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|  |  |  |  | **Lesson Plan** |  |  | |
| Name of Faculty | | | : | Uma Kakkar/Rajesh |  |  | |
| Discipline | | | : | Computer Engg |  |  | |
| Semester | | | : | 4TH |  |  | |
| Subject | |  | : | Data Structure Using C |  |  | |
| Lesson Plan Duration : | | | | 15 Weeks ( From January 2019 to April 2019) | | | |
|  |  |  |  |  |  | |  |
| Week |  |  |  | **Theory** |  | | **Practical** |
|  |  | Lecture |  | Topic | Pr | | Topic |
|  |  | Day | (including assignment/test ) | | Day | |  |
| 1st |  | 1st | Problem solving concept, top down and bottom up  design, structured programming | | 1 | | Insertion and deletion in an array |
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|  |  |
|  | 2nd | Concept of data types, variables and constants | |
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|  | 3rd | Concept of pointer variables and constants, | | 2 | | -----Same----- |
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| 2nd |  | 4th | Concept of Arrays, | | 3 | | The addition of two matrices using  functions |
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|  |
|  | 5th | Single dimensional array | | 4 | | -----Same----- |
|  | 6th | Two dimensional array | |
|  |  |  |
| 3rd |  | 7th | Storage Representation of Multi dimensional Array | | 5 | | The Multiplication of two matrices |
|  |  | 8th |  | |  | |  |
|  |  | Operations on array | |  | |
|  |  |  |  | |  |
|  |  | 9th | searching, | | 6 | | The linear search |
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|  |  |  |
| 4th |  | 10th | traversing, , |  | 7 | | ,binary search |
|  |  | 11th | Inserting | |  |
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|  |  | 12th | deleting | | 8 | | -----same----- |
|  |  |
|  |  |
| 5th |  | 13th | Introduction to linked list and double linked list | | 9 | | Insertion and deletion of |
|  |  |  | Representation of linked lists in Memory | |  | | elements in linked |
|  |  | 14th |  | |  | | list |
|  |  |  |  | |  | |  |
|  |  | 15th | Operations of Linked list ,Traversing a linked list | | 10 | | Insertion and Deletion of  elements in doubly linked list |
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| 6th |  | 16th | Revision | | 11 | | Insertion and deletion of |
|  |  | elements in doubly |
|  |  | linked list |
|  |  | 17th | Insertion and deletion into linked list (At first Node,  Specified Position, Last ) | | 12 | | -----same------ |
|  |  |
|  |  |
|  |  | 18th | Application of linked lists | |
|  |  |
|  |  |  |  |
| 7th |  | 19th | Doubly linked lists | | 13 | | Viva-Voce |
|  |  | 20th | Traversing a doubly linked lists | |
|  |  | 21st | Insertion and deletion into doubly linked lists | | 14 | | Viva-Voce |
| 8th |  | 22nd | Introduction to stacks, Representation of stacks with | | 15 | | Fibbonacii series with recursion and without recursion |
|  |  | array and Linked List | |
|  |  |  |  |  |
|  |  | 23rd | Implementation of stacks | | 16 | | Push and Pop operation in stack |
|  |  | 24th | Application of stacks: Polish Notations | |
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| 9th | 25th | Converting Infix to Post Fix Notation | 17 | -------same------- | |
|  | 26th | Evaluation of Post Fix Notation, Tower of Hanoi |  |
|  |  |  |
|  | 27th | Recursion: Concept and Comparison between | 18 | The factorial of a given number with recursion and without recursion | |
|  |  | recursion and Iteration |  |  |  |
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| 10th | 28th | Introduction to queues, Implementation of queues | 19 | Insertion and  Deletion of  elements in queue | |
|  |  | using array algorithm |
|  | 29th | Implementation of queues using Linked List with  algorithm |
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|  | 30th | Circular Queues | 20 | Insertion and deleting of  elements in circular  queue | |
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| 11th | 31st | De-queues | 21 | Program for binary search tree operation |  | |
| 32nd | Concept of Binary Trees, Concept of representation of  Binary Tree in memory |  | |
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| 33rd | Revision | 22 | The linear search procedures to  search an element  in given list | |
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| 12th | 34th | Traversing Binary Trees (Pre order, Post order and In  order) | 23 | Traversing of tree |  |
|  |  |  |  |
|  | 35th | Searching, |  |
|  | 36th | inserting in binary search trees | 24 | Program for binary search tree operaion |  |
| 13th | 37th | deleting in binary search trees | 25 | Quick sort technique | |
| 38th | Introduction to sorting and searching |
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| 39th | Linear and Binary Search algorithm | 26 | -----same------ | |
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| 14th | 40th | Bubble Sort | 27 | The bubble sort | |
|  | 41st | Insertion Sort |  | techniques |  |
|  | 42nd | Selection Sort | 28 | The selection sort | |
|  |  |  |  | techniques |  |
| 15th | 43rd | Merge Sort | 29 | The merge sort technique |  |
|  | 44th | Quick Sort |  |  |  |
|  | 45th | Heap Sort | 30 | Viva-Voce |  |

