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| Program: Bachelor of Science Honours (Information Technology) | | | | | | | Semester: I | | | |
| Course: Introduction to Computer Programming | | | | | | | Code: | | | |
| Teaching Scheme | | | | | Evaluation Scheme | | | | | |
| Lecture | Practical | Tutorial | | Credits | Theory | | | | Practical | |
| Internal | External | | | Internal | External |
| 45 | Nil | Nil | | 03 | Marks | Marks | | | Marks | Marks |
|  | | | | | | | | | | |
| Internal Component | | | | | | | | | | |
| Class Test Duration Mins | | | Assignment& projects | | | | | Class Participation | | |
| 10 Marks , 20 Mins | | | 20 | | | | | Nil | | |
|  | | | | | | | | | | |
| Learning Objectives   1. To understand writing algorithms and programs in programming language. 2. To make learner analyze the programming logic. 3. To make learner evaluate the programming logic 4. To make learner implement and execute the logic in a programming language. | | | | | | | | | | |
| **1. The learner will develop an understanding fundamentals of Algorithms**  **2. The learner will analyze the logic on the basis of the problem definition**  **3. The learner will evaluate te programming logic.**  **4. The learner will be implementing and able to write programs using programming language** | | | | | | | | | | |
| Pedagogy   * PPTs, Case studies, Group discussions, Classroom Activity, Videos, Research papers, News articles etc. | | | | | | | | | | |

Module 1 (09)

Introduction to Algorithms:

Fundamentals of algorithms: Notion of an algorithm. Pseudo-code conventions like assignment statements and basic control structures.

Introduction: History, features and application. Fundamentals: Structure of a program. Compilation and Execution of a Program, Character Set, identifiers and keywords, data types, constants, variables and arrays, declarations, expressions, statements, Variable definition, symbolic constants.

Module 2 (09)

Operators and Expressions:

Conditional Statements and Loops: Relational Operators, Logical Connectives, If Statement, Simple – if statement, nested if-Else Statement, conditional operator, Loops: while statement, do statement, for statement, nested loops, switch statement

Module 3 (09)

Program structure:

Arrays: definition, one dimensional array , two dimensional arrays, multidimensional arrays, Dynamic arrays, character arrays and strings.

Functions:

Overview, defining a function, function prototypes, accessing a function, : call by reference, call by value, specifying argument data types, recursion, functions in math header file , passing arguments to a function, String functions

Module 4 (09)

Pointers: Introduction, Understanding pointers, pointers and arrays, pointers and functions

Structures and Unions: Structure Variables, Initialization, Structure Assignment, Nested Structure, Structures and Functions, Structures and Arrays, Unions, Structures and pointers.

Reference

1. Programming in ANSI C By E. Balagurusamy Tata McGRAWHilll Seventh Edition March 2017
2. Programming with C Byron Gottfried Tata McGRAWHill 2nd 1996
3. Programming Logic and Design Joyce Farell Cengage Learning 8th 2014
4. Let Us C: Authentic guide to C programming language - 19th Edition, by Yashwant Kanetkar bpb publications, December 2022