

SEMESTER-I

Title of the course : Elements of Computer Engineering
Subject code : ESCS-401
Weekly load : 2 Hrs **LTP** 2-0-0
Credits : 2

Course Outcomes: At the end of the course, the student will be able to:

CO1	Get acquainted with basics of computer system along with its various components
CO2	Know about various operating systems and memory
CO3	Study the C programming basics and learn the concept of operators
CO4	Understand the concept of decision statements and loops
CO5	Learn the use of functions, pointers, arrays, structures, union etc. for modular programming

COs	CO/PO Mapping : (Strong(3)/Medium(2)/Weak(1) indicates strength of correlation):													
	Program Outcomes (PO's)/ Program Specific Outcomes (PSO's)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	1	3	1	3	0	0	0	3	1	3	2	3	3
CO2	3	1	3	3	3	0	0	0	3	2	3	2	3	3
CO3	3	2	3	1	3	3	0	0	2	2	3	2	3	3
CO4	3	2	3	3	3	3	0	0	3	3	3	3	3	3
CO5	3	3	3	3	3	3	0	0	3	3	3	3	3	3

Theory

Unit	Main Topics	Course outlines	Lecture(s)
Unit-1	1. Fundamentals of computer system	Introduction and characteristics of computer system, Generations, Classifications, Applications, Central Processing Unit, Memory, I/O devices, Introduction to operating system and its types, Algorithm, Flowchart.	04
	2. C Programming Basics	Basic program construction, Structure of a C program, Compilation process, preprocessor directives, Comments, Data types, Type conversions, Operators - Arithmetic, Relational, Logical, Conditional, Increment/decrement, Library functions, Header files.	04
	3. Loops and Decision Statements	<i>for</i> loop, <i>while</i> loop, <i>do</i> loop, Various forms of <i>if</i> statement, <i>switch</i> statement, <i>break</i> statement, <i>continue</i> statement, <i>go to</i> statement.	04
	4. Functions	Defining functions, Passing arguments to functions, Returning values from functions, Reference arguments, Storage classes.	04
Unit-2	5. Pointers	Pointers, Pointers to pointers, Declaring and initializing pointers, Pointer expressions, Pointers and arrays, Pointers and strings.	04
	6. Arrays	Arrays and strings, Declaring an array, Initializing arrays, Accessing the array elements, Working with multidimensional arrays, Declaring and initializing string variables, String handling functions.	04

	7. Structures and Union	Declaring and initializing a structure, Accessing the members of a structure, Nested structures, Array of structures, Using structures in functions, Pointers and structures, Declaring and initializing a union.	04
	8. Files	Reading and writing to text and binary files, Character I/O, String I/O, File pointers, Error handling, Redirection, Command line arguments.	04

Total=32

Recommended Books:

1. Raja Raman V., Fundamentals of Computers, PHI.
2. Kernighan Brian W. and Ritchie, Dennis M., The C Programming language, Dorling Kingsley.
3. Balagurusamy E., Programming in ANSI C, TMH Publications

Title of the course : Elements of Computer Engineering Lab
Subject Code : ESCS-402
Weekly load : 4 Hrs **LTP** 0-0-4
Credit : 2

Course Outcomes: At the end of the course, the student will be able to:

CO1	Solve basic mathematical problems using programming
CO2	Demonstrate the use of loop statements to solve iteration problems
CO3	Implement the concept of modular programming and recursion using functions
CO4	Implementation of decision statements and loops
CO5	Create a file and add, append or retrieve data using file handling

CO/PO Mapping : (Strong(3)/Medium(2)/Weak(1) indicates strength of correlation):														
COs	Program Outcomes (PO's)/ Program Specific Outcomes (PSO's)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	2	3	3	0	0	3	3	3	2	3	2
CO2	3	3	3	2	2	2	0	0	3	3	3	2	3	2
CO3	3	3	3	2	3	2	0	0	3	2	3	3	3	3
CO4	3	3	3	3	3	3	0	0	3	2	3	3	3	3
CO5	3	3	3	3	3	3	0	0	3	3	3	3	3	3

LIST OF PRACTICALS

1. Write down programs to implement various operators available in C.
2. Write down programs to implement the concept of conditional statements.
3. Write down programs to implement various loop statements.
4. WAP to implement the concept of break and continue statements.
5. Write down programs to implement functions using various parameter passing techniques.
6. WAP to implement the concept of recursion.
7. WAP to implement the concept of local and global variables.
8. Write down programs to implement array and its various operations.
9. Write down programs to implement strings and its various functions.
10. Write down programs to implement the concept of structure and union.
11. Write down programs to implement the concept of pointers.
12. Write down programs to implement the concept of file handling.

Note: The above mentioned list of experiments is suggested list. Teacher may add more programs/ experiments as per requirement.