Master of Computer Application
ITA5002

**Problem solving with Data
structures and Algorithms**

Session Plan – FALL 2021-2022

COURSE CODE	COURSE TITLE	CLASS ID	SLOT	FACULTY
ITA5002	Problem solving with Data structures and Algorithms	CH2021221700059& CH2021221700067	F1+TF1 F2+TF2	50299 – BHARATHIRAJA - SCOPE 50393 - RAMESH RAGALA – SCOPE

SL.NO	LECTURE DATE	LECTURE TOPIC
1	13-09-2021	Syllabus, course Objective, Evaluation Pattern, Textbook
2	15-09-2021	Introduction to Algorithms, Analysis Framework
3	17-09-2021	Asymptotic notations, Growth rate of functions
4	20-09-2021	Complexity analysis: (Time and Space)
5	22-09-2021	Mathematical analysis of recursive and non-recursive algorithms
6	24-09-2021	Introduction to Fundamental Data Structures
7	27-09-2021	List ADT, Single linked Lists
8	29-09-2021	Double linked Lists and Circular Linked List
9	01-10-2021	Introduction to STACK, Implementation of stack
10	04-10-2021	Applications of STACK
11	06-10-2021	Introduction to QUEUE, Implementation of QUEUE and Applications
12	08-10-2021	Introduction to Trees Data Structure,
13	11-10-2021	Introduction to Binary tree and its implementation
14	13-10-2021	Introduction to Search Tree ADT
15	15-10-2021	HOT Question discussions
16	25-10-2021	Tree Traversals
17	27-10-2021	AVL tree
18	29-10-2021	Splay tree
19	08-11-2021	Introduction to Sorting and Searching: Bubble sort
20	10-11-2021	Insertion Sort,
21	12-11-2021	Selection and heap sort
22	15-11-2021	Merge sort
23	17-11-2021	Linear time sorting: bucket and radix sort

24	19-11-2021	Linear search and binary search.
25	22-11-2021	Introduction to Graphs: Graph ADT, Representation of Graphs
26	24-11-2021	Graph traversals: DFS and BFS
27	26-11-2021	DFS and BFS implementation
28	29-11-2021	Introduction to shortest path problem: Dijkstra's algorithm.
29	01-12-2021	Problems on graph algorithms
30	03-12-2021	HOT question discussion
31	13-12-2021	Minimum spanning tree: Prim's algorithm
32	15-12-2021	Minimum spanning tree: Kruskal's algorithm
33	17-12-2021	Introduction to **Algorithm Design Techniques**
34	20-12-2021	Introduction to Greedy Algorithms
35	22-12-2021	Simple scheduling algorithms
36	24-12-2021	Huffman code
37	27-12-2021	Introduction to Divide and Conquer Algorithms, Running time of divide and conquer technique
38	29-12-2021	Closest point problem
39	31-12-2021	Selection problem
40	03-01-2022	Introduction to Backtracking technique.
41	05-01-2022	Introduction to Dynamic Programming
42	07-01-2022	Ordering matrix multiplication (matrix chain multiplication)
43	10-01-2022	Optimal binary search tree
44	12-01-2022	All Pairs Shortest path.
45	14-01-2022	HOT Question Discussion

Tools for Online Classes

1. **Kahoot**
2. **CollaborativeWhiteboard**
3. **Polly – OnlinePolls**
4. **Flipgrid – videofeedback**
5. **Mentimeter**
6. **Padlet**

ITA5002 – Problem Solving with Data Structures and Algorithms

(F2+TF2 Slot)

Faculty Coordinators: Dr. Ramesh Ragala & Dr. BharathiRaja

Course Internal Assessment Procedure with Marks

Theory Assessment:

1. Assessment Procedure (60 Marks)

   a) CAT - 1 (15 Marks)

   b) CAT - II (15 Marks)

   c) Digital Assignment - 1 (10 Marks)

   d) Digital Assignment - 2 (10 Marks)

   e) Quiz - 1 (10 Marks)

Project Component Assessment:

1. Project Assessment (100 Marks)

   a) Review - 1 (20 Marks)

   b) Review - 2 (30 Marks)

   c) Review - 3 (50 Marks)