

# Shiv Nadar Institution of Eminence Deemed to be University

## Undergraduate Course Description Form

(To be completed by Department/Centre offering the course)

**Course Instructor:** Dr. Sweta Kumari

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**Office:** C219L

**Office hours:** Monday (3:00 PM - 4:00 PM) & Wednesday (3:00 PM - 4:00 PM) / By Email Appointment

**Teaching assistants:** Mithun Kumar ([mithun.kumar@snu.edu.in](mailto:mithun.kumar@snu.edu.in)) Bhanu Kumar ([bhanu.kumar@snu.edu.in](mailto:bhanu.kumar@snu.edu.in))

**Semester of Implementation:** Monsoon 2024

### PART A: COURSE IDENTIFIERS

1. School	School of Engineering
2. Department	Computer Science and Engineering
3. Course Code	CSD101
4. Course Title	Introduction to Computing and Programming
5. Credits (L:T:P)	3:0:1:4
6. Contact Hours (L:T:P)	3:0:2
7. Prerequisites	None
8. Major Core for	CSE, Electrical
9. Major Elective for	None

### PART B: OBJECTIVES AND PRACTICE

#### 10. Course Summary

This course includes overview of Computer structure, algorithmic approach to problem solving and basic programming abilities. Topics would include basics of computer programming, Introduction to C programming, data types, operators, control statements, functions, arrays, pointers, strings, formatted I/O, structures, unions, bit manipulation, file processing, brief introduction to data structures.

#### 11. Course Aims

To introduce students to the field of computer science and the fundamentals of computer programming. Introduction to Computing and Programming is specifically designed for students with no prior programming experience and taking this course does not require a background in Computer Science. This course will touch upon a variety of fundamental topics within the field of Computer Science and will use C Programming Language to demonstrate those principles.

## **12. Learning Outcomes**

On successful completion of the course, students will be able to achieve the following:

1. Understand the fundamentals of computer programming.
2. Apply fundamental concepts of computer programming to solve simple mathematical problems (e.g., printing Fibonacci series, determining factorial etc.).
3. Apply fundamental concepts of computer programming to implement basic data structures (e.g., stack and queue).

## **13. Curriculum Content**

### **Weekly Lecture Plan**

#### **Week 1**

Introduction to Basic Fundamentals of Computers

#### **Week 2**

Introduction to Programming, Identifiers and Constants, Data Types

#### **Week 3**

Operators, Logical Expressions and Conditional Statements

#### **Week 4**

Loops

#### **Week 5**

Arrays

#### **Week 6**

Functions, Scope of Variables

#### **Midsem exam**

#### **Week 7**

Pointers

#### **Week 8**

Searching and Sorting in arrays

#### **Week 9**

Strings

#### **Week 10**

Recursion

#### **Week 11**

Structures, Unions and Bit Manipulation

#### **Week 12**

File Processing  
Introduction to Data Structures

## **Weekly Lab Plan**

### **Week 1**

Introduction to Linux, Editor, GCC Compiler and Debugger. Introduction to basic Linux Commands

### **Week 2**

Programs based on Operators and Assignment Statements

### **Week 3**

Programs based on Control Statements

### **Week 4**

**Graded Lab 1**

### **Week 5**

Programs based on Loop Statements

### **Week 6**

Array & Function Programming

### **Week 7**

**Graded Lab 2**

### **Week 8**

Programs based on Pointers, Call by Value and Call by Reference

### **Week 9**

Programs based on Recursion

### **Week 10**

**Graded Lab 3**

### **Week 11**

Programs based on Strings

### **Week 12**

**Graded Lab 4: Domain related minor project**

## **14. Teaching and Learning Strategy**

All materials (ppts, assignments, labs, etc.) will be uploaded in Blackboard. Refer to the modules in Blackboard for details. Students will use GCC Compiler in Ubuntu Environment to write the programs.

## PART C: ASSESSMENT

### 15. Assessment Strategy:

Type of Assessment	Description	Percentage (%)
Assignments	These could be theoretical/numerical questions based on concepts taught in class.	30
Quizzes (Best 2 out of 3)	Subjective	10
Surprise Quiz	Subjective/Objective	5
Midterm Exam	Subjective + Objective	20
Final Exam	Subjective + Objective	35
	<b>Total</b>	<b>100</b>

### 16. Mapping of Learning Outcomes to Assessment Strategy

Quizzes and Term exams will test student's ability analyse algorithms and it's complexities. Lab assignments will test ability to design programming solution for underline problem.

Evaluation Instrument	Learning Outcome	Percentage
Mid Term Test	1, 2	20%
Quizzes	1, 2	15%
Laboratory/Assign.	1, 2, 3	30%
End Term Exam	1, 2, 3	35%

### Attendance and Participation

- The nature of the class makes participation essential.
- Make sure you mark your attendance on Biometric reader in each class.
- 75% Attendance is must for everyone to pass the course.

### Make up Policy

A make-up exam for any graded component will only be conducted based on genuine medical ground or other unavoidable circumstances, where condonement is approved by the Dean's office.

## **Grading Policy**

- Relative grading
- Minimum marks requirements for A grade: 85\* out of 100 points. The actual cutoff of A grade may be higher depending on the relative performance of the class.
- Minimum passing marks: 30 out of 100 points

## **Textbooks and References:**

- 1) Brian W. Kernighan, C Programming Language, Second Edition.
- 2) Byron S Gottfried, Programming with C.
- 3) C, How to Program, 7th Edition, Paul Deitel, Harvey Deitel, PHI Learning Pvt. Ltd. ISBN: 8120348273.
- 4) Programming in Ansi C by Balaguruswamy, <https://aiict.edu.bd/wp-content/uploads/2022/09/ansi-c-balaguruswamy-c-language-PDFDrive.com-.pdf>
- 5) Let Us C By Yashavant P. Kanetkar,  
<http://pdvpmtasgaon.edu.in/uploads/dptcomputer/Let%20us%20c%20-%20yashwantkanetkar.pdf>