204184: Data Structures

SE (E&TC/Elex) - 2019 Course

CO-PO Mapping with Justification

Course Outcome	Blooms Taxonomy Level	After successful completion of the course students will be able to	Mapping with Syllabus Unit	PO MAPPING
CO1	2	Solve mathematical problems using C programming language.	1	1, 2, 3, 5,9 12
CO2	4	Implement sorting and searching algorithms and calculate their complexity.	2	1, 2, 3, 4, 5, 9, 12
CO3	2	Develop applications of stack and queue using array.	3	1, 2, 3, 5,9 12
CO4	3	Demonstrate applicability of Linked List.	4	1, 2, 3, 5,9 12
CO5	3	Demonstrate applicability of nonlinear data structure – Binary Tree with respect to its time complexity.	5	1, 2, 3, 5,9 12
CO6	4	Apply the knowledge of graph for solving the problems of spanning tree and shortest path algorithm.	6	1, 2, 3, 5,9 12

MAPPING	LEVEL	JUSTIFICATION
CO1- Solve mathematical problems using C programming language.		
CO1-PO1	1	Design the program logic using appropriate mathematical Knowledge.
CO1-PO2	1	Analyze the problem with different problem-solving ways,
CO1-PO3	1	Program development using suitable logic.
CO1-PO5	1	Select and apply appropriate IT tools for modelling the mathematical problems.
CO1-PO9	1	Solve the mathematical problems individually.
CO1-PO12	1	Programming is a lifelong learning scheme.

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CO2- Implement sorting and searching algorithms and calculate their complexity.		
CO2-PO1	2	Writing program itself is a practical representation of theoretical mathematics
CO2-PO2	3	Applying knowledge of mathematics, write a program and analyse for timing requirement
CO2-PO3	2	Design solutions for complex engineering problems with timing requirement.
CO2-PO4	3	Applying well know searching and sorting methods on set of data to understand, if whole data is unsorted, partially sorted and sorted
CO2-PO5	1	Select appropriate IT tools for modeling complex engineering problems with timing requirement.
CO2-PO9	1	Solve the mathematical problems individually.
CO2-PO12	3	Programming is a lifelong learning scheme
CO3- Develop applications of stack and queue using array.		
CO3-PO1	1	Design the program logic using appropriate mathematical Knowledge for modeling linear data structures using static memory allocation.
CO3-PO2	1	Analyze the problem with different problem-solving ways for modeling linear data structures using static memory allocation.
CO3-PO3	1	Design solutions for complex engineering problems based on applications of stacks and queues using arrays.
CO3-PO5	1	Select appropriate IT tools for implementing the applications of stack and queue.
CO3-PO9	1	Solve the mathematical problems individually.
CO3-PO12	1	Recognize and apply concept of Stack and Queue in real life application using appropriate data structure.
CO4- Demonstrate applicability of Linked List.		
CO4-PO1	1	Design the program logic using appropriate mathematical Knowledge for modeling linear data structures using dynamic memory allocation.
CO4-PO2	1	Analyze the problem with different problem-solving ways for modeling linear data structures using dynamic memory allocation.
CO4-PO3	2	Design solutions for complex engineering problems using Linked List.
CO4-PO5	1	Select appropriate IT tools for modeling linear data structures using dynamic memory allocation.
CO4-PO9	1	Solve the mathematical problems individually.

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CO4-PO12	1	Recognize the need for dynamic memory allocation, and have the preparation for technological change.
CO5- Demonstrate applicability of nonlinear data structure – Binary Tree with respect to its time complexity.		
CO5-PO1	1	Apply the knowledge of mathematics, science, engineering fundamentals for solving Binary Tree non-linear data structure Problems
CO5-PO2	1	Identify, formulate and analyze engineering problems using the concepts Binary Tree non-linear data structures.
CO5-PO3	1	Design solutions for engineering problems using non-linear data structure Binary Tree.
CO5-PO5	1	Select and apply appropriate IT tools for modeling the applications of Binary Search Tree using non-linear data structures.
CO5-PO9	1	Function effectively as an individual and as a member and apply appropriate IT tools for modeling the applications of Binary Tree using non-linear data structures.
CO5-PO12	1	Recognize the need for Binary Tree non-linear data structures, and have the preparation for technological change.
CO6- Apply the knowledge of graph for solving the problems of spanning tree and shortest path algorithm.		
CO6 –PO1	2	Every Program is based on knowledge of mathematics, science and engineering fundamentals
CO6 –PO2	2	Design and debug the program using proper selection of data types and control structure to be carried out to obtain the specified solution with appropriate considerations.
CO6 –PO3	3	Selection of proper data structure is done based on given problem statement for formulating and analysing complex engineering problems.
CO6 –PO5	3	Modern tools like turbo C, Codeblocks, GCC are used for development of programs.
CO6 –PO9	2	Development of algorithm using proper data structures may be divided into team and after the completion of entire code it could be integrated for the required final output.
CO6 –PO12	1	Integration and implementation of modular programs using proper algorithm and data structures will be useful throughout the life.