

AIR UNIVERSITY
Spring 2009
Faculty of Basic and Applied Sciences
Department of Computer Science and Engineering

Course Information

Course Code & Course Title: CS162 – Object Oriented Programming	Lab: Yes Credit hrs: 4
Prerequisites For the Course: Computer Programming	
Instructor: Zunera Jalil	Course TA: Erum Ashraf
E-mail : zunera.jalil@mail.au.edu.pk	E-mail: erum.ashraf@mail.au.edu.pk
Office: Second Floor Academic Block A	Office hours: Tuesday, 11:00 AM- 11:30AM
Text Book: 1. C++ How to Program, Deitel & Deitel, 5th edition 2. Object-Oriented Programming in C++, Third Edition, Robert Lafore	
Reference Book: 1. Thinking in C++, Bruce Eckel, 2nd edition	

Course Objectives:

<p>Following are the objectives of this course:</p> <ul style="list-style-type: none"> • To enable students solve real-life problems using object-oriented solution approach. • To develop object-oriented program analysis and design skills. • To enable students create classes and small programs in C++ that are correct, robust and capable of being understood, reused and modified by others. • To make use of various object-oriented features, including inheritance, multiple inheritance and polymorphism.
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Course Outline

<p>This course introduces the fundamental principles and technology of object-oriented programming, with emphasis on the C++ programming language. The main characteristics of OOP are encapsulation, inheritance, and polymorphism. Topics include classes, methods, objects, polymorphism, virtual functions, I/O and file processing, templates and exception handling.</p>
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Tentative Lecture Plan:

Week	Topic
1.	Object Oriented Programming Concepts Basics of object-oriented programming, data abstraction, encapsulation, inheritance, polymorphism. Characteristics of object oriented languages

2.	Introduction to Classes and Objects-I Objects and classes, data members and member functions, public and private
3.	Introduction to Classes and Objects-II Constructors, destructors, constructor initialization, overloaded constructors
4.	Introduction to Classes and Objects-III Objects as function arguments, returning objects from functions. Arrays of objects
5.	Inheritance-I Why inheritance?, base and derived classes, access control, single inheritance
6.	Inheritance-II Class hierarchies, multiple inheritances, protected members, method over-riding
7.	Operator Overloading-I Overloading unary operators and binary operators, new and delete operators
8.	Operator Overloading-II Conversion between basic types and conversion between objects of different classes
9.	Classes Advanced-I Friend classes, static, this and const
10.	Mid Term Examination
11.	Classes Advanced-II Friend functions, type conversions and memory management
12.	Polymorphism-I Virtual function, dynamic and static binding, pure-virtual functions
13.	Polymorphism-II Abstract class and abstract base class
14.	Files Processing Stream classes, sequential access files, random access files
15.	Templates and Exceptions Function templates, class templates, exceptions handling, multiple exceptions
16.	Project submission and presentations.

Grading and General Course Policies:

<ul style="list-style-type: none"> Assignments and/or grade percentages are subject to change. The breakdown is as follows: <table style="margin-left: 40px;"> <tr> <td>Quizzes / Assignments</td> <td style="text-align: right;">20%</td> </tr> <tr> <td>Lab / Project</td> <td style="text-align: right;">20%</td> </tr> <tr> <td>Mid Term</td> <td style="text-align: right;">20%</td> </tr> <tr> <td><u>Final</u></td> <td style="text-align: right;"><u>40%</u></td> </tr> <tr> <td>Total</td> <td style="text-align: right;">100%</td> </tr> </table> Cheating and copying will NOT be tolerated. Zero credit for the person providing help and getting help. Students will submit all assignments individually. You are responsible for timely and functional delivery of your project/assignment at the beginning of class on submission date. <i>Late assignments/projects will result in zero marks.</i> Projects/assignments/worksheets will be graded on the basis of adhering to requirements, robustness, analytical reasoning/explanation, documentation, user-interface and above all originality. 	Quizzes / Assignments	20%	Lab / Project	20%	Mid Term	20%	<u>Final</u>	<u>40%</u>	Total	100%
Quizzes / Assignments	20%									
Lab / Project	20%									
Mid Term	20%									
<u>Final</u>	<u>40%</u>									
Total	100%									

- No makeup quiz/exam/assignment will be taken.
- Students are responsible to ensure that their attendance does not fall below specified limit.