**Name of the Teacher: Ms. Ritu Class: B.Sc (CSc)-II, sem-III Subject: Data Structures**

**Lesson Plan**

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| **S No** | **Period** | **Topics to be Covered** | **Academic Activity to be Organized** |
|  | **17-31 July 2017** | Introduction: Elementary data organization, Data Structure definition, Data type vs. data structure, Categories of data structures, Data structure operations, Applications of data structures, | Group Discussion |
|  | **01-31 Aug 2017** | Algorithms complexity and time-space tradeoff, Big-O notation. Strings: Introduction, strings, String operations, Pattern matching algorithms.  Arrays: Introduction, Linear arrays, Representation of linear array in memory, Traversal, Insertions, Deletion in an array, Multidimensional arrays, Parallel arrays, Sparse matrix.  Stack: primitive operation on stack, algorithms for push and pop. Representation of Stack as Linked List and array | On Board Presentations |
|  | **01-30 Sept 2017** | Stacks applications : polish notation, recursion. Introduction to queues, Primitive Operations on the Queues, Circular queue, Priority queue, Representation of Queues as Linked List and array, Applications of queue. Algorithm on insertion and deletion in simple queue and circular queue.  Linked List: Introduction, Array vs. linked list, Representation of linked lists in memory, Traversal, | Power Point Presentations |
|  | **01-31 Oct 2017** | Insertion, Deletion, Searching in a linked list, Header linked list, Circular linked list, Two-way linked list, Garbage collection, Applications of linked lists. Algorithm of insertion/ deletion in SLL.  Introduction to graphs, Definition, Terminology, Directed, Undirected & Weighted graph, Representation of graphs. | 15 mint written test on previous topic |
|  | **01-13 Nov 2017** | Basic Terminology, representation, Binary Trees, Tree Representations using Array & Linked List, Basic operation on Binary tree, Traversal of binary trees:- In order, Preorder & post order, Applications of Binary tree. Algorithm of tree traversal with and without recursion. | Quick review of previous syllabus in form of questions and answers on alternate days |

**Topics of Assignments/ Class Tests to be given to the Students:**

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| **Assignment 1** | **Stack , Array and Linked representation of Stack.** |
| **Assignment 2** | **Insertion and Deletion in Linked List.** |
| **Class Test** | **Unit – I and III** |