19CS12P2 - DATA STRUCTURES LABORATORY

(Common to ECE & EEE)

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| **Course Category:** | Program Core | **Credits:** | 1.5 |
| **Course Type:** | Practical | **Lecture – Tutorial – Practical:** | 0-0-3 |
| **Prerequisite:** | Basic programming knowledge and C language fundamentals | **Sessional Evaluation:**  **Univ.Exam Evaluation:**  **Total Marks:** | 40  60  100 |

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| **Course**  **Objectives** | Students undergoing this course are expected to understand: | |
| 1. To learn the various data structures and their implementation. | |
| **Course Outcomes** | Upon successful completion of the course , the students will be able to: | |
| CO1 | Acquire knowledge on types of data structures and the operations that could be performed on them. |
| **Course**  **Content** | 1. Write a C program to implement Stack operations using arrays. 2. Write a C program to implement Queue operations using arrays. 3. Write a C program to implement various operations on a Singly Linked list. 4. Write a C program to implement the creation of following:    1. Doubly Linked list    2. Circular Linked list 5. Write a C program for    1. Bubble Sort.    2. Insertion Sort 6. Write a C program for    1. Linear Search    2. Binary Search | |
| **Text Books**  **and**  **Reference Books** | **TEXT BOOKS:**  1. D. Samanta, ”Classic Data Structures”, Prentice Hall of India, 2nd Edition  2009.   1. S. Lipschutz, “Data Structures using C”, Tata McGraw Hill, Special Indian Edition 2012. | |
| **E-Resources** | 1. <https://nptel.ac.in/courses> 2. <https://freevideolectures.com/university/iitm> | |

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| Contribution of Course Outcomes towards achievement of Program Outcomes (3-High, 2-Medium, 1-Low) | | | | | | | | | | | | | | |
|  | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 |
| CO1 | 3 | 3 | 2 | - | - | - | 3 | 2 | - | - | 3 | 3 | - | - |
| CO2 | 3 | 3 | 2 | - | - | - | 3 | 2 | - | - | 2 | 3 | - | - |
| CO3 | 3 | 3 | 3 | - | - | - | 3 | 3 | - | - | 2 | 3 | - | - |
| CO4 | 3 | 3 | 2 | - | - | - | 3 | 2 | - | - | 2 | 2 | - | - |
| CO5 | 3 | 3 | 2 | - | - | - | 3 | 2 | - | - | 3 | 2 | - | - |
| CO6 | 3 | 3 | 2 | - | - | - | 3 | 2 | - | - | 2 | 2 | - | - |