Texas College of Management and IT
Shipal, Kathmandu
Lesson Plan

Program: BIT, 2nd Semester
Subject: Object Oriented Programming (C++)
Faculty : Kumar Poudyal

Week	Units	Topics/Sub topics to be covered	Practical	Remarks
1	1: Introduction to object oriented programming	• Procedural language Vs OOP • Characteristics of object oriented languages: Objects, Classes, Inheritance, Reusability, Polymorphism & overloading • Applications of OOP	• Simple C++ programs using cout and cin	
2 & 3	2: C++ Programming Concept:	• Introduction to programming in C++ • Extraction operator (>>) • Insertion operator (<<) • Type conversion: automatic conversion, cast • Arrays and pointers in C++ • New and delete operators • Manipulators • Const • Enumeration	• Programs using extraction and insertion operator • Programs for type conversion • Programs using arrays • Programs using pointers • Use of New and delete operators • Program using manipulators • Use of const • Enumeration data types	
4 & 5	3: Functions used in C++	• Introduction to functions • Passing arguments to functions • Returning values from functions • Reference arguments • Returning by reference • Functions overloading: different number of arguments, different kinds of arguments • Default arguments • Inline functions	• Programs for passing arguments to function using passing by value, passing by reference and passing by pointer methods • Programs to return values by value, reference and pointers methods • Implementing function overloading using different number of arguments and different kinds of arguments • Functions with default arguments and inline functions	
6&7	4: Classes and objects	• Introduction • Access specifier (public, private and protected) • Accessing class members • Defining member functions: member function inside the class body, member function outside the class body • "this" pointer • Constructor & Destructor: Types of constructor (Default, Parameterized and copy constructor), Overloaded constructors • Static data members • Static member functions • Passing objects as arguments • Friend functions & Friend		

		classes		
8&9	5: Operator Overloading	• Introduction to operator overloading • General rules for overloading operator • Operator overloading restrictions • Overloading unary and binary operators • Operator overloading using friend functions • Data conversion: conversion between basic types and object, conversion between object and basic types • Conversion between objects of different classes	• Programs for overloading unary and binary operators • Programs to demonstrate data conversion of different types	
10	6: Inheritance	• Introduction & benefits of inheritance • Types of inheritance • Inheritance: base classes & derived classes • Using constructors and destructors in derived classes • Abstract base class • Public, private and protected inheritance • Ambiguity in multiple inheritance • Containership	• Programs to demonstrate different types of inheritance • Using constructors and destructors in derived classes • Implement abstract base class • Implement public, private and protected inheritance • Containership	Not mentioned in the syllabus
11	7: Virtual functions and polymorphism	• Introduction • Early Vs late binding • Virtual functions • Pure virtual functions and abstract classes • Virtual base classes	• Programs using virtual functions • Programs to implement pure virtual functions	
12	8: File Handling	• Introduction • Opening and closing file: opening file using constructor, opening file using open() and open() file modes • Basic functions of seekg(), seekp(), tellg(), tellp() • Sequential I/O operations: put() and get() functions, write() and read() functions	• Programs to open and close the file using constructors • Programs opening file using open() and open() file modes • Demonstrate the functions seekg(), seekp(), tellg() and tellp() • Implement the I/O operations: put(), get(), write() and read()	
13	9: Templates	• Introduction to templates • Function templates • Class templates	• Program to implement function template • Program to implement class templates	
13	10: Namespaces:	• Using namespace • Using the scope resolution operator • Through “using” keyword	• Program using namespace	
13		Revision		