Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)

COMPUTER PROGRAMMING

Sub code: GR14A1009 **L T P C**
I Year I sem **2 1 0 3**

Pre Requisites: Knowledge of Mathematics required

Course Objectives:
1. To review basic computer system concepts
2. To express algorithms and draw flowcharts in a language independent manner.
3. To introduce the basic concepts of C-programming language such as variables, operators, branching, looping, functions, arrays, pointers, structures and files
4. To examine the key aspects of c-library

Course Outcomes:
At the end of this course students will be
1. able to analyze and resolve a given problem
2. ability to use the programming concepts, c-library and generate code for a given problem
3. ability to understand computer programming environment.

UNIT-I Introduction to Computers: Computer Hardware and Software, System Software, Programming Languages, Program Development Steps, Algorithms, Flowcharts.
Introduction to C: History of C, Structure of C-Program, Keywords, Identifiers, Data Types, Constants, variables, Operators, Expressions, Precedence and Order of Evaluation, Type Conversion and Type Casting .

UNIT-II Managing I/O: Input-Output statements, formatted I/O.
Decision making statements : if, if-else, if-else-if, nested if, switch
Iterative statements: while, do- while, for
Unconditional statements: break, continue, go to.

UNIT-III Arrays: Introduction, One-dimensional arrays, Declaring and Initializing arrays, Multidimensional arrays
Strings: Introduction to Strings, String operations with and without using String Handling Functions, Array of Strings.

UNIT-IV Functions: Introduction, Function Definition, Function Declaration, Function Calls, Return values and their types, Categories of Functions, nested functions, Recursion, Storage Classes, Passing arrays to Functions.
Pointers: Pointers and Addresses, Pointer expressions and Pointer arithmetic, Pointers and Functions, void pointer, Pointers and Arrays, Pointers and Strings, Array of pointers, Pointers to Pointers.
Dynamic memory allocation: malloc, calloc, realloc, free.

UNIT-V Structures: Basics of Structures, Nested Structures, Arrays of Structures, Arrays within structures, Structures and functions, pointers and structures, self referential structures, Unions**.**
Files: Introduction, Types of Files, File Access Functions, I/O on Files, Random Access to Files, Error Handling. , Command Line Arguments.

Teaching methodologies:
1. white board and marker
2. power point presentations

Text Books:

1.The C Programming Language, BRIANW. KERNIGHAN Dennis M.Ritchie, Second Edition, PHI.
2.Computer Programming and Data structures by E Balaguruswamy, published by Mc GrawHill.
3.Programming in C, Ashok N Kamthane, 2nd edition, Pearson Pubslication.

Reference Books:

1.Programming in C, Pradip Dey, Manas Ghosh, Second Edition, Oxford University Press.
2.Let Us C, Yashwanth Kanetkar, 10th Edition, BPB Publications.
3.C& Data structures, P.Padmanabham, B.S. Publications.
Computer science, A structured programming approach using C, B.A. Forouzan and R.F. Gilberg, Third edition, Thomson.
4.Programming with problem solving, J.A.Jones & K.Harrow, Dreamtech Press.
5.Programming in C, Stephen G.Kochan, III Edition, Pearson Education.
6.Problem solving and program design in C, Jeri. R. Hanly, Elliot B. Koffman, Pearson Publication.