Programme	**:**	**Diploma in ET**/CE/EE//ME/MT/CM/IT/DDGM
Programme Code	**:**	01/02/**03**/04/05/06/07/08/16/**17**21/22/**23**/24/26
Name of Course	**:**	**Programming in C**
Course Code	**:**	**CM 282**

Teaching Scheme:

	Hours /Week	Total Hours
Theory	**03**	**48**
Practical/Tutorial	**02 +01**	**48**

Evaluation Scheme:

	Progressive Assessment	Semester End Examination			
		Theory	Practical	Oral	Term work
Duration	**Three class tests of 60 Minutes**	**03 hrs.**	**---**	**---**	**---**
Marks	**20**	**80**	**50**	**---**	**25**

Course Rationale:

In this era of high speed computing, it is necessary to program computers with the help of structured & dynamic languages like 'C' to study programming is useful in solving problems/tasks related to various domains. Now days almost every setup in software engineering domain chooses 'C' as a basic tool to develop software.

Course Objectives:

After studying this course, the student will be able to

- Write a programs using 'C' language
- Implement data types & structures related to problems.
- Solve the problems/tasks in structured way.

Course Content:

Chapter .No	Name of Topic/Sub topic		Hrs	Marks
1	**OVERVIEW OF 'C'**			
	1.1	Introduction: development of 'C',	**02**	**04**
	1.2	Importance of 'C',		
	1.3	Basic structure of 'C' programs, programming style, sample 'C' programs, execution of 'C' program		
2	**DATA TYPES & CHARACTER SET**			
	2.1	Character set, C tokens, keywords & identifiers, constants, variables. Data types, declaration of variables, assigning values to variables, defining symbolic constants.	**04**	**06**
3	**OPERATORS & EXPRESSIONS**			
	3.1	Operators: Arithmetic, relational, logical, increment & decrement, conditional, bit-wise special.	**06**	**10**
	3.2	**Expressions:**Arithmetic expressions, evaluation of expressions, procedure of arithmetic operators, type conversions in expressions, operator precedence & associatively, mathematical functions.		
	3.3	Managing input & output operators: Introduction, reading a character, writing a character, formatted input, formatted output.		
4	**DECISION MAKING**			
	4.1	Branching & looping introduction, decision making with if statement, simple if statement, the if-else statement, The else if ladder, The switch statement, The?: operator, the go to statement, looping , introduction , the while statement , jumps in the loop, break statement.	**04**	**08**
5	**ARRAYS**			
	5.1	Introduction, one- dimensional arrays, two-dimensional arrays, multidimensional arrays, Initialization of arrays	**04**	**12**
6.	**STRINGS**			
	6.1	Introduction, declaring & initializing string variables, reading string, writing strings, arithmetic operations on string , putting strings together , comparison of two strings, string handling functions, table of strings	**04**	**06**
7.	**USER DEFINED FUNCTIONS**			
	7.1	Need of user defined function, the types of C functions, return values & their types, calling a function.	**10**	**12**

	7.2	Category of functions: No argument- No return value,Argument-No return value, No argument-return value & No argument- return value.		
	7.3	Handling non-integer functions, nesting of functions, recursion, and unction with arrays.		
8.	**STRUCTURES & UNIONS**			
	8.1	Structure definition, giving values to members, structure initialization and comparison structure variables.	**08**	**12**
	8.2	Arrays of structures, arrays within the structure, structure and functions, Unions, size of structures, bit fields & bit operations.		
9.	**INTRODUCTION TO POINTERS**			
	9.1	Pointer Concept,& and * operators, Declaration of Pointers, Initialisation of pointers, Pointer Expressions, Application of pointers, Array of Pointers, Pointer to array, function, structure, Function returning pointer and passing addresses to functions.	**06**	**10**
		Total	**48**	**80**

List of Practicals / Experiments/Assignments:

Sr. No.	Name of Practical/Experiment/Assignment	Hrs
1.	Demonstration of GCC Compiler, Creating a program Compiling & linking executing programs.	02
2.	Write 'C' programs based on declaring variables & assigning values to variables. (Minimum 3)	02
3.	Write programs based on expressions and operators. Programs using scanf(), printf(), getch(), putch**().(Minimum 4)**	02
4.	Programs using following control statements: If statement,Switch statements,?: operator, go to statements Programs using following loop controls,while loop do.. while loop for loop**(Minimum 5)**	06
5.	Write programs based on arrays**. (Minimum 4)**	04
6.	Write programs using strings operations such as comparison, concatenation, copying etc.**(Minimum 3)**	04
7.	Examples on User defined functions, demonstration of return data types. Write programs demonstrating four categories of functions. Programs based on recursion & nesting of functions.**(Minimum 5)**	04
8.	Write programs based on structure definition and initialization. Write programs based on structure within structure. Write programs based on bitwise operations.**(Minimum 3)**	04
9.	Write programs based on Pointers and pointer applications. **(Minimum 3)**	04
	Total	**32**

Note:

- All Practicals should be performed on GCC compiler.
- Minimum 30 Programs as specified in practical coverage section should be executed.
- Actual program statements on practical topics should be framed by the respective teachers.
- During Tutorial session various examples should be taken as per the concepts of Theor

Instructional Strategy:

Sr. No.	Topic	Instructional Strategy
1.	Overview of 'C'	Demonstration of GCC Compiler, Create simple program
2.	Data types & character set	Write 'C' programs based on declaring variables & assigning values to variables.
3.	Operators & Expressions	Explanation of operators, expressions & managing i/p & o/p operators.
4.	Decision Making	Theoretical explanation + writing program using different control statements.
5.	Arrays	Theoretical explanation & implementation of arrays.
6.	Strings	Theoretical explanation & implementation of strings.
7.	User defined functions	Explanation & implementation of examples on user defined functions,
8.	Structures and Unions	Theoretical explanation & implementation of structures & Unions.
9.	Pointers	Explanation & implementation of examples on Pointers

Text Books:

Sr. No	Author	Title	Publication
1.	E. Balagurusamy	Programming in ANSI 'C'	Tata- McGraw Hill pub.(Second Edition)

Reference Books:

Sr. No	Author	Title	Publication
1.	Yeshwant Kanetkar	Let us 'C'	BPB Publication
2.	Madhusudhan Mothe	C for Beginners	SPD Publication

Learning Resources:

Black Board, Transparencies, Overhead projector, LCD, White Board.

Specification Table:

Sr.	Topic	Cognitive Levels			Total
		Knowledge	Comprehension	Application	
1.	Overview of 'C'	01	01	02	04
2	Data types & character set	02	01	03	06
3.	Operators & Expressions	03	03	04	10
4.	Decision Making	02	04	02	08
5.	Arrays	03	04	05	12
6.	Strings	02	02	02	06
7.	User defined functions	04	04	04	12
8.	Structures and Unions	05	04	03	12
9.	Pointers	03	02	05	10
	TOTAL	**25**	**25**	**30**	**80**

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