# BLACK DIAMOND SCHOOL OF ENGINEERING, JHARSUGUDA
## LESSON PLAN
### Session (2022-2023)

| Discipline: Computer Science and Engineering | Semester: 3rd, Winter/2022 | Name of the Faculty: Jugesh Besan, Lecturer, Computer Science Engg |
|---|---|---|
| Subject: Data Structure, Theory-2 | No. of Days/week: 04 | Start Date: 14/09/2022 End Date: 21/01/2023 |

| 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 |
| 2nd | 1st | Revision |
|  | 2nd | Explain Basic Terminology, Storing Strings, State Character Data Type |
|  | 3rd | Discuss String Operations |
|  | 4th | Question Answer discussion |
| 3rd | 1st | Introduction about array, Discussion about Linear arrays |
|  | 2nd | Representation of linear array in memory |
|  | 3dr | Explain traversing linear arrays |
|  | 4th | Inserting & deleting elements in an Array |
| 4th | 1st | Multidimensional arrays, Representation of two dimensional arrays in memory (row major &column majororder) |
|  | 2nd | Pointers, Sparse matrices |

| | 3dr | Revision |
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| | 4th | Quiz Test |
| 5th | 1st | Fundamental idea about Stacks and queues |
| | 2nd | Explain array Representation of Stack |
| | 3rd | Explain arithmetic expression, polish notation& Conversion |
| | 4th | Explain arithmetic expression, polish notation& Conversion contd.... |
| 6th | 1st | Discuss application of stack, Recursion |
| | 2nd | Discuss queues and its operation |
| | 3rd | Circular queue |
| | 4th | Priority queues |
| 7th | 1st | Question Answer discussion |
| | 2nd | Introduction about linked list |
| | 3rd | Explain representation of linked list in memory |
| | 4th | Traversing a linked list, Searching an element from a linked list |
| 8th | 1st | Explain Insertion into a linked list |
| | 2nd | Explain Deletion from a linked list |
| | 3rd | Discuss garbage collection |
| | 4th | Header linked list |
| 9th | 1st | Revision |
| | 2nd | Explain Basic terminology of Tree |
| | 3rd | Discuss about Binary tree & its representation |
| | 4th | Traversal of binary tree |
| 10th | 1st | Binary search tree |
| | 2nd | Searching in BST |
| | 3rd | Explain insertion in a BST |
| | 4th | Deletion in a binary search trees |

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| 11th | 1st | Question Answer discussion |
| | 2nd | Explain graph terminology |
| | 3rd | Graph & its representation |
| | 4th | Graph & its representation contd.. |
| 12th | 1st | Explain Adjacency Matrix |
| | 2nd | Path Matrix |
| | 3rd | Revision |
| | 4th | Introduction about sorting, Searching, Merging |
| 13th | 1st | Algorithms for Bubble sort |
| | 2nd | Algorithms for Quick sort with example |
| | 3rd | Merging |
| | 4th | Algorithms for Linear searching with example |
| 14th | 1st | Algorithms for Binary searching with example |
| | 2nd | Quiz Test |
| | 3rd | Define File, Types of files organization |
| | 4th | File access method |
| 15th | 1st | Introduction to Hashing, Hash function |
| | 2nd | collision resolution, open addressing. |
| | 3rd | Discussion of previous  year questions |
| | 4th | Discussion of previous  year questions |