		L	T	P	C
15IT102	**PROGRAM DESIGN AND DEVELOPMENT**	**3**	**0**	**0**	**3**
	Total contact hours – 45				
	Prerequisite				
	Nil				

PURPOSE

Knowledge of problem solving and programming concepts is essential for those who develop applications for users. Hence to provide the required knowledge, this course imparts basic knowledge in C programming along with the concepts of design and development of programs using C.

INSTRUCTIONAL OBJECTIVES

1.	Gain knowledge about problem solving in computers
2.	Understand the basic components and structure of a C program
3.	Develop proficiency in basic programming skills

UNIT I-INTRODUCTION TO PROBLEM SOLVING AND PROGRAMMING (5 hours)

Creative thinking and problem solving skills, visualization and memory - Problem Solving Concepts - Problem Solving in everyday life, types of problems, problem solving concepts for computers, Algorithms and Flow charts; Programming Concepts -preprocessing, compilation, assembling and linking.

UNIT II-OVERVIEW OF C (9 hours)

Structure of C program, constants, variables and data types, operators and expressions – arithmetic operators, bitwise operators, evaluation of expressions, precedence of operators and associativity, mathematical functions –Managing Input/Output Operations – Decision making and branching structures –Looping structures

UNIT III-FUNCTIONS (9 hours)

User defined functions and its elements - definition of functions - return values and their types - function calls - function declaration - types of functions - scope, visibility of variables in functions - recursion - structures and functions.

UNIT IV-ARRAYS, STRUCTURES AND UNIONS (10 hours)

Arrays: single dimensional, two dimensional and multi-dimensional arrays, dynamic arrays - character arrays and strings – string handling functions - structures and unions – accessing structure members, arrays within structures, arrays of structures, structures within structures

UNIT V-POINTERS (12 hours)

Pointers, declaration, passing pointers to functions, accessing a variable, character strings, pointers to functions and structures; Introduction to shell programming

REFERENCES

1. Maureen Sprankle, "*Problem Solving and Programming Concepts*", Pearson,7th Edition, 2011
2. E.Balagurusamy,"*Programming in ANSI C"*, Tata McGrawHill, 5thEdition, 2011.
3. Y.P. Kanetkar, "*Let us C*", BPB Publications, 8th Edition, 2008.
4. Steve Oualline, " *Practical C Programming*", O'Reilly Publishers, 2011.
5. Byron Gottfried, "*Programming with C*", Schaum's Outline Series, 2nd Edition, 2000.

<table>
<tr><th colspan="17">15IT102 - PROGRAM DESIGN AND DEVELOPMENT</th></tr>
<tr><td colspan="2">Course designed by</td><td colspan="15">Department of Information Technology</td></tr>
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