Object Oriented Programming

Code	Credit Hours
CS - 212	3-1

Course Description

After successful completion of this course the attendees will be able to:

1. Model; use data containers using (includes classes, inheritance, encapsulation, polymorphism, class derivation, abstract classes, static class members and object construction and destruction)
2. Control; understand, define and use suitable logic for solving problems (includes function overloading and overriding, function name overload resolution, container classes, template classes, etc.)
3. Manage; test, document, & prepare applications for deployment (includes namespaces & exception handling)

Text Book:

1. Beginning C++, Ivor Horton, ISBN13: 978-1- 484200-08- 7, November 12, 2014
2. Object Oriented Programming in C++ by Robert Lafore, Fourth Edition, Publication Date: December 19, 2001 | ISBN-10: 0672323087 | ISBN-13: 978-0672323089 | Edition: 4

Reference Book:

1. C++ How To Program, Deitel & Deitel, Publication Date: March 25, 2011 | ISBN-10: 0132662361 | ISBN-13: 978-0132662369 | Edition: 8
2. Problem solving abstraction and design using C++ by F.L. Friedman. Addison Wesley, Fifth Edition, Publication Date: July 24, 2006 | ISBN-10: 0321433327 | ISBN-13: 978-0321433329 | Edition: 5
3. Bruce Eckel, Thinking in C++: Introduction to Standard C++, Volume 1, Second Edition, ISBN-13: 860-1300092737 ISBN-10: 0139798099, 25th March, 2000.

Prerequisites

CS-110: Fundamentals of Computer Programming

ASSESSMENT SYSTEM FOR THEORY

Quizzes	10%
Assignments	10%
Mid Terms	30%
ESE	50%

ASSESSMENT SYSTEM FOR LAB

Quizzes	10%-15%

Assignments	5% - 10%
Lab Work and Report	70-80%
Lab ESE/Viva	20-30%

Teaching Plan

Week No	Topics	Learning Outcomes
1	Introduction	Course Outline, objectives, teaching plan, assessment method, concepts review Arrays, Structures
2-6	Introduction to Object Oriented Programming using Classes and Objects	Pointers Introduction to Object Oriented Programming using Classes and Objects Member Functions, Setter and Getter Methods Constructors, Copy Constructors Friend Functions and Classes Static Class Members
6	**MID TERM IN WEEK 9**	
7-8	Inheritance vs Polymorphism	Operator Overloading Inheritance Case Study Virtual Functions Polymorphism Dynamic Conversion
9	**MID TERM EXAM**	
10-12	Abstraction	Abstract Classes Virtual Destructors Templates
13-17	Exception and File Handling	Exception Handling File Handling STL, Case Studies Revision and Project Discussion Project Demos
18	**END SEMESTER EXAM**	

Practical:

Experiment No	Description
1	A Review of Structured Programming
2	Classes and their implementation
3	Const. Objects and Member Variables
4	Classes, Constructors
5	Inheritance
6	Inheritance
7	Inheritance and Operator Overloading
8	Polymorphism
9	**MID TERM EXAM**
10	Abstract Classes
11	Abstract Classes
12	Composition
13	Templates
14	Exception Handling & IO Streams
15	Open Ended Lab
16	Open Ended Lab