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:** | 4060100 |

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| **Course****Objectives** | Students undergoing this course are expected to understand: |
| 1. To learn the various data structures and their implementation.
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| **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
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| **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.
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| **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 | - | - |