Name- Satish Kumar **Class- B.Sc. - NW with Computer Science- 1st year**

Semester- 1st **Subject- Fundamental of Computer**

Paper: CCsl-104 **Lesson Plan: 2020**

Month	Topic
November 16 To December 10	Introduction to Computers: Characteristics and Limitations of Computers, Evolution of Computers, Classification of Computers. Computer Languages. Computer Programs, Structured Programming Concepts Units of a computer, CPU, ALU, Memory Hierarchy, Registers, I/O devices. Mother
December 11 To January 19	**Word Processing:** Introduction to MS-Word, Creating & Editing: Formatting Document, Page, Table; Bookmark, Mail Merge, Macros. **Spread Sheets:** Introduction to MS-Excel, Creating & Editing Worksheet, Formatting data, Formulas and Functions, Creating Charts, Pivot Tables. **Power Point Presentations:** Creating, Manipulating & Enhancing Slides, Organizational Charts, Animations & Sounds, Inserting Animated Pictures.
January 21 To February 6	Introduction to Operating System: Functions of Operating System, Services; Properties: Batch Processing, Multitasking, Multiprogramming, Interactivity, Distributed environment, Spooling; Single user and Multiuser, Batch OS, Multiprogramming OS, Multitasking OS, Real-Time OS, Time-Sharing OS, Distributed OS, Network OS.
February 8 To February 26	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.
March 1 onwards	Revision for all syllabus

HoD **Incharge**

Name- Satish Kumar **Class- B.Sc. - NW with Computer Science- 1st year**

Semester- 3rd Sem **Subject- Programming in 'C'**

Paper: CCsl-105 **Lesson Plan: 2020**

Month	Topic
November 16 To December 10	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 functions: scanf(), getch() , output functions: printf() Arithmetic, relational, logical, bitwise, unary, assignment, conditional operators and special operators, Type Conversion in Assignments, Hierarchy of Operations, Structure of a C program.
December 11 To January 19	**Decision Control Structure:** Decision making Decision making with IF statement, IF-ELSE statement, Nested IF statement, ELSE-IF ladder. **Loop Control Structure:** While and do-while, for loop and Nested for loop, **Case Control Structure:** Decision using switch; goto, break and continue statements. **Functions:** Library functions and user defined functions, Global and Local variables, Function Declaration, Calling and definition of function, Input functions: getche(), getchar(), gets(); output functions: putch(), putchar(), puts() Methods of parameter passing to functions, recursion, Storage Classes in C.
January 21 To February 6	**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. **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. **Dynamic Memory Allocation:** malloc(), calloc(), realloc(), free() functions.
February 8 To February 26	**String Manipulation in C:** Declaring and Initializing string variables, Reading and writing strings, String Handling functions (strlen(), strcpy(), strcmp(), strcat(), strrev()). **Structures and Unions:** Declaration of structures, Structure Initialization, Accessing structure members, Arrays of structure, Nested structures, Structure with

	pointers, Union. **Files in C:** Introduction, Opening and Closing files, Basic I/O operation on files.
March 1 onwards	Revision for all syllabus

HoD **Incharge**

Name- Satish Kumar **Class- B.Sc. - NW with Computer Science- 2nd year**

Semester- 3rd **Subject- Data Base Management System**

Paper: CCsl-304 **Lesson Plan: 2020**

Month	Topic
November 16 To December 10	Basic Concepts: 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 11 To January 19	Entity Relationship (ER) Model: 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 21 To February 6	Relational Model : 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, Cartesian product, Rename.
February 8 To February 26	Relational Database design: Mapping ER model to relational database, functional dependencies, Lossless decomposition, Desirable properties of decomposition, Normal forms (1 NF, 2 NF, 3 NF and BCNF). SQL: Why SQL, Data Types; DDL-Create, Alter and Drop table Commands. DML-SELECT/ FROM/ WHERE, INSERT INTO/ VALUES, UPDATE /SET/ WHERE, DELETE Commands. UNION [ALL], INTERSECTION and MINUS Operators.
March 1 onwards	Revision of syllabus

HoD **Incharge**

Name- Satish Kumar **Class- B.Sc. - NW with Computer Science- 2nd year**

Semester- 3rd **Subject- Operating System**

Paper: CCsL-305 **Lesson Plan: 2020**

Month	Topic
November 16 To December 10	Structure of Operating Systems: Layers-MS-DOS Layer Structure, Traditional UNIX System Structure; Running Multiple Operating Systems, Running a Virtual Operating System, Operating System Modes, System Boot. Process Management: Introduction to Process, Attributes of a process, Process States, Operations on the Process, Process Schedulers, CPU Scheduling, Scheduling Algorithms, Purpose of a Scheduling algorithms, Introduction to FCFS, Shortest Job First (SJF), Shortest Job First (SJF),Round Robin Scheduling Algorithms.
December 11 To January 19	Memory Management: Fixed and Dynamic partition, Physical and Logical Address Space, Page Table, Mapping from page table to main memory, Page Table Entry, Size of the page table, Finding Optimal Page Size. Virtual Memory Concepts, Advantages and disadvantage of Virtual Memory. Segmentation, Translation of Logical address into physical address by segment table, Advantages and disadvantage of Segmentation. Paging VS Segmentation.
January 21 To February 6	File Management: Attributes of File, Operations on File; File Access Methods-Sequential, Direct and Indexed Access; Directory Structure, File Systems, File System Structure- different layers; Master Boot Record, Directory Implementation-Linear List and Hash Table; Disk space Allocation Methods Contiguous Allocation and FAT.
February 8 To February 26	Shell introduction and Shell Scripting: What is shell and various type of shell, Various editors present in Linux/Unix; Different modes of operation in vi editor; Shell script, Writing and executing the shell script, Shell variable (user defined and system variables); System calls, Pipes and Filters, Decision making in Shell Scripts (If else, switch), Loops in shell, Utility programs (cut, paste, join, tr , uniq utilities), Pattern matching utility (grep)
March 1 onwards	Revision for all syllabus

HoD **Incharge**

Name- Satish Kumar **Class- B.Sc. - NW with Computer Science- 3rd year**

Semester- 5th **Subject- Object oriented Programming using 'C++'**

Paper: CCsl-503 **Lesson Plan: 2020**

Month	Topic
November 16 To December 10	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, Hierarchy of Console Stream Classes, Unformatted and Formatted I/O Operations, Manipulators, inline functions.
December 11 To January 19	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.
January 21 To February 6	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.
February 8 To February 26	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.
March 1 onwards	Revision for all syllabus

HoD **Incharge**

Name- Satish Kumar **Class- B.Sc. - NW with Computer Science- 3rd year**

Semester- 5th **Subject- Data Analytics**

Paper: CCsl-504 **Lesson Plan: 2020**

Month	Topic
November 16 To December 10	Data Analytics: Introduction to Data Analytics, Business Intelligence (BI) for better decisions, Decision types, BI tools, BI skills, BI applications. Data warehousing: Introduction to Data warehousing (DW), Design considerations for DW, DW development approaches, DW architecture. Data Mining: Introduction to Data mining, Data cleaning and preparation, outputs of Data mining, evaluation of data mining results, Data Mining Techniques.
December 11 To January 19	Decision Trees:Introduction to Decision tree, Decision tree problem, Decision tree construction, Lessons from constructing trees, Decision tree algorithms. Regression: Introduction, Correlations and Relationships, Visual Look at Relationships, Logistic regression, Advantages and disadvantages of regression models. 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 and disadvantages of using ANN.
January 21 To February 6	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. Association rule Mining: Introduction, Business applications of association rules, Representing association rules, Algorithms for association rule, Apriori algorithm, Creating association rules. Web Mining: Introduction, Web content mining, Web structure mining, Web usage mining, and Web mining algorithms.
February 8 To February 26	Naive-base analysis: Introduction, Probability, Naïve base model, Text classification example. Support vector machines: Introduction, SVM model, The kernel method, Big data: Introduction, Defining big data, Big data landscape, Business implications of big data, Technology implications of big data, Big data technologies, Management of big data.
March 1 onwards	Revision for all syllabus

HoD **Incharge**

Name- Satish Kumar **Class- B.Sc. - NW with Computer Science- 1st year**

Semester- 1st **Subject- Programming in 'C'**

Paper: CCsL-305 **Lesson Plan: 2020**

Month	Topic
November 16 To December 10	
December 11 To January 19	
January 21 To February 6	
February 8 To February 26	
March 1 onwards	Revision for all syllabus

HoD **Incharge**

Name- **Class- B.Sc. - NW with Computer Science- 1st year**

Semester- **Subject-**

Paper: **Lesson Plan:**

Month	Topic
November 16 To December 10	
December 11 To January 19	
January 21 To February 6	
February 8 To February 26	
March 1 onwards	

HoD **Incharge**