

Subject Name : Programming and Problem Solving

Sr No	Unit	Topic Details
1	UNIT-I	Primary Storage, SecondaryStorage
		Architecture of computer, Types of Processor
		Number Systems-Binary, Decimal, Octal,Hexadecimal
		Data Representation-Signed, Unsigned
		one’s complement, two’s complement, Floating point, char, String
		Introduction to system software: Operating system, Editor, Compiler, Assembler, Linker, Loader.
2	UNIT-II	Problem solving process/framework
		Algorithms, Pseudo-code and flowchart, Case study for Algorithm
		Flowchart and pseudo code: calculate slope of a line, Factorial, Fibonacci, snake and ladder, tic-tac-toe
		Top down and Bottom up design approach, Software Development life cycle
		Programming paradigms: Imperative, object oriented, functional and logic programming
		Role of programming languages, need to study programming languages, Characteristics of Programming Languages.
3	UNIT-III	Data types,Constants, Variables, statements Structure of C program, Coding conventions
		Fundamentals of C-Programming - Character Set, Identifiers and keywords
		Operators, Expression,Library Functions, Pre-processor directives. Data Input and Output Operators, Expression,Library Functions, Pre-processor directives. Data Input and Output
		Files: Types of File, File operation, Processing File.
		Pointers, Pointers and arrays, Dynamic allocation and its application
		Structure, Structure - Array of structure, Union,
		Lifetime of variables, Scope rules: Static and Dynamic scope, user defined string functions
		Functions in C, recursion, Different parameter passing methods
		Array-single, multidimensional arrays, String in C –standard string functions in string.h
		Control Structures- Decision making, Control Structures- Iterative, break and continue statements
4	UNIT-IV	Arrays data types, Input and Output in Python, Structure of Python program
		"Sequence::list,tuple, range, Mapping: dictionary, Set: set , frozenset , Boolean : bool "
		"Operators and Basic and Built-in Data Types: Numeric: int, float, complex,Text:String "
		Character Set, Python Tokens, Keywords, Identifiers, Literals, Variables
		History, Features, Setting up path, Working with python, Basic Syntax
		Control Structures: Conditional statement, Looping and Iteration, Range Functions
		Functions & classes: In-built functions and user-defined functions, recursive FunctionsClasses & Objects, Data Handling: Python libraries for data handling. APIs in Python.