PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY

(Autonomous)

KANURU, VIJAYAWADA-520007

I B.Tech – I Sem CSE (DATA SCIENCE)

PROGRAMMING FOR PROBLEMSOLVING USING C

Course Code	20ES1106	**Year**	I	**Semester**	I
Course Category	Engineering Sciences	**Branch**	CSE(Data Science)	**Course Type**	Theory
Credits	3	**L-T-P**	3-0-0	**Prerequisites**	Elementary Mathematics
Continuous Internal Evaluation	30	**Semester End Examinations**	70	**Total Marks:**	100

Course Outcomes		
Upon successful completion of the course, the student will be able to		
CO1	Understand the principles of problem-solving techniques and C constructs for solving problems.	**L2**
CO2	Develop algorithms and flowcharts for various problems.	**L3**
CO3	Apply the knowledge of C programming constructs for a given problem	**L3**
CO4	Analyze the given problem and use a suitable programming approach to develop solutions.	**L4**

Contribution of Course Outcomes towards achievement of Program Outcomes& Strength of correlations (3:High,2:Medium, 1:Low)													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	3													
CO2	2													
CO3	3													
CO4		2										1		

Syllabus		
Unit No.	Contents	Mapped CO,s
I	**Introduction to Programming:**Computer, Components of a computer, Computer Software, Generations of Programming Languages. **Algorithms:** Introduction, Examples. **Flowcharts:** Introduction, symbols, Examples.	**CO1,CO2**
II	**Introduction to C:**Introduction, Structure of C Program, A Simple CProgram, C-Tokens, Basic Data types, Variables, Constants, Input / Outputstatements,Operators, Type conversionandTypecasting. **Conditional Branching Statements:**if,if-else,if-else-ifStatementsand Switchcase.	**CO1,CO3**
III	**Iterative Statements:**while,foranddo-whileloops,Nestedloops,break goto and continue statements. **Arrays:**Declaration,Accessingarrayelements,Storingvalues,Operationsonarrays, Multi-dimensional arrays. **Strings:** Introduction,String manipulation functions.	**CO1,CO3**
IV	**Functions:**Introduction,Using Functions,Function declaration,FunctionDefinition and Functioncall,Types of functions, Parameter passing,Passing arrays to functions,Recursion, Storageclasses. **Pointers:** Declaration and Initialization of pointer variables, Pointer arithmetic,Pointers and arrays,Pointer to pointer,Array of pointers, Pointers and functions, Dynamic memory allocation.	**CO1,CO3, CO4**
V	**Structures:**Introduction,bitfields,nestedstructures,arrayofstructures,structures and functions, unions. **Files in C:**Using Files in C,Read data from files ,Writing data to files, Random access to files of records.	**CO1,CO3, CO4**

Learning Resources
Text Books
1.Programming in C, ReemaThareja, AICTE Edition, 2018, Oxford University Press.
Reference Books
1. Computer Science: A Structured Programming Approach Using C, B. A. Forouzan and R.F.Gilberg, Third Edition, 2007, Cengage Learning. 2. Programming in C, PradipDey, ManasGhosh, AICTE Edition, Oxford University Press. 3. The C Programming language, Brain W. Kernighan and Dennis Ritchie, Second Edition, Pearson Publications. 4. Programming with C, B. Gottfried, Third Edition, 2017, Schaum's outlines, McGraw Hill (India). 5. Problem Solving and Program Design in C, Jeri R. Hanly, Ellot B. Koffman, Seventh Edition, Pearson. 6. How to Solve it by Computer, R.G. Dromey, 2006, First edition, Pearson Education.
e- Resources & other digital material
1. https://www.geeksforgeeks.org/c-programming-language/ 2. https://www.greatlearning.in/academy/learn-for-free/courses/c-programming 3. https://onlinecourses.nptel.ac.in/noc22_cs101/course