



ARSD College, University of Delhi

Course Name: Multi-Disciplinary courses of study with three core disciplines(Computer Science)						
Semester	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
I	DSC 01	Programming fundamentals using C++	3		1	4
Teacher/Instructor(s)		Veer Sain Dixit				
Session		2022-23				

Course Objective: This course is designed to introduce programming concepts using C++ to students. The course aims to develop structured as well as object-oriented programming skills using C++ programming language. The course also aims to achieve competence amongst its students to develop correct and efficient C++ programs to solve problems spanning multiple domains.

Course Learning Outcomes:

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

- Write simple programs using built-in data types of C++.
- Implement arrays and user defined functions in C++.
- Write programs using dynamic memory allocation, handling external files, interrupts and exceptions.
- Solve problems spanning multiple domains using suitable programming constructs in C++.
- Solve problems spanning multiple domains using the concepts of object oriented programming in C++.

Lesson Plan:

Unit No.	Learning Objective	Lecture No.	Topics to be covered
1.	Introduction to C++: Overview of Procedural and Object-Oriented Programming, Header Files, Compiling and Executing Simple Programs in C++.	1	Introduction to programming
		2	Procedural, modular and object oriented programming
		3	Preprocessor directives and header files
		4	translators
		5	Input Output statements
		6	Comparison between different programming languages
		7	Properties of C++
2.	Data types, Variables, Operators, Expressions, Arrays, Keywords, Decision making constructs, Iteration, Type Casting, Input-output statements, Functions, Command Line Arguments/Parameters	8	Understanding Data, data types, variables, keywords
		9	Naming convention of variables, operators
		10	expressions
		11	arrays
		12	Decision making constructs
		13	Iterative statements
		14	Functions, parameter passing techniques, default arguments
3.	Concepts of Abstraction, Encapsulation. Creating Classes and objects, Modifiers and Access Control, Constructors, Destructors, Implementation of Inheritance and Polymorphism, Template functions and classes	15	Recursion, Command Line Arguments
		16	Properties of object oriented programming
		17	Creation of class and objects, access modifiers
		18	Constructors and destructors
		19	Inheritance and its types
		20	Implementation of polymorphism
4.	Static and dynamic memory allocation, Pointer and Reference Variables, Implementing Runtime polymorphism using pointers and	21	Template function and classes.
		22	Memory Allocation
		23	Pointer and reference variables, void pointers, pointer arithmetic
		24	Pointer to function, array of pointers
		25	Pointer to multidimensional arrays.
		26	Abstract classes, virtual function
		27	Virtual Base classes
28	Runtime polymorphism using pointers and references		

	references		
5.	Exception and File Handling: Using try, catch, throw, throws and finally; Nested try, File I/O Basics, File Operations	29	Robust programming
		30	File handling
		31	Error and types of errors
		32	Exception Handling

Evaluation Scheme:

No.	Component	Duration	Marks
1.	Internal Assessment		30
	• Class Test		
	• Attendance		
	• Assignment		
2.	End Semester Examination	3 hr	90

Suggested Books:

Sl. No.	Name of Authors/Books/Publishers	Year of Publication/Reprint
1.	Stephen Prata, C++ Primer Plus, 6th edition, Pearson India, 2015.	2015
2.	2. E Balaguruswamy, Object Oriented Programming with C++, 8 th edition, McGraw-Hill Education, 2020	2020
3.		
Mode of Evaluation:		Internal Assessment / End Semester Exam