

**Shastri- I Year( I Semester)****GENERIC COURSE 1 (GE-1)****Course Name: PROBLEM-SOLVING AND PROGRAMMING IN C**

**Introduction:** In this course, C programming language will be taught, which covers all core concepts and provides a basis to learn and understand other programming languages easily.

**Objective:** To introduce basics of computer concepts, computer programming introduction, and concepts of core C programming language.

**Learning Outcomes:** The learner acquires knowledge related to computer peripherals, algorithms, and programming basics. Then understands C programming basic concepts like data types, variables, syntax, etc. leading to concepts like Arithmetic expressions, conditional branching, loops, functions, arrays, and strings.

**Theory** : 60Marks

**Internal Assessment** : 40 Marks

Unit	Content	Hours	Credits
Unit - 1	<b>Introduction to Programming:</b> Concept of assembler, compiler, interpreter, loader, and linker. <b>Programming Basics:</b> Structure of C program: writing and executing the first C program, Syntax, and logical errors in compilation, object, and executable code. Components of C language: Standard I/O in C, Fundamental data types, Variables, and memory locations.	15	01
Unit - 2	<b>Arithmetic expressions &amp; Conditional Branching:</b> Arithmetic expressions and precedence: Operators and expression <b>Conditional Branching:</b> Applying if and switch statements. nesting if and else and switch.	15	01
Unit - 3	<b>Loops:</b> Use of while, do while, and for loops, multiple loop variables, use of break and continue statements. <b>Pointer:</b> Introduction to Pointers, declaration & implementation. <b>Functions:</b> Introduction, types of functions, functions with an array, passing parameters to functions, call by value, call by reference, recursive functions.	15	01
Unit - 4	<b>Arrays &amp; Strings:</b> Array notation and representation, manipulating array elements, using multi-dimensional arrays. Character arrays and strings, Array of structures, Passing arrays to functions, Structure, union.	15	01

**Sanskrit-centric exercises should be devised for practicals.**

**Reference Text Books:**

1. Computer Concepts and Programming in C, E Balaguruswami, McGraw Hill
2. Let Us C By Yashwant P. Kanetkar.

