**Lesson plan**

|  |  |  |
| --- | --- | --- |
| **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 |