

20MCA135 – DATA STRUCTURES LAB

Lab Report Submitted By

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Reg. No.: AJC22MCA-2017

In Partial fulfilment for the Award of the Degree Of

MASTER OF COMPUTER APPLICATIONS (MCA)

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY



**AMAL JYOTHI COLLEGE OF ENGINEERING
KANJIRAPPALLY**

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Accredited by NAAC with 'A' grade. Koovapally, Kanjirappally, Kottayam, Kerala – 686518]

2022-2023

DEPARTMENT OF COMPUTER APPLICATIONS

AMAL JYOTHI COLLEGE OF ENGINEERING

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CERTIFICATE

This is to certify that the lab report, “**20MCA135 DATA STRUCTURES LAB**” is the bonafide work of **ANINA ELIZEBETH(REG. NO. AJC22MCA-2017)** in partial fulfilment of the requirements for the award of the Degree of Master of Computer Applications under APJ Abdul Kalam Technological University during the year **2022-23**.

Amal K Jose

Lab In- Charge

Rev. Fr. Dr. Rubin Thottupurathu Jose

Head of the Department

Internal Examiner

External Examiner

Course Code	Course Name	Syllabus Year	L-T-P-C
20MCA135	Data Structures Lab	2020	0-1-3-2

VISION

To promote an academic and research environment conducive for innovation centric technical education.

MISSION

MS1 -Provide foundations and advanced technical education in both theoretical and applied Computer Applications in-line with Industry demands.

MS2 -Create highly skilled computer professionals capable of designing and innovating real life solutions.

MS3 -Sustain an academic environment conducive to research and teaching focused to generate up-skilled professionals with ethical values.

MS4 -Promote entrepreneurial initiatives and innovations capable of bridging and contributing with sustainable, socially relevant technology solutions.

COURSE OUTCOME

CO	Outcome	Target
CO1	Use Basic Data Structures and its operations implementations.	61
CO2	Implement the Set and Disjoint Set Data Structures.	61
CO3	Understand the practical aspects of Advanced Tree Structures.	61
CO4	Realise Modern Heap Structures for effectively solving advanced Computational problems.	61
CO5	Implement Advanced Graph algorithms suitable for solving advanced computational problems.	61

COURSE END SURVEY

CO	Survey Question	Answer Format
CO1	To what extent you were able to use Basic Data Structures and its operations implementation	Excellent/Very Good/Good Satisfactory/Needs improvement
CO2	To what extent you were able to implement the Set and Disjoint Set Data Structures.	Excellent/Very Good/Good Satisfactory/Needs improvement
CO3	To what extent you were able to understand the practical aspects of Advanced Tree Structures.	Excellent/Very Good/Good Satisfactory/Needs improvement
CO4	To what extent you were able to understand Modern Heap Structures for effectively solving advanced Computational problems.	Excellent/Very Good/Good Satisfactory/Needs improvement

CO5	To what extent you were able to implement advanced graph algorithms suitable for solving advanced computational problems.	Excellent/Very Good/Good Satisfactory/Needs improvement
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Sl. No.	Experiment	Date	CO	Page No.
1	Familiarization with gdb	26-10-2022	C01	1-15
2	Merge two sorted arrays and store them in a third array.	02-11-2022	C01	16-18
3	Implementation of Singly Linked Stack.	09-11-2022	C01	19-26
4	Implementation of Circular Queue.	16-11-2022	C01	27-30
5	Implementation of the Doubly Linked list.	19-11-2022	C01	31-39
6	Implementation of Set data structure and Set operations.	23-11-2022	C02	40-46
7	Implementation of Binary search tree.	30-11-2022	C03	47-54
8	Implementation of Binomial Heap.	07-12-2022	C04	55-59
9	Implementation of Depth First Search.	21-12-2022	C05	60-61
10	Implementation of Breadth First Search.	21-12-2022	C05	62-64
11	Implementation of Prim's Algorithm.	04-01-2023	C05	65-66
12	Implementation of Kruskal's Algorithm.	18-01-2023	C05	67-69