EVEREST ENGINEERING COLLEGE

(An affiliated college of Pokhara University, Nepal)

Sanepa-2, Lalitpur, Nepal

Department of Computer and IT Engineering

COURSE PLAN

Department : Civil/Computer

Subject : Object Oriented Programming in C++

Semester & Program :2nd Semester (B.E. Civil/Computer)

Course Instructor :Pradip Paudel

No. of Course Hr. :45

Assignment Portion	
Assignment no.	Description
1	Basic Introduction to C++
2	class and methods, constructor, DMA
3	Inheritance
4	Polymorphism
5	Template and Generic Programming
Test Portion	
Test 1	Chapter 2 and chapter 3
Test 2	Chapter 4 and chapter 5
Test 3	Chapter 1,2 and 6

Pre-requisite:
Basic knowledge of programming, students have already learned in Programming in C. Especially concept of data type, variables, function, array, string, structure are useful.

Objectives:

At the end of the program the students must be able to

- Understand different object oriented concepts
- Solves the problem in Object Oriented technique
- Cope with features of Object Oriented Programming

Lecture no.	Topic to be covered	Class Mode	Specific req.
L1	Introduction to Object Oriented Programming in C++		
L2	Object Oriented Programming a new paradigm, Encapsulation, Access specifier, Data hiding, Abstraction, State, behavior		
L3	Review of structures, Class and Object, Defining member function, Nesting of member function, Accessing private member function, Array of Object		
L4	Object as function arguments, Friend function		
L5	Inline function, Static function, Reference variable, Default argument		
L6	Programs practice related to class and object, friend function	Tutorial class	
L7	Message Instance and Initialization, Constructor and its types		
L8	Constructor overloading ,constructors with default argument Memory mapping allocation and recovery,		
L9	new and delete operator, Dynamic constructor, Dynamic Initialization of Object		
L10	Programs practice related to constructor and Dynamic memory allocation	Tutorial Class	
L11	Introduction to inheritance, Defining derived class, Types of inheritance		

L12	Different examples of Inheritance	Tutorial class	
L13	Ambiguity in inheritance, virtual base class		
L14	Constructor and destructor in inheritance, Arguments passing mechanism for supplying initial values to the base classes of constructors		
L15	Subclass, subtype and Principle of substitutability, Containership, Composition, Is a rule/Has a rule, Software reusability		
L16	Forms of inheritance, Inheritance merits/demerits		
L17	Programs and old question discussion related to this chapter	Tutorial	
L18	Introduction to polymorphism and its types, Function overloading, unary operator overloading		
L19	Binary operator overloading		
L20	Type conversion : Class to Basic, Basic to Class		
L21	Class to Class type conversion		
L22	Object pointer, this pointer, pointer to derived class, Virtual function		
L23	pure virtual function, abstract class, function overriding Virtual destructor, pure polymorphism		
L24	Old Question and program related to this chapter	Tutorial	
L25	Introduction to generic programming, function template, function template with multiple parameters, overloading function template		
L27	Class template, class template with multiple parameters, Using default data types in class definition		
L28	Exception handling ,Container class and the Standard Template Library		

L29	Responsibility Implies non-Interference, Programming in Small and Programming in Large, Components and behavior, Role of behaviors in OOP,		
L30	Software components, Formalizing the interface, Interface and implementation, Design and representation of components, coming up with names, Implementation of components		
L31	CRC cards and sequence diagram		
L32	A way of viewing real world agent, types of classes, Computation as simulation, Coping with complexity, Non-linear behavior of complexity		

*** L denotes Lecture, P denotes Presentation and, T denotes Tutorials. Each Lecture class is of 100 minutes.**

References:

My own Lecture notes for Object Oriented Programming in C++

Textbooks:

1. Budd, T., An Introduction to Object Oriented Programming, Second Edition, Addison-Wesley, Pearson

Education Asia, ISBN: 81-7808-228-4.

2. R. Lafore, Object Oriented Programming in Turbo C++, Galgotia Publications Ltd. India, 1999

Reference Books:

1. E Balaguruswamy, Object Oriented Programming with C++, Third Edition

2. Tata McGraw-Hill ISBN:0-07-059362-0, Parson David, Object Oriented Programming with C++, BPB

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