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: 2 Hrs.

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

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

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.

ASSESSEMENT FOR THE OPEN ELECTIVE COURSES

The open elective courses offered to other department for the UG candidates are all 3 credit courses and the total marks allotted for these courses are 100.

The 100 marks are further subdivided in to 40 for CA and 60 for semester examination. The 40 marks for the CA are further trifurcated as given below: (i) One activity for 10 marks within 7 weeks of starting the course (ii) One test for 20 marks (ii) one activity for 10 marks within 12 weeks of starting the course. The schedule of test / activity must be announced to the students by the 5th week of the semester. The test / activity can be organised by the subject teacher and can be conducted in microsoft teams. If the teachers want to give a third activity, it will be in lieu of the first or second activity.

The Semester Examination will be conducted for 60 marks and for a duration of 2 hours. It will be MCQ pattern.