



## Alva's Institute of Engineering & Technology

Shobhavana Campus, Mijar, Moodbidri, D.K – 574225

Phone: 08258-262725, Fax: 08258-262726

(Accredited by NBA New Delhi, 2019 – 2025)

### Department of Artificial Intelligence & Machine Learning

#### CIRCULAR dated 10/04/2023

All the students of 2<sup>nd</sup> and 3<sup>rd</sup> year of Artificial Intelligence and Machine Learning department are informed to attend the following Technical training session on 14<sup>th</sup> Apr, 2023, 9:30 am. The following resource person will be delivering you the eminent talks on the below mentioned topic.

Resource Person: **Dr. Roshan Fernandes**

Topic: **A training session on Data structures.**

Everyone's presence & co-operation in this regard is highly expected.

Cc to:

All Class Rooms

Notice Board

 10/04/2023.  
HOD Sign. & Date

Head of the Department

Dept. of Artificial Intelligence & Machine Learning  
(Dept. of AIML)

Alva's Institute of Engineering and Technology

Shobhavana Campus, Mijar

Moodbidri - 574 225, D.K. Karnataka, India



## **ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY**

(Unit of Alva's Education Foundation (R), Moodbidri)

Affiliated to Visvesvaraya Technological University, Belagavi & Approved by AICTE, New Delhi.

Recognized by Government of Karnataka.

**A+, Accredited by NAAC & NBA (ECE & CSE)**

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### **Department of Artificial Intelligence and Machine Learning**

Resource Person - :Dr. Roshan Fernandes

Topic: Data Structures

#### **Objective:**

The objective of conducting training was to provide students with a comprehensive understanding of various data structures, such as arrays, linked lists, stacks, queues, trees, graphs, and hash tables. The training focuses on developing students' proficiency in implementing these data structures using programming languages, honing their problem-solving skills through algorithmic analysis, and preparing them for technical interviews. Additionally, the training aims to equip students with the ability to analyze time and space complexities, optimize algorithms, and apply data structures in real-world scenarios. By achieving these objectives, students will be well prepared for solving any challenging questions in their placements.

#### **Topics covered:**

- 1) Pointers in C – Using pointers with Arrays, Strings, Functions, Structures, Double Pointers with example Programs.
- 2) Sorting and Searching – Bubble Sort, Selection Sort, Linear Search, Binary Search, Hashing. Programs.
- 3) Stack – Implementation, Applications of Stack – Postfix Expressions Evaluation, Converting from Infix to Postfix and Prefix. Example Programs.
- 4) Queue – Simple Queue, Circular Queue, Double Ended Queue, Applications of Queue, Example Programs.
- 5) Linked List – Singly Linked List, Doubly Linked List, Circular Linked List, Operations and Applications, Example Programs.
- 6) Binary Tree – Insertion, Deletion, Traversal, Threaded Binary Tree. Applications. Example Programs.
- 7) Trie Data Structure and its Operations; Segment Tree and its Operations, Splay Tree and its operations, B Tree and its operations, Red Black tree and its operations.

#### **Conclusion:**

The conducted training on data structures aimed to provide students with a comprehensive understanding of various data structures, including arrays, linked lists, stacks, queues, trees, graphs, and hash tables. The training focused on developing students' proficiency in implementing these structures using programming languages and honing their problem-solving skills through algorithmic analysis. Additionally, the training prepared students for technical interviews by equipping them with the ability to analyze time and space complexities, optimize algorithms, and apply data structures in real-world scenarios. By covering topics such as pointers, sorting and searching, stack and queue implementations, linked lists, binary trees, and advanced structures like tries, segment trees, splay





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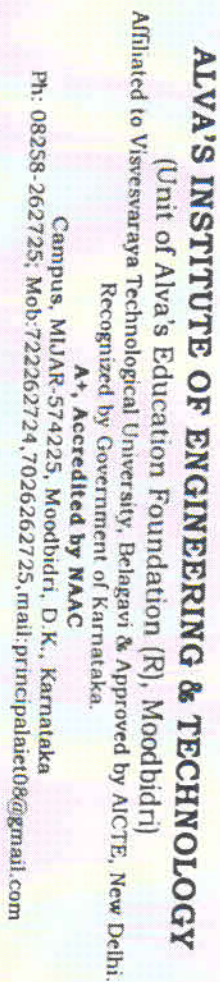
trees, B trees, and red-black trees, the training ensured that students were well-prepared to tackle challenging placement questions.



*KMP*  
15/09/2023.

Head of the Department  
Dept. of Artificial Intelligence & Machine Learning  
Alva's Institute of Engineering and Technology  
Shobhavana Campus, Mijar  
Moodbidri - 574 225, D.K. Karnataka, India





## DEPARTMENT OF ARTIFICIAL INTELLIGENCE &amp; MACHINE LEARNING

**Deep Learning on Data Structures(Fundamentals and Advanced) By Dr. Roshan Fernandes**

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AIYA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

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## DEPARTMENT OF ARTIFICIAL INTELLIGENCE &amp; MACHINE LEARNING

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