MC5102 PROBLEM SOLVING AND PROGRAMMING

DETAILED SYLLABUS

OBJECTIVES:

- To understand the basic concepts of problem-solving approaches and to develop the algorithms.
- Apply the techniques of structured (functional) decomposition to break a program into smaller pieces and describe the mechanics of parameter passing.
- To design, implements, test, and apply the basic C programming concepts.

UNIT I INTRODUCTION TO COMPUTER PROBLEM SOLVING

Introduction – The Problem-Solving aspect – Top down design – Implementation of algorithm – Program Verification – The efficiency of algorithms – The analysis of algorithms – Fundamental Algorithms.

UNIT II PROGRAMMING ANDALGORITHMS

Programs and Programming – building blocks for simple programs -pseudo code representation – flow charts - Programming Languages - compiler –Interpreter, Loader and Linker - Program execution – Classification of Programming Language – Structured Programming Concept.

UNIT III BASICS OF 'C', INPUT / OUTPUT & CONTROL STATEMENTS

Introduction- Identifier – Keywords - Variables – Constants – I/O Statements - Operators - Initialization –Expressions – Expression Evaluation – L values and R values – Type Conversion in C –Formatted input and output functions - Specifying Test Condition for Selection and Iteration- Conditional Execution - and Selection – Iteration and Repetitive Execution- go to Statement – Nested Loops- Continue and break statements.

UNIT IV ARRAYS, STRINGS, FUNCTIONS AND POINTERS

Array – One dimensional Character Arrays- Multidimensional Arrays- Arrays of Strings – Two-dimensional character array – functions - parameter passing mechanism scope – storage classes – recursion - comparing iteration and recursion- pointers – pointer operators - uses of pointers- arrays and pointers – pointers and strings - pointer indirection pointers to functions - Dynamic memory allocation.

UNIT V USER-DEFINED DATATYPES & FILES

Structures – initialization - nested structures – structures and arrays – structures and pointers - union– type def and enumeration types - bit fields - File Management in C – Files and Streams – File handling functions – Sequential access file- Random access file – Command line arguments.

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