**Lesson plan**

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| **Discipline:** Computer Science & Engg. | **Semester:** Third (3rd) | **Name of the Faculty:** Er S Palit |
| **Subject:** Data Structure | **No. of days/week class allotted:** Five(5) | **Semester from Date:**01.07.24 **to Date:** 08.11.24**No. of Weeks:** 15 |
| **WEEK** | **CLASS DAY** | **THEORY TOPICS** |
| 1st | 1st  | Explain Data, Information, data types. |
| 2nd  | Define data structure & Explain different operations |
| 3rd  | Explain Abstract data types |
| 4th  | Discuss Algorithm & its complexity & Explain Time, space tradeoff |
| 5th  | Review |
| 2nd | 1st  | Explain Basic Terminology, storing strings |
| 2nd  | Continue…… |
| 3rd  | State Character Data Type |
| 4th  | Discuss String Operations |
| 5th  | Review |
| 3rd | 1st  | Introduction  |
| 2nd  | Linear array, Representation of linear array in memory |
| 3rd  | **Monthly Test-01** |
| 4th  | Traversing linear arrays  |
| 5th  | inserting & deleting elements |
| 4th | 1st  | Discuss Multidimensional arrays, Representation of two dimensional arrays in memory (Row major order & column major order), |
| 2nd  | And pointers |
| 3rd  | Explain Sparse matrices |
| 4th  | Review |
| 5th  | Give Fundamental idea about Stack and queues |
| 5th | 1st  | Explain Array representation of Stacks |
| 2nd  | Continue. |
| 3rd  | Explain Arithmetic expression, polish Notation  |
| 4th  | & Conversion from infix to postfix using Stack |
| 5th  | C Application Stacks, Recursion |
| 6th | 1st  | Discuss Queues |
| 2nd  | Review |
| 3rd  | Introduction to linked list  |
| 4th  | **Monthly Test-02** |
| 5th  | Representation of linked list in memory |
| 7th | 1st  | Traversing a linked list ,Searching |
| 2nd  | Garbage collection |
| 3rd  | Explain Insertion into a linked list |
| 4th  | Deletion from a linked list |
| 5th  | header linked list |
| 8th | 1st  | Continue.. |
| 2nd  | Review |
| 3rd  | Explain Basic terminology of Tree |
| 4th  | Discuss Binary tree. |
| 5th  | its representation and traversal. |
| 9th | 1st  | Binary search tree, searching. |
| 2nd  | Cont.. |
| 3rd  | Explain insertion in a binary search trees |
| 4th  | **Monthly Test-03** |
| 5th  | deletion in a binary search trees |
| 10th | 1st  | Continue. |
| 2nd  | Cont…. |
| 3rd  | Review |
| 4th  | Explain graph terminology. |
| 5th  | &Its representation. |
| 11th | 1st  | Explain Adjacency Matrix |
| 2nd  | Path Matrix. |
| 3rd  | Continue.. |
| 4th  | **Monthly Test-4** |
| 5th  | Discuss Algorithms for Bubble sort, |
| 12th | 1st | Quick sort |
| 2nd | Cont.. |
| 3rd | Merging |
| 4th | Linear searching |
| 5th  | Cont.. |
| 13th  | 1st | Binary searching. |
| 2nd | Cont.. |
| 3rd | Review |
| 4th | Discuss Different types of files organization |
| 5th  | and their access method, |
| 14th  | 1st | Introduction to Hashing |
| 2nd | Hash function, |
| 3rd | Linear Probing & modification, |
| 4th | collision resolution, open addressing, |
| 5th  | chaining. |
| 15th  | 1st | Cont. |
| 2nd | Revision |
| 3rd | Revision |
| 4th | Revision |
| 5th  | Revision |