation, Creating Slide Show etc. Database Management software. Networks basic, types of networks, topologies, media, hardware and software required for networking. Open source Software: Definitions and history, principles, success, methodologies.