National University of Computer & Emerging Sciences, Karachi
Spring-2019 CS-Department
CS 103 – Computer Programming

Course Outline

Week	Topics	Lab Topic
1	Introduction to OO paradigm	Why C++, Data types, Looping and decision structures, scoping, types of operators
	Comparison from sequential & procedural paradigms	
	Intro to some of C++ IDE basics and program structure	
2	Structures vs. class	Pointers and functions
	Intro to Objects and its representation in memory	
3	Data Abstraction, Intro to Classes	Intro to classes & Objects
	Encapsulation	
	Concept of Abstract classes	
4	Access controls	Working with classes, Constructors & destructors
	Constructors and its types	
	Destructors	
5	Concept of Object reuse	Encapsulation, Access modifiers with data and functions
	Data and Object Casting	
6	Static data and member functions	Working with constants and casting
	Const data and member functions	
	Inline functions	
7	Inheritance	Working with abstract and static classes, functions
	Types of Inheritance	
8	Function overloading	Inheritance, abstract classes implementation
	Operator overloading	
9	Function overriding	Overloading
	Interface	
10	Multiple inheritance	Overriding
	Interfaces Vs. Abstract functions	
11	Friend classes and Functions	Multiple inheritance and friend functions.
12	Virtual functions	Virtual functions
13	IO stream	IO stream
14	Generic Programming	Working with templates
15	Exception Handling	Exception Handling
	Final Exam	

Books:

1- "Problem Solving with C++", 9e Global Edition, Walter Savitch, ISBN-13:9781292018249, Addison-Wesley, 2015.
2- C++ How to program By Deitel & Deitel.

Reference Books:

1- The C++ Programming Language by Bjarne Stroustrup.

2- Object Oriented Software Engineering by Jacobson.

Marks Distribution

Course:

Assignments	10%
Quizzes	10%
Mid Exam	30% (15% each)
Final Exam	50%
Total	100

Lab:

Lab activities	30%
Lab Mid exam	20%
Course Project	20% (Including viva exam)
Lab Final Exam	30%
Total	100