

Subject Code: 1ET4000206	Subject Title: Computer Programming-II
Pre-Requisite	Basic knowledge of “C” Programming

RATIONALE:

Students in the previous semester have learned procedure for developing programs to solve simple problems using basic features of very popular language i.e. structured programming language ‘C’. This course deals with some advanced features of the ‘C’ language. The programming skills thus acquired can be used for developing programs with advance level programming features which in turn will be helping in developing practical applications for the scientific, research and business purposes.

COURSE OBJECTIVE:

- Understand the basic concepts of C programming.
- Implement arrays, functions and pointers.
- Gain skills to handle strings and files.
- Ability to design, analyzes and develop Computer programs, Interprets the concept of pointers, declarations, initialization, operations on pointers and their usage.
- Develop confidence for self education and ability for life-long learning needed for Computer language.

TEACHING AND EVALUATION SCHEME:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				Total (Marks)
Lecture	Tutorial	Practical	Credit	Theory		Practical		
				University Assessment	Continuous Assessment	University Assessment	Continuous assessment	
3	-	4	5	60	40	40	60	200

DETAILS OF COURSE CONTENTS:

S. NO.	Topic and Sub-Topics	Total Hrs.	WEIGHTAGE %
Unit - 1	Multi-Dimensional Arrays and String Two Dimensional Arrays, Initialization, Matrix Addition, Matrix Multiplication, String, Multidimensional arrays	08	20
Unit - 2	Functions Introduction, Definition of Functions, Built in and user	09	20

	defined function, String Handling, Functions, Math Functions, Use Defined Function Declaration, Categories of Functions, Nesting of Functions, Actual Parameter and Formal Parameter, Call by value and call by Reference, Recursion		
Unit - 3	Pointers Introduction to Pointers, Accessing Address of the variables, Declaring the Pointer Variables, Initialization of Pointer Variables, Pointer and Arrays, pointer to pointer, void pointers	09	20
Unit - 4	Structure and Union Introduction to Structure, Declaration and Initializations of Structure, Access Structure variables, Arrays of the Structure, Array in Structure, Introduction to Union, Difference between Structure and Union	08	20
Unit - 5	File and Command line argument File Operations: open, read, close, File mode: text, binary, File Functions: fprintf(), fscanf(), getc(), putc(), fgetc(), fputc(), fseek(), feof(), Command Line argument	05	12
Unit - 6	Dynamic Memory Allocation Introduction, malloc(), calloc()	03	08

COURSE OUTCOME:

After Completion of this course the students will be able to :

1. Read, understand and trace the execution of programs written in C language.
2. Write the C code for a given algorithm.
3. Implement Programs with pointers and arrays, perform pointer arithmetic, and use the pre-processor.
4. Write programs that perform operations using derived data types.
5. Able to make simple data processing applications also he/she must be able to use the concept of array of structures. Student must be able to define functions, union and enumeration user defined data types.
6. Able to Construct programs that demonstrate effective use of C features including arrays, structures, pointers and files.

SUGGESTED LIST OF EXERCISES/PRACTICAL/EXPERIMENTS:

1. Write a minimum 4 program for two dimensional array.
2. Write a program to perform matrix addition.
3. Write a program to perform matrix multiplication.
4. Write at least 2 program for multi-dimensional array.
5. Write a program to store and retrieve string in array.

6. Write a programs to perform for built in string functions.
7. Write a programs to perform for built in math functions.
8. Write a programs to perform different function related program.
9. Write a programs to perform nesting of functions.
10. Write a programs for recursion.
11. Write a programs to perform call by value and call by reference.
12. Write a programs for pointer. (at least 8)
13. Write a programs to display address of variable. (at least 5)
14. Write a programs for array of pointer.
15. Write a programs for void pointer.
16. Write a programs for structure. (at least 3)
17. Write a programs for array of structure.
18. Write a programs for Union.
19. Write a programs for file operations.
20. Write a programs for command line arguments.
21. Write a programs for malloc() and calloc().

LIST OF REFERENCES:

Text Books

Programming in ANSI C by E Balagurusamy (McGraw Hill)

Reference Books

Let Us C by Yashavant Kanetkar (BPB Publications)

E- Learning References

<https://www.beginnersbook.com>

<https://www.tutorialspoint.com>

<https://www.geeksforgeeks.org>

<https://www.vlab.co.in>