**OPEN ELECTIVES**

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| Course Code: CSOE1 | **Course Title: C Programming Concepts** |
| Course Credits: 03 | Hour of Teaching/Week: 03 |
| Total Contact Hours: 42 | Formative Assessment Marks: 40 |
| Exam Marks: 60 | Exam Duration: 3 hrs |

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| **Content** | **Hours** |
| **Unit – 1** | |
| **Introduction to Problem Solving:** Computer Languages - Machine Level, Assembly Level & High Level Languages, Translator Programs – Assembler, Interpreter and Compiler; Planning a Computer Program – Algorithm and Flowchart with Examples. | 5 |
| **Unit – 2** | |
| **Introduction to C Programming:** Over View of C; History and Features of C; Structure of a C Program with Examples; Creating and Executing a C Program; Compilation process in C.  C Programming Basic Concepts: C Character Set; C tokens - keywords, identifiers, constants, and variables; Data types; Declaration & initialization of variables; Symbolic constants. Input and output with C: Formatted I/O functions - printf and scanf. | 5 |
| **Unit – 3** | |
| **C Operators & Expressions**: Arithmetic operators; Relational operators; Logical operators; Assignment operators; Increment & Decrement operators; Bitwise operators; Conditional operator; Special operators; Operator Precedence and Associatively; Evaluation of arithmetic expressions; Type conversion.  Control Structures: Decision making Statements - Simple if, if\_else, nested if\_else, else\_if ladder, Switch-case, goto, break & continue statements; Looping Statements - Entry controlled and Exit controlled statements, while, do-while, for loops, Nested loops. | 12 |
| **Unit – 4** | |
| **Arrays:** One Dimensional arrays - Declaration, Initialization and Memory representation; Two Dimensional arrays - Declaration, Initialization and Memory representation. Strings: Declaring & Initializing string variables; String handling functions -strlen, strcmp, strcpy and strcat; Character handling functions - toascii, toupper, tolower, isalpha, isnumeric etc. | 10 |
| **Unit -5** | |
| **User Defined Functions:** Need for user defined functions; Format of C user defined functions; Components of user defined functions - return type, name, parameter list, function body, return statement and function call; Categories of user defined functions - With and without parameters and return type. | 10 |

**Course Outcomes (COs):**

After completing this course satisfactorily, a student will be able to:

• Confidently operate Desktop Computers to carry out computational tasks

• Read, understand and trace the execution of programs written in C language

• Write the C code for a given problem

• Perform input and output operations using programs in C

• Write programs that perform operations on arrays

**Text Books**

1. Pradeep K. Sinha and Priti Sinha: Computer Fundamentals (Sixth Edition), BPB Publication

2. E. Balgurusamy: Programming in ANSI C (TMH)

**References**

1. Kamthane: Programming with ANSI and TURBO C (Pearson Education)

2. V. Rajaraman: Programming in C (PHI – EEE)

3. S. ByronGottfried: Programming with C (TMH)

4. Kernighan & Ritche: The C Programming Language (PHI)

5. Yashwant Kanitkar: Let us C

**BLUEPRINT**

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| Chapter | No. of hours | Total marks for which questions are to be asked  (Including bonus questions) |
| Unit 1 | 10 | 6 |
| Unit 2 | 10 | 10 |
| Unit 3 | 6 | 21 |
| Unit 4 | 6 | 21 |
| Unit 5 | 10 | 25 |
| **TOTAL** | 42 | 83 |
| **Maximum marks for the paper (Excluding bonus questions) = 60** | | |