Branch: B.Sc.(IT)	Semester-I
Subject Code: 1102	Lecture: 04 Credit: 04
Course Opted	Core Course-1 (Theory)
Subject Title	PROBLEM SOLVING USING C

Course Objectives:

- The course is designed to provide complete knowledge of C language.
- Students will be able to develop logics which will help them to create programs, applications in C.
- Ability to design and develop Computer programs, analyzes, and interprets the concept of pointers, declarations, initialization, operations on pointers and their usage. Able to define data types and use.
- By learning the basic programming constructs, they can easily switch over to any other language in future.
- The students will be able to develop applications

Course Outcomes:

- Students will be able to develop logic which will help them to create programs in C.
- Demonstrate an understanding of computer programming language concepts.
- Ability to design and develop Computer programs, analyze, and interpret the concept of pointers, declarations, initialization, operations on pointers and their usage.
- Able to define data types and use.
- By learning the basic programming constructs, they can easily switch over to any other language in future.
- The students will be able to develop applications

Modules	Sr. No.	Topic and Details	No. of Lectures Assigned	Marks Weightage %
UNIT -I	1	**Introduction to problem solving:** • Concept: Steps in problem solving (Define Problem, Analyze Problem, Explore Solution), • Problem solving techniques : (Trail & Error, Brain Storming, Divide & Conquer). • Algorithms and Flowcharts (Definitions, Characteristics, Advantage & Disadvantages, Symbols, Examples), Pseudo-code(Definition, Conditional statements, Loops),etc	4	16
	2	**Overview of programming languages:** • Definition of the program, • Concept- Source code, Object code, Compilation, Interpretation, Execution, Input and Output, Debugging etc.	4	

		• Expressions, control structures; subroutines, Storage management; scoping rules; bindings for names		
UNIT-II	3	**Introduction to 'C' Language** : History of C Programming , Structures of 'C' Programming, Simple example, Basic Input/ Output, Function as building blocks.	4	20
		Language Fundamentals : Character set, C Tokens, Keywords, Identifiers, Variables, Constant, Data Types, Comments.		
	4	**Operators** : • Types of operators, Precedence and Associativity, Expression, Statement and types of statements, Build in Operators and function. • Console based I/O and related built in I/O Function: printf(), scanf(), getch(), getchar(), putchar(),etc; • Concept of header files, Preprocessor directives: #include, #define, Conditional statements and Loops. • Storage types: Automatic , external, register and static variables	6	
UNIT-III	5	**Control structures** • Decision making structures : If, If-else , Nested If , Nested If –else, else-if-ladder,Switch case • Loop Control structures : While, Do-while, For Loop, Nested for, while, do-while loop. • Jumping statements: break, continue, goto, exit.	8	34
	6	**Functions:** Definition, Basic types of function, Declaration and definition, Function call, Types of function, Parameter passing, Call by value, Call by reference, Recursion, String Functions	6	
	7	**Pointers:** Introduction to pointers, Pointer notation, Pointer arithmetic,Null Pointer,pointer to pointer.	3	

UNIT-IV	8	**Arrays:** • Definition, Declaration, Initialization, Bounds checking, • One-Dimensional Array, Two-Dimensional Array, • Passing array to a function, pointer to Array.	6	30
	9	**Structure and Union**: • Introduction to Structure, Definition, Declaration of Structure Variables, .Dot Operator, Nested Structure, Array of Structure, pointer to structure, • Introduction to Union, Difference between Structure and Union .	4	
	10	**Dynamic memory allocation :** Malloc(),Calloc(),Realloc(),free(). **File Handling**: • Concept of File, Definition, File operations(create, open, read, move , write, close), • File opening Mode, Closing a file, Input/output operations, Creating and reading a file, • Command Line Argument.	5	
Total			50	100

Text and Reference Books :

1. C: The Complete Reference (Fourth Edition), Tata McGraw-Hill Education Pvt. Ltd., 2000
2. C – programming E.Balagurusamy Tata McGray Hill, 1990
3. Ramkumar and Agrawal, "Programming in ANSI C", Tata McGraw Hill, 1996.
4. Y.P Kanetkar, "Let Us "C", , Infinity Science Press,2008
5. Venu Gopal, "Programming in C" ,Tata Mcgraw-Hill Publishing company Limited,1997

Branch: B.Sc(IT)	**Semester-I**
Subject Code: 1201	**Lecture: 02** **Credit: 02**
Course Opted	**Core Course-1 (Practical)**
Subject Title	**PROBLEM SOLVING USING C LAB**

Course Objectives:

- To enable the students to learn a programming language.
- To learn problem solving techniques
- To teach the student to write programs in C and to solve the problems.

Course Outcomes: