1. LESSON PLAN (Tentative

Name of Assistant Professor: **Satish Kumar**

Class: **B.Sc. – Non Med. With Computer Science** Semester:2nd

Subject:CCsL- 204 Core Course-III Data Structure Using 'C' (Credits: 02, 30 Hrs (2Hrs /week))

Lesson Plan: From January 2024 to April 2024

January 2024 Data Structure Basics: Introduction to Complexity, Introduction to Data Structures, Classification of data structure, Abstract data type.
Data Structure Operations, Applications of Data Structure. Definition of array,
Single and Multi-dimensional Arrays, Representation of single and 2- dimensional arrays and their address calculation.
Basic operations on single dimensional arrays, Algorithm for insertion and deletion operations; Sparse Matrices and its representation.
February 2024 Stacks: Definition of stack, Operations on stack, Algorithms for push and pop operations using array.
Stack Applications: Prefix, Infix and Postfix expressions Conversion of Infix expressions to Postfix expression using stack
Recursion Queues: Introduction to Queue. Operations on Queues, Circular queue, Algorithm for insertion and deletion in simple queue Circular queue using array. De-queue, Priority Queues. Assignment 1
March 2024
Linked Lists: Introduction, Array vs Linked list; Singly, Doubly and Circular linked Lists

Representation of linked lists in memory. Implementation of Stack and simple Queue as single Linked List. Trees: Introduction to Tree as a data structure
Basic Terminology; Binary Trees, Traversal of binary trees: In-order, Pre-order & post-order Binary tree non recursive traversal algorithms. Binary Search Tree.
Creation, and Traversals of Binary Search Trees. Graphs: Introduction, Memory Representation of Graph, Traversal, DFS and BFS
April 2024 Searching: Binary and Linear Search Sorting, Bubble sort, Insertion sort, Selection sort,
Merge Sort, Quick sort. Comparison of various Searching and Sorting algorithms., Assignment 2 and Class Test

2. LESSON PLAN

Name of Assistant Professor: **Satish Kumar**

Class: **B.Sc. – Non Medical with Computer Science** Semester2nd sem

Subject: CCsL-205 Core Course-IV COMPUTER ORGANISATION (Credits: 02, 30 Hrs (2Hrs /week)) Lesson Plan: From January 2024 to April 2024

January 2024 Introduction, Definition, Postulates of Boolean Algebra, Fundamental Theorems of Boolean Algebra;
Duality Principle, Demorgan's Theorems, Boolean Expressions and Truth Tables
Standard SOP and POS forms and their examples.
Canonical representation of Boolean expressions, Simplification of Boolean Expressions using theorems of Boolean algebra
February 2024 Minimization Techniques for Boolean Expressions using Karnaugh Map (K- map).
AND, OR, NOT, NOR, NAND & XOR Gates and their Truth tables.
Combinational Circuits: Half Adder & Full Adder, Half Subtractor& Full Subtractor
Adder &Subtractor, decoders, multiplexors.
March 2024 Realization of Boolean expressions using decoders and multiplexor. Sequential Circuits: Flip-Flops,
Types- RS, T, D, JK and Master-Salve JK flip flop, Triggering of Flip Flops

Assignment 1
Flip Flop conversions, Shift Registers, Synchronous and Asynchronous Counters.
Basic Computer Organization and Design: Register Organization, Bus system, instruction set, timing and control Instruction cycle, memory reference, input-output and interrupt.
April 2024 Programming the Basic Computer: Instruction formats, addressing modes
Instruction codes, Input-output Organization: Peripheral devices, I/O interface, Modes of data transfer, Direct Memory Access.
Assignment 2 and Class Test

3. LESSON PLAN

Name of Assistant Professor: **Satish Kumar**

Class: **B.Sc.- Non Medical with Computer Science** Semester4rd Sem

Subject:CCsL- 404, Core Course-I, Software Engineering

Lesson Plan: From January 2024 to April 2024

January 2024 Program Vs. Software, Software Engineering Paradigms
Software Crisis, Problem and causes.
Software development and its various phases; Requirement, analysis, software design, coding, testing, maintenance.
Software Process Models, Waterfall Model Prototype, Evolutionary and spiral Models.
February 2024 Software requirement analysis and specification, Feasibility study, software requirements, Need for SRS, Characteristics of SRS.
Components of SRS, Structure of a required document, Validation metrics. Problem analysis, data flow diagram
Data dictionary, Decision Table, Decision Tree, **Assignment 1**
March 2024 Software Project planning: Process Planning, effort estimation, COCOMO model

Project scheduling and staffing, team structure, software configuration management, Quality assurance plan
Risk management, Project monitoring plans, Software Implementation and maintenance, Type of maintenance Process.
Maintenance characteristics, Testing fundamentals, Error, Fault and failure.
April 2024 Test Oracle, Test Case and Test criteria, Psychology of testing, Black Box testing, equivalence class partitioning
Boundary value analysis, cause effect graphing, white box testing, control flow based criteria, level of testing
Unit testing, integration testing, system testing, validation testing, alpha, beta and acceptance testing
Assignment 2 and Class Test

4. LESSON PLAN

Name of Assistant Professor: **Satish Kumar**

Class: **B.Sc.- Non Med. With Computer Science** Semester4th

Subject:CCsL- 405, Core Course-I, COMPUTER Network

Lesson Plan: From January 2024 to April 2024

January 2024 Introduction to computer communication and networking technologies, use of computer network.
Various Network devices, Node and host.Types of Computer Network
Various types of Network Topologies, OSI Reference Model
TCP/IP Reference Model, Differences between OSI and TCP/IP Reference Model
February 2024 Analog and digital signal concept, Representing data as Analog Signal, Representing data as Digital Signal
Data Rate and Bandwidth, capacity, baud rate.
Digital Carrier System, Guided and Transmission Media, Communication Satellites
Switching and Multiplexing, Introduction to Datalink Layer. **Assignment 1**
March 2024 Framing, Flow control, Error control, Error Detection and correction, Sliding window Protocol
Media access control, Random Access Protocols, Token Passing Protocols, Token Ring

Ethernet, gigabit Ethernet, FDDI, Bluetooth and Wi-Fi.
Introduction to network and Routing concepts, virtual circuits and datagrams
April 2024 Routing algorithm, Flooding, Shortest path routing, Distance vector routing,
Link state routing, Hierarchical routing, Congestion control algorithms
Internetworking, IPv4, IPv6
Assignment 2 and Class Test

5. LESSON PLAN

Name of Assistant Professor: **Satish Kumar**

Class: **B.Sc.- Non Med. With Computer Science** Semester 6thsem

Subject: CCsL-603, Computer Graphics

Lesson Plan: From January 2024 to April 2024

January 2024 Historical perspective of Computer Graphics, Applications of Computer Graphics.
Basic elements of Computer graphics (Modeling, Rendering, Animation),
Input Devices: Keyboard, Mouse, Light Pen, Graphic Tablets, Joysticks, Trackball, Flatbed Scanner.
Hard Copy Devices: Laser Printer, Flatbed Plotters
February 2024 Video Display Devices: Pixel, Resolution, Aspect Ratio,
Refresh Rate and Interlacing.
Cathode Ray Tube, Flat Panel Display-LCD and Plasma Panel.
Raster and Random scan display system. **Assignment 1**
March 2024 Fundamental Techniques in Graphics: Line Generation Algorithms- DDA Algorithm,
Bresenham's Line Generation Algorithm. Circle Generation Algorithms- Bresenham's Algorithm and Midpoint Circle Algorithm.
Polygon Filling Algorithms-Scan Line Algorithm. Viewing & Clipping-Point Clipping and Line Clipping, Cohen-

Sutherland Line Clipping Algorithm.
Polygon Clipping (Sutherland Hodgman Algorithm), **Assignment 1**
April 2024 2-Dimensional Graphics: Cartesian and Homogeneous Co-ordinate System, Geometric Transformations (Translation, Scaling, Rotation, Reflection).
3-Dimensional Graphics: Geometric Transformations (Translation, Scaling, Rotation, Reflection)
Mathematics of Projections (Parallel & Perspective). **Assignment 2 and Class Test**

6. LESSON PLAN

Name of Assistant Professor: **Satish Kumar**

Class: **B.Sc. – Non Med. With Computer Science** Semester: 6thSem

Subject: CCsL- 604 Paper-II, python Programming

Lesson Plan: From January 2024 to April 2024

January 2024 History and Features of Python Programming, Python Interpreter. Variable, identifiersand literal.
Token, keywords. Data Types. Arithmetic operators, Relational operators, Logicaloperators, Bitwise operators, Assignment operators, Membership operators, Identity operators.
Operator precedence. Comment, Indentation, Need for indentation Built-in Functions: input, eval, composition, print, type, round, min and max, pow.
Type Conversion, Random Number Generation. Mathematical Functions. Getting help on a function, Assert Statement.
February 2024 Control Statements: if Conditional Statement, for and while Statements. break, continue and pass statements.
Functions: Function Definition and Call, Function Arguments-Variable Function Arguments, Default Arguments, Keyword Arguments, Arbitrary Arguments. Command Line Arguments.
Global and local Variables. Accessing local variable outside the scope, Using Global and Local variables in same code,
Global and local Variables Using Global variable and Local variable with same Name. **Assignment 1**

March 2024 Strings: String as a compound data type. String operations- Concatenation, Repetition, Membership operation, Slicing operation.
String methods-count, find, rfind, capitalize, title, lower, upper, swapcase, islower, isupperistitle, replace, isalpha, isdigit, isalnum. String Processing examples.
Lists:List operations-multiplication, concatenation, length, indexing, slicing, min, max, sum, membership operator;
List functions-append, extend, remove, pop, count, index, insert, sort, reverse. Recursion: Recursive solutions for problems on Numbers, String and list.
April 2024 Object Oriented Programming: Introduction to Classes, Method, Class object, Instance object, Method object.
Class as abstract data type, Date Class. Access attributes using functions-getattr, hasattr, setattr, delattr. Built-In Class Attributes of Class object (__dict__, __doc__ , __name__, module__).
Graphics: Screen Objects- Point andline, box, polygon, circle, arc. Screen Object Methodsmove_to(), move_by(), rotate_by(), Text().Sound-Sound(), play_sound(), stop_sound(). Assignment 2 and Class test