



R21 Regulations

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR
(Established by Govt. of A.P., ACT No.30 of 2008)
ANANTHAPURAMU – 515 002 (A.P) INDIA

MASTER OF COMPUTER APPLICATIONS

Course Code	DATA STRUCTURES USING C LABORATORY	L	T	P	C
21F0010		0	1	2	2
Semester		I			
Course Objectives:					
<p>To get familiar with the basic concepts of C programming.</p> <p>To design programs using arrays, strings, pointers and structures.</p> <ul style="list-style-type: none">• To illustrate the use of Stacks and Queues• To apply different operations on linked lists.• To demonstrate the Binary tree traversal techniques.• To design searching and sorting techniques					
Course Outcomes (CO):					
<ul style="list-style-type: none">• Develop C programs for computing and real life applications using basic elements like control statements, arrays, functions, pointers and strings, and data structures like stacks, queues and linked lists.• Implement searching and sorting algorithms					
List of Experiments:					
<p>Write C programs that use both recursive and non-recursive functions</p> <p>i) To find the factorial of a given integer.</p> <p>ii) To find the GCD (greatest common divisor) of two given integers.</p> <p>iii) To solve Towers of Hanoi problem.</p> <p>a) Write a C program to find both the largest and smallest number in a list of integers.</p> <p>b) Write a C program that uses functions to perform the following:</p> <p>i) Addition of Two Matrices ii) Multiplication of Two Matrices</p> <p>a) Write a C program that uses functions to perform the following operations:</p> <p>i) To insert a sub-string in to a given main string from a given position.</p> <p>ii) To delete n Characters from a given position in a given string.</p> <p>a) Write a C program that displays the position or index in the string S, where the string T begins, or – 1 if S doesn't contain T.</p> <p>b) Write a C program to count the lines, words and characters in a given text.</p> <p>a) Write a C Program to perform various arithmetic operations on pointer variables.</p> <p>b) Write a C Program to demonstrate the following parameter passing mechanisms.</p> <p>i) call-by-value ii) call-by-reference.</p> <p>Write a C program that uses functions to perform the following operations:</p> <p>i) Reading a complex number</p> <p>ii) Writing a complex number</p> <p>iii) Addition of two complex numbers</p> <p>iv) Multiplication of two complex numbers (Note: represent complex number using a structure.)</p> <p>Write C programs that implement stack (its operations) using</p>					



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- i) Arrays
- ii) Pointers

Write C programs that implement Queue (its operations) using

- i) Arrays
- ii) Pointers

Write a C program that uses Stack operations to perform the following:

- i) Converting infix expression into postfix expression
- ii) Evaluating the postfix expression

Write a C program that uses functions to perform the following operations on singly linked list.

- i) Creation ii) Insertion iii) Deletion iv) Traversal

Write a C program that uses functions to perform the following operations on Doubly linkedlist.

- i) Creation ii) Insertion iii) Deletion iv) Traversal

Write a C program that uses functions to perform the following operations on Circular linkedlist.

- i) Creation ii) Insertion iii) Deletion iv) Traversal

Write a C program that uses functions to perform the following:

- i) Creating a Binary Tree of integers
- ii) Traversing the above binary tree in preorder, inorder and postorder.

Write C programs that use both recursive and non-recursive functions to perform the following searching operations for a Key value in a given list of integers:

- i) Linear search
- ii) Binary search

Write a C program that implements the following sorting methods to sort a given list of integers in ascending order

- i) Bubble sort
- ii) Selection sort

Write a C program that implements the following sorting methods to sort a given list of integers in ascending order

- i) Insertion sort
- ii) Merge sort
- iii) Quick sort