

CSL101-A	<b>Introduction to Computer Programming</b>	<b>L T P</b>	<b>Cr</b>
		<b>3 1 0</b>	<b>4</b>

**Objective**

Today is the era of Computer. This subject focuses on the introduction of Computer to each student of every discipline.

**Theory**

**Note:** Total five questions are to be attempted from Sections A& B.

**SECTION – A**

**Unit 1: Introduction**

Introduction to Computer, functional units of computer, Types of memories, Introduction to micro-processor, Number system.

**Unit 2: Operating system**

Introduction to Operating System and its functions, Type of languages like low level, middle level, assembly language and high level, Introduction to Compiler, interpreter, assembler, loader and linker.

**Unit 3: Networking**

Introduction to Computer Network and various topologies, Introduction to LAN, MAN and WAN.

**SECTION – B**

**Unit 4: Introduction to C**

Introduction, Constants, Variables and Data types, Operators and Expressions, Managing I/O operations, Decision Making and branching, Decision Making and looping

**Unit 5: Arrays**

Arrays, Character Arrays and Strings, Library and user defined functions. Pointers and its use.

### **Unit 6: Structure and Union**

Defining structure, declaring variables, Accessing structure members, structure initialization, copying and comparing structure variables, operations on individual members, Array of structure, structure with structure, unions and size of structure.

### **Text Books**

1. Fundamentals of Computers and Programming with C by A. K. Sharma Dhanpat Rai publications
2. Computer Fundamental & C programming by J.B.Dixit ; University Science Press
3. Fundamentals of Computer by V Rajaraman; Prentice Hall of India Pvt. Ltd., New Delhi
4. Kernighan and Ritchie, "The C programming Language", PHI. 1999.

### **Reference Books**

1. Let Us C by Yaswant Kanetkar : BPB Publication
2. Computer Fundamental & C programming by E. Balaguruswamy; MGH
3. Computers Today by SK Basandara, Galgotia publication Pvt Ltd. Daryaganj, New Delhi
4. Hutchison, R., "Programming in C", McGraw Hill. 1999
5. Johnsonbaugh, R. and Kalin M., "Applications programming in C", PHI. 2000

CSP101-A	Introduction to Computer Programming Lab	L	T	P	Cr
		0	0	2	1

**LAB:**

**Note:** At least ten experiments are to be performed during the semester. At least eight experiments should be performed from the list of experiments. Two experiments may either be performed from the given list of experiments or may be designed by the concern faculty in consultation with H.O.D as per the scope of syllabus.

**Objective:** To understand the concepts of programming.

**List of Experiments:**

Note: C can be used to implement the following programs.

- 1-Program to demonstrate the use of variables, and input output statements.
- 2-Program to demonstrate the use of various arithmetic and logical operators.
- 3- Program to demonstrate the use of various decision making statements.
- 4- Program to demonstrate the use of various looping statements.
- 5- Program to demonstrate the implementation of one dimensional array and its various operations
- 6- Program to demonstrate the implementation of two dimensional arrays and its various operations
- 7- Program to demonstrate the implementation of pointers and its arithmetic's
- 8- Program to demonstrate the implementation of call by reference and call by value mechanism.
- 9- Program to demonstrate the implementation of structure.
- 10- Program to demonstrate the array of structure.
- 11- Program to demonstrate the use of union.

CSL102-A	<b>Advanced C Programming</b>	<b>L T P</b>	<b>Cr</b>
		<b>3 1 0</b>	<b>4</b>

### **Objective**

This subject focuses better understanding and deeper knowledge of the advanced features of the C programming language.

### **Theory**

**Note:**Total five questions are to be attempted from SectionsA& B.

## **SECTION – A**

### **Unit 1: String**

String introduction, String declaration, Reading and writing strings, String manipulation functions: concatenation, copy, converting in upper case and vice versa, reversing string, comparing string, finding length of string.

### **Unit 2: Pointer introduction**

Introduction, Understanding Pointers, Accessing the address of a variable, Declaring Pointer Variables, Initialization of Pointer Variables, Accessing a variable through its pointer, Chain of Pointers.

### **Unit 3: Pointers with arrays and function**

Pointer Expressions, Pointer Increments and Scale Factors, pointers and Arrays, Pointer and Character Strings, Arrays of Pointers, Pointers as Function Arguments, Functions Returning Pointers, Pointers to structure.

## **SECTION – B**

### **Unit 4: Memory Management**

Introduction, storage classes, Dynamic memory allocation, allocating a block of memory: Malloc, allocating multiple blocks of memory: Calloc. Releasing the used space: Free, Altering the size of block: Realloc

### **Unit 5: Files**

Introduction to files , Defining and opening file, closing file, I/O operation on files, error handling during I/O operations, Random Access to files and command line arguments.

### **Unit 6: Preprocessor**

The C Preprocessor - How it works, conditional and unconditional directives, preprocessor commands, Introduction of Macros.

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1. Fundamentals of Computers and Programming with C by A. K. Sharma Dhanpat Rai publications
2. Computer Fundamental & C programming by J.B. Dixit ; University Science Press
3. Fundamentals of Computer by V Rajaraman; Prentice Hall of India Pvt. Ltd., New Delhi
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CSP102-A	Advanced C Programming Lab	L	T	P	Cr
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**LAB:**

**Note:** At least ten experiments are to be performed during the semester. At least eight experiments should be performed from the list of experiments. Two experiments may either be performed from the given list of experiments or may be designed by the concern faculty in consultation with H.O.D as per the scope of syllabus.

**Objective:** To understand the concepts of programming.

**List of Experiments:**

Note: C/C++ can be used to implement the following programs.

- 1-Program to concatenate the strings into single string without using library functions.
- 2-Program to copy one string into another without using library functions.
- 3- Program to reverse a string without using library functions.
- 4- Program to compare two strings without using library functions.
- 5- Program to demonstrate the implementation of pointers and its arithmetic's.
- 6- Program to demonstrate the implementation of array of pointers.
- 7- Program to demonstrate the implementation of pointers and character strings.
- 8- Program to demonstrate the implementation of pointers as function arguments.
- 9- Program to demonstrate the use of malloc() and calloc().
- 10- Program to demonstrate the file handling e.g. file copy etc.
- 11- Program to demonstrate the use macros.