



**हिमाचल प्रदेश केंद्रीय विश्वविद्यालय**  
**Central University of Himachal Pradesh**  
(Established under Central Universities Act 2009)  
शाहपुर परिसर, शाहपुर, ज़िला काँगड़ा (हि.प्र.) - 176206  
Shahpur Parisar, Shahpur, Distt. Kangra (HP) - 176206  
Website: [www.cuhimachal.ac.in](http://www.cuhimachal.ac.in)



**Details of the Inter-Disciplinary Courses offered by the Srinivasa Ramanujan  
Department of Mathematics, for the 2<sup>nd</sup> semester, during Spring semester, 2023:-**

Sr. No.	Name of the Department	Name & Code of Course	Credits	Name of Faculty Member
1	Department of Computer Science and Informatics	MCA 539 Problem Solving Using C	02	Dr. Pradeep Chouksey



## **Course Contents of Interdisciplinary Courses offered by the Department of Computer Science and Informatics**

### **Spring Semester 2023**

#### **MCA 539**

#### **Problem Solving Using C**

##### **Course Objectives:**

The course is designed to provide knowledge of C language. Students will be able to develop logics which will help them to create programs, applications in C. Also by learning the basic programming constructs they can easily switch over to any other language in future. Student will learn the fundamental programming concepts and methodologies

##### **Course Level Learning Outcomes:**

Upon successful completion of the course students will be able to:

- Design programs connecting decision structures, loops and functions.
- Explain the difference between call by value and call by address.
- Understand the dynamic behavior of memory by the use of pointers.
- Understand the concepts like arrays, strings, structure, and union.
- Understand the concept of files handling in C.

##### **UNIT-I**

Overview of C- General Structure of C Program, C compilers, Editing, Compiling & , Running of a C program Data types, Constants and Variables, Operators and expressions, Storage Classes, Different types of expressions and their Evaluation, Conditional Expression, Assignment statement, Enumerated data type, Redefining/ Creating data types, Library functions, Type casting. Input/Output- Unformatted and formatted I/O Functions.

##### **UNIT-II**

Control Statements- Decision making using if, if-else, elseif and switch statements, Looping using for, while and do-while statements, Transferring Program controlling break and continue statements, Programming examples to illustrate the use of these control statements.

Functions- Defining a function, Local variables, return statement, invoking a Function, specifying and passing arguments to a function, Functions returning non Integer, External, static, and register variable, block structure, initialization and recursion.

##### **UNIT-III**

Array & strings- Introduction to arrays, Declaring arrays, Initializing, arrays, Processing arrays, Pointers to arrays, Passing arrays as arguments to functions, Introduction to strings, Pointers to strings, Passing strings and Arrays of strings as arguments to a function, Programming examples to illustrate the use of arrays and strings.

Pointers- Definition, Need of pointers, declaring Pointers, Accessing Values via Pointers, Pointer arithmetic, Types of pointers, Programming examples to illustrate the use of pointers.



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**UNIT-IV**

Structures- Declaring a structure type, Declaring Variables of structure type, Initializing Structures, Accessing Elements of structures, arrays of structures, nested structures, Pointers to structures  
Programming examples to illustrate the use of Structures.

**Text Books:**

1. E. Balagurusamy, “Programming in ANSI C”, 8E ,Tata McGraw Hill.

**Reference Books:**

1. R S Salaria, Application in C, Khanna book publishing.
2. YashwantKanetakar, “Let us C” BPB.
3. Kerninghan B.W. & Ritchie D.M. “The C Programming Language” Prentice-Hall.
4. Mullish Cooper, “The Spirit of C” Jaico Publishing House.
5. Byron Gottfried, “Programming with C”, Schaum’s Outlines, Tata McGraw Hill.
6. Herbert Schildt, C: The complete reference, Tata mcCgraw hill.