

**SCHEME OF COURSE WORK FOR
C++ Programming Lab
DEPARTMENT OF CSE**

Course Details:

Course Title	C++ Programming Lab		
Course Code	22CS11S2	L T P C	0 1 2 2
Program:	B. Tech.		
Specialization:	(Computer Science & Engineering)		
Semester	IV sem		

Course Outcomes (COs):

A graduate of engineering will be able to

CO1	Implement programs using classes and objects
CO2	Develop solutions using inheritance and polymorphism concepts
CO3	Utilize try and catch blocks to handle exceptions.
CO4	Make use of generic templates in solving problems.
CO5	Apply standard template libraries to linear data structures.

Program Outcomes (POs):

PO 1	Graduates will be able to apply the knowledge of mathematics, science, engineering fundamentals and principles of Computer Science & Engineering to solve complex problems in different domains.
PO 2	Graduates can identify, formulate, study contemporary domain literature and analyze real life problems and make effective conclusions using the basic principles of science and engineering.
PO 3	Graduates will be in a position to design solutions for Engineering problems requiring in depth knowledge of Computer Science and design system components and processes as per standards with emphasis on privacy, security, public health and safety.
PO 4	Graduates will be able to conduct experiments, perform analysis and interpret data as per the prevailing research methods and to provide valid conclusions.
PO 5	Graduates will be able to select and apply appropriate techniques and use modern software design and development tools. They will be able to predict and model complex engineering activities with the awareness of the practical limitations.
PO 6	Graduates will be able to carry out their professional practice in Computer Science & Engineering by appropriately considering and weighing the issues related to society and culture and the consequent responsibilities.
PO 7	Graduates would understand the impact of the professional engineering solutions on environmental safety and legal issues

PO 8	Graduates will transform into responsible citizens by adhering to professional ethics.
PO 9	Graduates will be able to function effectively in a large team of multidisciplinary streams consisting of persons of diverse cultures without forgetting the significance of each individual's contribution.
PO 10	Graduates will be able to communicate effectively about complex engineering activities with the engineering community as well as the general society, and will be able to prepare reports.
PO 11	Graduates will be able to demonstrate knowledge and understanding of the engineering and management principles and apply the same while managing projects in multidisciplinary environments.
PO 12	Graduates will engage themselves in self and life-long learning in the context of rapid technological changes happening in Computer Science and other domains.

Course Outcome versus Program Outcomes:

COs/ PO's	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO-1	-	2	3	-	2	-	-	-	-	2	-	-
CO-2	-	2	3	-	2	-	-	-	-	2	-	-
CO-3	-	2	3	-	2	-	-	-	-	2	-	-
CO-4	-	-	-	3	2	-	-	-	1	3	3	2
CO-5	-	-	2	-	1	-	-	-	1	3	2	2

S - Strongly correlated-3, *M* - Moderately correlated-2, *L* – Low correlated,
Blank - No correlation

Program Specific Outcomes (PSO's):

PSO 1	Design, develop and test system software and application software for distributed and centralized computing environments to varying domain and platforms
PSO 2	Understand the working of new hardware architectures and components and design solutions for real time problems.
PSO 3	Model the computer based systems and design algorithms that explores understanding of the tradeoffs involved in design choices.

Course Outcome versus Program Specific Outcomes:

COs/PSO's	PSO1	PSO2	PSO3
-----------	------	------	------

CO-1	3	3	3
CO-2	3	3	3
CO-3	3	3	3
CO-4	2	2	2
CO-5	2	2	2

Assessment Methods	Daily Performance (Record/Observation/Viva): 20 Marks Record: 5Marks, Observation: 10Marks, Viva: 5 Marks Internal Exam : 40 Marks(Exam+Daily Performance) External Exam: 60Marks
--------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Week	Topic / Contents	Course Outcomes	Sample Questions	Teaching Learning Strategy	Assessment Method & Schedule
1	<p>a) Write a program to generate the following sequence 1 1 2 1 2 3 1 2 3 4</p> <p>b) Write a program which uses function to swap two integers and two float numbers by using reference variable</p> <p>c) Write a program that demonstrates default arguments</p>	CO 1	Write a program to generate patterns.	Lecture , Program demo	Record, Observation. Viva. Day to Day analysis
2	<p>a) Write a program Illustrating Class Declarations, Definition, and Accessing Class Members.</p> <p>b) Write a program to illustrate default constructor, parameterized constructor and copy constructor, destructors</p>	CO 1	<p>1. Create a class and implement declaration, definition of variables</p> <p>2. Illustrate constructors concept</p>	Lecture , Program demo	Record, Observation. Viva. Day to Day analysis

	for a class.				
3	<p>a) Write a program that illustrates the following forms of inheritances Single, Multiple, Multilevel and Hierarchical</p> <p>b) Create multiple objects for the class and observe the order in which constructors and destructors are called</p>	CO 2	Implement Hierarchical inheritance with suitable example	Lecture , Program demo	Record, Observation. Viva. Day to Day analysis
4	<p>a) Write a program to use pointers for both base and derived classes and call the member functions.</p> <p>b) Write a program that demonstrates function overloading, operator overloading, overriding</p>	CO 2	<p>1. Illustrate pointers concept in inheritance</p> <p>2. explain how method overriding is applicable in inheritance</p>	Lecture , Program demo	Record, Observation. Viva. Day to Day analysis
5	<p>a) Write a program that demonstrates friend functions, inline functions,</p> <p>b) Write a program that demonstrates virtual, static functions</p>	CO 2	1. demonstrate functions in C++.	Lecture , Program demo	Record, Observation. Viva. Day to Day analysis
6	<p>a) Write a program which uses the concept of pass and return objects to functions.</p> <p>b) Write a program to create an array of objects</p>	CO2	<p>1. demonstrate how objects are passed to the functions</p> <p>2. create some set of array of objects by using inheritance</p>	Lecture , Program demo	Record, Observation. Viva. Day to Day analysis
7	<p>a) Write a program that handles Exceptions. Use a Try Block to Throw it and a Catch Block to Handle it Properly.</p> <p>b) Write a Program to Demonstrate the Catching of All Exceptions</p>	CO3	1. create one try block and demonstrate the catching all exceptions	Lecture , Program demo	Record, Observation. Viva. Day to Day analysis

8	Write a Program to demonstrates user defined exceptions	CO3	Illustrate user defined exceptions	Lecture , Program demo	Record, Observation. Viva. Day to Day analysis
9	Write a program to create a generic template for adding two integers and two float values and make use of the template to perform addition.	CO4	Implement basic level template for adding of two double values	Lecture , Program demo	Record, Observation. Viva. Day to Day analysis
10	Write a program to implement the matrix ADT using a class. The operations supported by this ADT are: a) Addition of two matrices. b) subtraction of two matrices. c) Multiplication of two matrices.	CO4	Demonstrate ADT suing a class and apply set of operations on it	Lecture , Program demo	Record, Observation. Viva. Day to Day analysis
11	a) Accept two stacks as input from the user and perform operations on it using stack class available in Standard Template Library (STL)	CO5	Accept one list as input from the user and perform operations on it using STL	Lecture , Program demo	Record, Observation. Viva. Day to Day analysis
12	a) Write a program implementing a queue class with required operations using STL	CO5	Implement infix to postfix expression evaluations using STL	Lecture , Program demo	Record, Observation. Viva. Day to Day analysis
Lab External					