

Regulation GRBT-20	Godavari Institute of Engineering & Technology (Autonomous)	I B.Tech II Sem.			
Course Code	DATA STRUCTURES LAB CSE				
Teaching	Total contact hours-36	L	T	P	C
Prerequisite(s): Basic knowledge of Mathematics, Logical Ability		0	0	3	1.5

Course Objective(s):

- To impart adequate knowledge on the python programming language.
- To develop the skills of programming for implementing object oriented concepts and data structures by using python programming language.
- To impart adequate knowledge on Data Structures
- To develop the skills of programming for implementing Data Structures.

Course Outcome(s):

After successful completion of this course, a student will be able to:

CO-1: Write the programs for mathematical functions using python programming language.

CO-2: Write programs for object oriented concepts and data structures.

CO-3: Choose appropriate data structure as applied to specified problem definition.

CO-4: Handle operations like searching, insertion, deletion, traversing mechanism etc. on various data structures.

CO-5: Apply concepts learned in various domains like DBMS, compiler construction etc.

CO-6: Use linear and non-linear data structures like stacks, queues, linked list etc.

Programs:

- 1) Write the program using python for the following
 - a) Implement a Python program that obtains the name from the user and prints the message "Hello Username, Welcome to the Python World!".
 - b) Implement a Python program to print all the prime numbers below n. n value should be taken from the user at the time of execution.
 - c) Find the biggest and smallest element in an array.
- 2) Write recursive program for the following using Python
 - a) Write recursive and non-recursive program for calculation of GCD (n, m)
 - b) Recursive function to perform Binary Search for a key value in a given list.
 - c) Recursive function to perform Linear Search for a key value in a given list.
- 3) Write a program using Python for the following
 - a) Insertion sort, to sort a given list of integers in ascending order
 - b) Selection sort to sort a given list of integers in ascending order
 - c) Bubble sort, to sort a given list of integers in ascending order
 - d) Quick sort, to sort a given list of integers in ascending order
 - e) Merge sort, to sort a given list of integers in ascending order
- 4) Write C program that implement
 - a) Stack (its operations) using arrays
 - b) Stack operations to convert infix expression into equivalent postfix expression

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- 5) Write C program that implement
 - a) Queue (its operations) using arrays.
 - b) Circular queue (its operations) using arrays.
 - c) De-queue (its operations) using arrays.


- 6) Write a C program that uses functions to
 - a) Create a singly linked list
 - b) Perform insertion operations on a singly linked list
 - c) Perform deletion operations on a singly linked list

CO-PO Mapping:

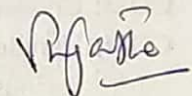
(1: Slight [Low]; 2: Moderate [Medium]; 3: Substantial [High]; '-' : No Correlation)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	2	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	3	-	-	-	-	-	-	-
CO4	-	-	-	-	3	-	-	-	-	-	-	-
CO5	-	-	-	-	3	-	-	-	-	-	-	-


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