SWARNANDHRA
COLLEGE OF ENGINEEERIN G AND TECHNOLGY
(AUTONOMOUS)
SEETHARAMPURAM, NARSAPUR-534280, WG- DT, AP
DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS

TEACHING PLAN

Course Code	Course Title	Year / Sem.	Branch	Contact Hr/ week	Academic Year	Date of Commencement of Semester
24MC1T01	Data Structures	I/I	MCA	6	2024-25	16.09.2024

Course Outcomes (CO): At the end of the course, student will be able to

1. Implement basic programs by using C concepts (K2)
2. Implement C Program using Functions, Structures and Unions, Pointers (K3)
3. Design advanced Data Structures using Non Linear Data Structures(K4)
4. Create Hash Table for storing data(K4)
5. Apply appropriate Sorting technique for a problem(K5)

Unit	Outcomes/Blooms Level	Topic /Activity		Textbooks	Contact hours	Delivery method
		UNIT- I				
		1.1	Introduction to c	T1	1	
		1.2	Constants and Variables	T1	1	
		1.3	Operators and expressions	T1	1	
		1.4	Arithmetic and Relational operators	T1	1	
		1.5	Logical and Assignment operators	T1	1	
		1.6	Increment and decrement operator	T1	1	
		1.7	Conditional , bitwise and special operator	T1	1	

I	Impleme nt basic programs by using C concepts (K2)	1.8	Reading a character and Writing a character	T1	1	Chalk & Board Programm ing Demonstra tion
		1.9	Formatted input and Formatted output	T1	1	
		1.10	Decision making with if statement	T1	1	
		1.11	The if... else statement	T1	1	
		1.12	Nesting of if....else statement and else if ladder	T1	1	
		1.13	The switch statement and goto statement	T1	1	
		1.14	One dimensional array, Two dimensional array Multi-dimensional array	T1	1	
		UNIT -II				
		2.1	Introduction of functions, definition of functions	T1	1	
		2.2	Return values and their types function calls, category of functions	T1	1	
		2.3	No argument and no return values and no argument and return values	T1	1	
		2.4	With argument and with return values and with argument and without return values	T1	1	

II	Impleme nt C Program using Function s, Structure s and Unions, Pointers (K3)	2.5	Recursion, passing arrays to functions and passing strings to functions	T1	1	Chalk & Board Programm ing Demonstra tion
		2.6	Structures	T1	1	
		2.7	Arrays of structures, arrays within structures	T1	1	
		2.8	Structures within structures	T1	1	
		2.9	Structures and functions	T1	1	
		2.10	Unions	T1	1	
		2.11	Size of structures	T1	1	
		2.12	Bit fields, Enum, Typedef	T1	1	
		2.13	Pointers,	T1	1	
		2.14	Chain of pointers, pointer expressions,	T1	1	
		2.15	Array pointers, pointers as function argument	T1	1	
		2.16	Pointer to functions, pointer to structures	T1	1	
III	Design advanced Data Structur es using Non Linear Data Structur es (K4)	**UNIT-III**				Chalk & Board Programm ing Demonstra tion
		3.1	Single linked creation	T2	1	
		3.2	Single linked operations	T2	1	
		3.3	Reversing of an single linked list	T2	1	
		3.4	Double linked list, traversing and searching in double linked list	T2	1	
		I Mid Exams				
		3.5	Double linked list Operations	T2	1	

		3.6	Reversing of an double linked list	T2	1	
		3.7	Circular linked list, traversing and searching in circular linked list	T2	1	
		3.8	Circular linked list Operations	T2	1	
		UNIT -IV				
IV	Create Hash Table for storing data (K4)	4.1	Stack, Array implementation of stack, linked list implementation of stack	T2	1	Chalk & Board Programming Demonstration
		4.2	Queue, array implementation of queue,	T2	1	
		4.3	Linked list implementation of queue	T2	1	
		4.4	Function calls	T2	1	
		4.5	Polish notation	T2	1	
		4.6	Hash table representation	T2	1	
		4.7	Hash functions, collision resolution	T2	1	
		4.8	Separate chaining	T2	1	
		4.9	Open addressing, linear probing, quadratic probing	T2	1	
		4.10	Double hashing, rehashing and extendible hashing	T2	1	
Content beyond Syllabus			Stack and Queue Application GFS and DFS	Web Resources	1	

			UNIT-V			
V	Apply appropriate Sorting technique for a problem (K5)	5.1	Sorting techniques , insertion sort, selection sort	T2	1	Chalk & Board Demonstration
		5.2	Merge sort, bubble sort	T2	1	
		5.3	Trees	T2	1	
		5.4	Binary tree terminology	T2	1	
		5.5	Traversal of binary trees- pre, post and order traversal	T2	1	
		5.6	Search trees	T2	1	
		5.7	Definition of binary tree	T2	1	
		5.8	Binary search tree, traversal, searching	T2	1	
		5.9	Finding, insertion and deletion of binary tree	T2	1	
Content beyond Syllabus			AVL Tree Implementations	Web Resources	1	

Text Books:

1. E. Balaguruswamy, Programming in ANSI C TMH, 8 ed. 2018
2. Reema Thareja Data Structures Using C. Oxford, 2nd Edition, 2014
3. Mark Allen Weiss, Data Structures and Algorithm Analysis in C, 2nd ed, 2002

Reference Books:

1. R. F. Gilberg and B.A. Forouzan, Data Structures: A Pseudocode Approach with C, , Cengage Learning, 2nd Edition, 2004
2. A. S. Tanenbaum, Y. Langsam, and M.J. Augenstein,Data Structures using C –PHI/Pearson 2nd Education, 2012
3. Yashavant Kanetkar, Let Us C: Authentic Guide to C Programming Language,. BPB Publications, 17th ed, 2020.

Faculty   **Head of the Department**   **Principal**