Lesson Plan (2025-26)

Name: Anil Kumar
Class: PGDCA IInd Semester
Subject: Data Structures and Algorithms (PGDCA-201)

Week 1 Date 6.1.2026 to 10.1.2026 Data Structures Definition and its types, Data Structure operations, Static and dynamic memory storage
Week 2 Date 12.1.2026.to 17.1.2026 Algorithms complexity and time-space tradeoff, Big-O notation.
Week 3 Date 19.1.2026.to 24.1.2026 **Strings:** Introduction, storing strings, String operations, Pattern matching algorithms. Week 4, Date 27.1.2026 to 31.1.2026 **Arrays:** one-dimensional arrays, matrices, sparse matrices, Week 5 Date 02.02.2026 to 7.2.2026 Multi-dimensional arrays, operations on arrays, Week 6 Date 9.2.2026 to 14.2.2026 Linear search, Binary search, Insertion sort, selection sort, Bubble sort, Merge sort.
Week 7 Date 16.2.2026 to 21.2.2026 **Linked List:** Array vs linked list, Types (singly, doubly, singly circular, header, doubly circular,),
Week 8 Date 23.2.2026 to 28.2.2026 Operations on Lists – create, insert, delete, search, Week 9 Date 9.3.2026 to 14.3.2026 Applications of linked lists. Week 10 Date 16.3.2026 to 21.3.2026 **Stack:**Definition, Array implementation of stacks, Linked implementation of stacks, Week 11 Date 24.3.2026 to 28.3.2026 Applications of Stacks: Infix, Postfix and prefix expression, conversions and evaluation of expressions, Recursion, Quick Sort
Week 12 Date 30.3.2026 to 04.4.2026 **Queue:**Definition, Array implementation of queues, Linked implementation of queues, Circular queues, Priority queues, Double-ended queues, , Applications of queue.
Week 13 Date 6.4.2026 to 11.4.2026 **Trees:**Binary Trees and their properties, Linked and static Representation of binary trees, Complete Binary Tree, Threaded Binary tree Week 14 Date 13.4.2026 to 18.4.2026 Different tree traversal algorithms, Binary Search Tree (create, delete, search, insert, display), Week 15 Date 20.4.2026 to 25.4.2026 Heap Sort and its complexity analysis, Introduction to AVL Trees and Balanced multi-way search trees. **Graph:** Definition, Array and linked representation of graphs,
Week 16 Date 27.4.2026 to 2.5.2026 Graph Traversal (BFS and DFS), Adjacency matrix and adjacency lists, path matrix, Finding Shortest Path - Warshall's Algorithm.

Anil Kumar
Assistant Professor of Computer Science

Lesson Plan (2025-26)

Name: Anil Kumar

Class: PGDCA IInd Semester

Subject: Computer Networks (PGDCA-202)

Week 1 Date 6.1.2026 to 10.1.2026 Computer Communications and Networking Technologies; Uses of Computer Networks; Network Devices: Nodes, and Hosts;
Week 2 Date 12.1.2026.to 17.1.2026 Types of Computer Networks and their Topologies; Network Software: Network Design issues and Protocols;
Week 3 Date 19.1.2026.to 24.1.2026 Connection-Oriented and Connectionless Services; Computer Communications and Networking Models:
Week 4, Date 27.1.2026 to 31.1.2026 Decentralized and Centralized Systems, Distributed Systems, Client/Server Model.
Week 5 Date 02.02.2026 to 7.2.2026 Physical, Data Link, Network, Transport, Session, Presentation and Application layer; Week 6 Date 9.2.2026 to 14.2.2026 Advantages and Disadvantages of OSI model; Example Networks: Internet, ATM. Week 7 Date 16.2.2026 to 21.2.2026 Connectors, Transceivers, Network Interface Cards, Hubs, Switches, Repeater, Week 8 Date 23.2.2026 to 28.2.2026 Bridges, Routers, Gateways; Week 9 Date 9.3.2026 to 14.3.2026 Transmission media: Guided- Twisted, Co-axial, Fiber –optic cable,
Week 10 Date 16.3.2026 to 21.3.2026 Unguided-Radiowaves, Microwaves, Infrared Transmission, Wired versus Wireless Networks.
Week 11 Date 24.3.2026 to 28.3.2026 Representing Data as Analog Signals, Representing Data as Digital Signals Week 12 Date 30.3.2026 to 04.4.2026 Data Rate and Bandwidth, Capacity, Baud Rate; Digital Carrier Systems; Week 13 Date 6.4.2026 to 11.4.2026 Communication Satellites; Switching and Multiplexing; Dialup Networking, Week 14 Date 13.4.2026 to 18.4.2026 Broadband Connection, Wireless Connection.
Week 15 Date 20.4.2026 to 25.4.2026 Revision
Week 16 Date 27.4.2026 to 2.5.2026 Revision Week 17 Date 4.5.2026 to 04.5.2026 Revision

Anil Kumar
Assistant Professor of Computer Science

Lesson Plan (2025-26)

Name: Anil Kumar

Class: PGDCA IInd Semester

Subject: Object Oriented Systems and C++ (PGDCA-203)

Week 1 Date 6.1.2026 to 10.1.2026 Procedural vs Object oriented programming Characteristics of OOP; Classes & Object, Data encapsulation and Abstraction, Polymorphism, Inheritance
Week 2 Date 12.1.2026.to 17.1.2026 Dynamic Binding and message passing, OOPs Application, Structure of C++ Program
Week 3 Date 19.1.2026.to 24.1.2026 Data types, Variables, Operators, Namespaces, Enums, Type Conversion, Control Statements Arrays, Strings, Structure, Pointers.
Week 4, Date 27.1.2026 to 31.1.2026 Struct vs. Classes, Class Definition, Classes and Objects, Access Specifiers: Private, Public and Protected, Member functions of the class,
Week 5 Date 02.02.2026 to 7.2.2026 Constructor and Destructor, Parameterized Constructor, Copy Constructors. Inheritance: Reusability,
Week 6 Date 9.2.2026 to 14.2.2026 Types of Inheritance: Single inheritance, Multiple, Multilevel, Hybrid Inheritance, Public, Private, and Protected Derivations,
Week 7 Date 16.2.2026 to 21.2.2026 Using derived class, Constructor and destructor in derived class, Object initialization and conversion, Nested classes (Container classes), Virtual Inheritance and Virtual base class.
Week 8 Date 23.2.2026 to 28.2.2026 **Polymorphism and Exception Handling:** Function Overloading, Static Class Members, Static Member Functions, Friend Functions,
Week 9 Date 9.3.2026 to 14.3.2026 Operator Overloading: Unary and Binary Operator Overloading. Abstract class, Virtual function, Pure virtual function, Overloading vs. Overriding.
Week 10 Date 16.3.2026 to 21.3.2026 Memory management: new, delete, object Creation at Run Time, This Pointer.
Week 11 Date 24.3.2026 to 28.3.2026 Exception handling: Throwing, Catching, Re-throwing an exception, specifying exceptions, processing unexpected exceptions, Exceptions when handling exceptions, resource capture and release.
Week 12 Date 30.3.2026 to 04.4.2026 **Templates and Files**: Introduction, Class templates and Function templates, Overloading of template function, namespaces.
Week 13 Date 6.4.2026 to 11.4.2026 Introduction to STL: Standard Template Library: benefits of STL, containers, adapters, iterator, vector, list.
Week 14 Date 13.4.2026 to 18.4.2026 Working with files: C++ streams, C++ stream classes, creating, opening, closing and deleting files,
Week 15 Date 20.4.2026 to 25.4.2026 file pointers and their manipulators, updating file, random access to file, Error handling during file operations.
Week 16 Date 27.4.2026 to 2.5.2026 Revision
Week 17 Date 4.5.2026 to 04.5.2026 Revision

Anil Kumar
Assistant Professor of Computer Science

Lesson Plan (2025-26)

Name: Anil Kumar

Class: PGDCA IInd Semester

Subject: Computer Organization (PGDCA-204)

Week 1 Date 6.1.2026 to 10.1.2026 Number Systems, Binary Arithmetic Operations,
Week 2 Date 12.1.2026.to 17.1.2026 Fixed-point and Floating point representation of numbers, BCD, ASCII, EBCDIC, Grey Code.
Week 3 Date 19.1.2026.to 24.1.2026 Boolean Algebra, Duality Principal, Boolean Theorems, Boolean Functions Truth Tables,
Week 4, Date 27.1.2026 to 31.1.2026 De Morgan‟s Law, Simplification of Boolean Functions using Venn Diagram,.
Week 5 Date 02.02.2026 to 7.2.2026 Karnaugh Maps, Digital Logic: Logic Gates -AND, OR, NOT, Universal Gates - NAND, NOR, others- XOR, XNOR
Week 6 Date 9.2.2026 to 14.2.2026 Design Procedure, Adders, Subtractors , Week 7 Date 16.2.2026 to 21.2.2026 Encoders, Decoders, Multiplexers and De-multiplexers. Week 8 Date 23.2.2026 to 28.2.2026 Sequential Logic: Flip-flops, Registers and Counters. Week 9 Date 9.3.2026 to 14.3.2026 Instruction Code, Computer Registers, Computer instructions, Week 10 Date 16.3.2026 to 21.3.2026 Timing and control, Instruction Cycle. Week 11 Date 24.3.2026 to 28.3.2026 **CPU organization:** General Register Organization, Stack Organization,
Week 12 Date 30.3.2026 to 04.4.2026 Instruction Formats, Addressing Modes.
Week 13 Date 6.4.2026 to 11.4.2026 Revision Week 14 Date 13.4.2026 to 18.4.2026 Revision Week 15 Date 20.4.2026 to 25.4.2026 Revision Week 16 Date 27.4.2026 to 2.5.2026 Revision Week 17 Date 4.5.2026 to 04.5.2026 Revision

Anil Kumar
Assistant Professor of Computer Science

Lesson Plan (2025-26)

Name: Anil Kumar

Class: PGDCA IInd Semester

Subject: Software Engineering (PGDCA-205)

Week 1 Date 6.1.2026 to 10.1.2026 Program vs. Software, Software Engineering paradigms, Software Crisis – problem and causes.
Week 2 Date 12.1.2026.to 17.1.2026 **Phases in Software development:** Requirement, Analysis, Software Design, Coding, Testing, Maintenance. Week 3 Date 19.1.2026.to 24.1.2026 **Software Development Process Models:** Waterfall, Prototype, Evolutionary and Spiral models. Week 4, Date 27.1.2026 to 31.1.2026 Feasibility Study Software Requirements, Need for SRS, Characteristics of an SRS, Week 5 Date 02.02.2026 to 7.2.2026 Components of an SRS, Structure of a requirements document, Week 6 Date 9.2.2026 to 14.2.2026 Validation and metrics, Problem Analysis, Data Flow Diagram, Data Dictionary, Decision table, Decision trees. Week 7 Date 16.2.2026 to 21.2.2026 Process Planning, Effort estimation, COCOMO model, Week 8 Date 23.2.2026 to 28.2.2026 Project scheduling and Staffing, team structure, Software configuration management, Week 9 Date 9.3.2026 to 14.3.2026 Quality assurance plans, Risk Management, Project monitoring plans. Week 10 Date 16.3.2026 to 21.3.2026 **Software Implementation and Maintenance:** Type of maintenance, Management of Maintenance, Maintenance Process, maintenance characteristics.
Week 11 Date 24.3.2026 to 28.3.2026 Testing fundamentals, Error, Fault, and Failure, Test Oracle, Test Case and Test Criteria Week 12 Date 30.3.2026 to 04.4.2026 Psychology of testing, Black Box Testing, Boundary value analysis, Equivalence Class Partitioning, Week 13 Date 6.4.2026 to 11.4.2026 Decision Table based testing, Cause effect graphing, White box testing , Week 14 Date 13.4.2026 to 18.4.2026 Control flow based criteria, level of testing, Unit testing, Integration testing, System testing, Week 15 Date 20.4.2026 to 25.4.2026 Validation testing, alpha, beta, and Acceptance testing.
Week 16 Date 27.4.2026 to 2.5.2026 Revision
Week 17 Date 4.5.2026 to 04.5.2026 Revision

Anil Kumar
Assistant Professor of Computer Science