PROBLEM SOLVING THROUGH PROGRAMMING IN C

PROF. ANUPAM BASU
Dept. of Computer Science and Engineering
IIT Kharagpur

INTENDED AUDIENCE : BE/B.Tech, BCA/MCA, M.Sc

INDUSTRIES APPLICABLE TO : All IT Industries

COURSE OUTLINE :
This course is aimed at enabling the students to, formulate simple algorithms for arithmetic and logical problems, translate the algorithms to programs (in C language), test and execute the programs and correct syntax and logical errors, implement conditional branching, iteration and recursion, decompose a problem into functions and synthesize a complete program using divide and conquer approach, use arrays, pointers and structures to formulate algorithms and programs, apply programming to solve matrix addition and multiplication problems and searching and sorting problems, apply programming to solve simple numerical method problems, namely root finding of function, differentiation of function and simple integration.

ABOUT INSTRUCTOR :
Prof. Anupam Basu is Professor in the Dept. of Computer Science & Engineering, IIT Kharagpur, and has been an active researcher in the areas of Cognitive and Intelligent Systems, Embedded Systems and Language Processing, Presently he is acting as the Chairman and Head of the Center for Educational Technology, IIT Kharagpur. He has developed several embedded system based tools empowering the physically challenged and has led several national projects in the area. He has taught at the University of California, Irvine at the Center for Embedded Systems.

COURSE PLAN :

Week 01 : Introduction to Problem Solving through programs, Flowcharts/Pseudo codes, the compilation process, Syntax and Semantic errors, Variables and Data Types

Week 02 : Arithmetic expressions, Relational Operations, Logical expressions; Introduction to Conditional Branching.

Week 03 : Conditional Branching and Iterative Loops

Week 04 : Arranging things: Arrays

Week 05 : 2-D arrays, Character Arrays and Strings

Week 06 : Basic Algorithms including Numerical Algorithms

Week 07 : Functions and Parameter Passing by Value

Week 08 : Passing Arrays to Functions, Call by Reference

Week 09 : Recursion

Week 10 : Structures and Pointers

Week 11 : Self-Referential Structures and Introduction to Lists

Week 12 : Advanced Topics

TYPE OF COURSE : Rerun | Elective | UG/PG
COURSE DURATION : 12 weeks (20 Jul’20 - 09 Oct’20)
EXAM DATE : 17 Oct 2020