

1.	Title of the course	Computer Programming
2.	Course number	ES104M
3.	Structure of credits	2-0-3-4
4.	Offered to	UG
5.	New course/modification to	Modification To ES103M
6.	To be offered by	Department of Computer Science and Engineering
7.	To take effect from	July 2022
8.	Prerequisite	Nil
9.	Course Objective(s): To develop computational thinking for problem solving and express a solution in such a way that a computer can effectively execute it. To gain hands-on programming abilities by implementing well-structured programs in C.	
10.	Course Content: Computational thinking: problem, pseudocode, flowcharts, variables, statements, programs, phases of program development; Operating environment: shell commands, editor, compiler, debugger; Basics: data types, constants, variables, expressions, operators, operator precedence; Statements: declaration, input/output, compound, conditional, selection, and control statements; Arrays: strings, multidimensional arrays, matrices; Pointers: operators, pointer arithmetic, array manipulation, dynamic memory allocation; Storage classes; Functions: modularity, declaration and definition, arguments, function call, return, recursion; User defined data types: structures, unions; File handling: operations on files.	
11.	Textbook(s): 1. Deitel H M and Deitel P J, <i>C: How to Program</i> , 7th Edition, Prentice Hall India (2014).	
12.	Reference(s): 1. Bradley A R, <i>Programming for Engineers</i> , Springer (2011). 2. Dromey R G, <i>How to Solve it by Computer</i> , 1st Edition, Pearson Education India (2006). 3. Kernighan B and Ritchie D, <i>The C Programming Language</i> , 2nd Edition, Prentice Hall (1988).	