

**B.A (Prog) with Computer Science as Major/Minor
DSC01: Introduction to Programming using C++**

| S. No. | Unit Name | Chapters | References | Weeks |
|--------|---|---|------------|---------|
| 1. | Unit 1 | 1 (upto page no 22) | [2] | 1 |
| | Introduction to C++ | 2 | [1] | |
| 2. | Unit 2 Data types and Expressions | 2 | [2] | 2 – 4 |
| 3. | Unit 3 Control Constructs in C++ | 3 | [2] | 5 – 8 |
| 4. | Unit 4 Arrays, Pointers and User Defined Functions | 5 (162 – 171, 176 – 178, 182 – 186, 188 – 193, 195 – 199, 206 – 207), 7 (upto page no 276), 10 (upto page no 438) | [2] | 9 – 10 |
| 5. | Unit 5 | 6 (upto page no 243) | [2] | 11 – 15 |
| | Classes and Objects | 8 (8.1 - 8.7) | [1] | |

Essential Readings

1. E. Balaguruswamy, Object Oriented Programming with C++, 7th edition, McGraw – Hill Education, 2017.
2. Robert Lafore, Object Oriented Programming in C++, 4th edition, SAMS Publishing, 2016.

Practical List

1. Write a program to find the largest of n natural numbers.
2. Write a program to find whether a given number is prime or not.
3. Write a program that takes a positive integer n and the produce n lines of output as shown:

```
*
* *
* * *
* * * *
```

(sample output for n = 4)

4. Write a menu driven program for following:
 - a. to check whether a given number is odd or even.
 - b. display a Fibonacci series
 - c. compute factorial of a number
5. Write a program to accept a number, reverse it and print the sum of its digits.
6. Write a program using functions to print the series and its sum:
$$1 + 1/2! + 1/3! + \dots + 1/n!$$
7. Write a program to perform the following operations on an input string
 - a. Print length of the string
 - b. Find frequency of a character in the string
 - c. Print whether characters are in uppercase or lowercase
 - d. to check whether a given string is palindrome or not
8. Write a program that will prompt the user for a list of 5 prices. Compute the average of the prices and find out all the prices that are higher than the calculated average.
9. Design a class named Vehicle, having registration number and year as its private members. Define a suitable constructor and a method to print the details of a vehicle. Write a C++ program to test the above class.
10. Inherit a class Car from the Vehicle class defined above. Add model to the Car class. Define a suitable constructor and a method to print the details of a car. Write a C++ program to test inheritance of this class.