PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE
COLLEGE OF ENGINERING
DEPARTAMENT OF COMPUTER SCIENCE
ABET COURSE SYLLABI

IIC2233 ADVANCED COMPUTER PROGRAMMING

Credits and contact hours: 10 credits / 10 hours (3 h. Lectures; 7 h. Individual learning experience)

Instructor's name: Juan Felipe Calderón

Course coordinator's name Juan Felipe Calderón

Textbook:

- Bertrand Meyer. Object-Oriented Software Construction. Second Edition. Prentice Hall, 1997.
- Sebesta, Robert. Concepts of programming languages. Addison-Wesley, 2002.
- John Sharp. Microsoft Visual C# .NET: Step by Step. Microsoft Press, 2003.

Course Catalog Description: This course teaches some techniques to design, code, debug and test computer programs. Particularly, this course teaches some object-oriented programming advanced constructions (not included in prerequisite course). Students must use various programming tools to develop their own programs.

Prerequisite Courses: IIC1103 Introduction to Computer Programming

Co-requisite Courses: None

Status in the Curriculum: Required

Course Learning Outcomes:

1. Create object-oriented designs for simple problems.
2. Apply object-oriented concepts (inheritance, polymorphism, interfaces), and fundamental data structures (linked lists, stacks, queues, binary trees and hash tables), to design and write complex programs using an object-oriented programming language (e.g. C#).
3. Write programs using other programming models: multithreading and event-driven programming.
4. Use an integrated software development environment (e.g. Microsoft Visual Studio) to edit, compile and debug programs.
5. Design and construct software applications with a complex graphical user interface (GUI).

Relation of Course to ABET Criteria:	a. Knowledge of mathematics, science and engineering c. Design a system, component, or process e. Identify, formulate, and solve engineering problems f. Professional and ethical responsibility i. Recognition of the need for, and an ability to engage in life-long learning k. Techniques, skills, and modern tools for engineering practice.
Topics covered:	1. Introduction to C# language and .Net Framework. 2. Advanced OOP concepts: inheritance and polymorphism. 3. Basic data structures: lists, trees, queues, stacks. 4. Multithreading programming. 5. Event-driven programming. 6. GUI development over Windows Presentation Foundation. 7. Networking: protocols, sockets, web services. 8. Reflection.