

**Department Of Computer Science and Engineering**  
**Kathmandu University**  
**Dhulikhel, Kavre**



**Subject: Computer Programming**  
**Level: B.E./B.Sc 1<sup>st</sup> Year/1<sup>st</sup> Semester**

**Course: COMP 102**  
**Credit Hours: 3**

**Course Description:**

This course introduces the fundamental concepts of procedural programming in C. Topics include data types, control structures, functions, arrays, structure and pointer. This course also focuses on the development of problem solving skills using programs.

**Prerequisite:**

Students should have fundamental knowledge about computers. All the programming assignments and labs during the semester are in C programming language.

**CHAPTERS**

**1. Introduction [1 Hour]**

- 1.1. History of C
- 1.2. Introduction to C
- 1.3. Important of Program (C Program)
- 1.4. Desired Program Characteristics

**2. C Fundamentals [3 Hours]**

- 2.1. The C Character set
- 2.2. Identifier and Keywords
- 2.3. Data Type, Variables, Declaration
- 2.4. Constants (String, Numeric, Character Constant)
- 2.5. Symbolic Constant

**3. C Operators [4 Hours]**

- 3.1 Arithmetic Operators
- 3.2 Assignment Operators
- 3.3 Logical and Comparison Operations
- 3.4 Bitwise Operators 3.5 Unary Operator
- 3.6 Conditional Operators

## **4. Writing a Program in C (Data Input and Output) [4 Hours]**

- 4.1 Simple Program
- 4.2 Input Statement
- 4.3 Output Statement
- 4.4 Features of stdio.h

## **5 Control Structure [8 Hours]**

- 5.1 Condition Statements
  - a. if Statement
  - b. if-else Statement
  - c. switch statement
- 5.2 Loop Statements
  - a. for loop
  - b. while loop
  - c. do-while loop
- 5.3 Break Control Statements
  - a. break
  - b. continue
  - c. go-to statement

## **6 Function [5 Hours]**

- 6.1 Defining Function
- 6.2 Use of function
- 6.3 Function Prototypes
- 6.4 Passing Argument to a Function
- 6.5 Recursive function

## **7 The Scope of Variable [2 Hours]**

- 7.1 Storage Class
- 7.2 Automatic Variable
- 7.3 Static Variable
- 7.4 External Variable

## **8 Array [6 Hours]**

- 8.1 Defining an Array
- 8.2 Processing an Array
- 8.3 Passing Array to Function
- 8.4 Multidimensional Array

## **9 Pointer [6 Hours]**

- 9.1 Pointer Declaration
- 9.2 Pointer Arithmetic
- 9.3 Operation on Pointers
- 9.4 Pointer and Array (Pointer and one dimension Array)
- 9.5 Dynamic Memory Allocation

## **10 Program Structure [4 Hours]**

- 10.1 Declaration of Structure
- 10.2 Initialization of Structure
- 10.3 Array of Structure
- 10.3 Pointer to Structure

### **Books:**

Programming with C Byron Gottfried

Programming with C K.R. Venugopal Surdeep R. Prasad