

<b>Module Title:</b>	Software Development II: object oriented programming
<b>Module Code:</b>	071
<b>Level:</b>	5
<b>Credits:</b>	15
<b>Pre-Requisites:</b>	

**Module Description:**

This module is designed to take students with a basic understanding of procedural programming to the point where they can design and implement a set of classes that respects the principles of Object-Oriented Design. This is essential for any student planning to focus on software development as a career. Students are introduced to the idea of integrating code with a legacy codebase, as most commercial developers are obliged to do.

**Indicative Content:**

- OO rationale: modeling the real world using classes
- OO principles: inheritance, polymorphism and dynamic binding, encapsulation and coupling, interfaces and abstract classes
- OO syntax of the programming language, including exception handling
- Identify possible error conditions, design code to handle those errors in a systematic and robust manner
- Understanding an existing code base, assessing/criticising the solution/documentation that has been provided, developing an awareness of the issues faced in this situation
- UML diagrams
- Report structure and vocabulary for writing reports of industry standard

**Learning and Teaching Methods:**

The module will be delivered through a combination of lectures and workshops (3 hours per week).

**Specific Learning Resources:**

Visual Studio

Text editor

**Bibliography**

Highly Recommended

## Module Specifications: Schools of Business & Management & Information Technology

Sempf, B. (2014) *C# 5.0 All-in-one For Dummies*. New Jersey, USA: John Wiley and Sons, Inc.

Bevis, T. (2012) *C# Design Pattern Essentials*. Leigh-on-Sea, UK: Ability First Limited.

### Recommended

Arlow, J. (2005) *UML 2 and the Unified Process. (2nd Edition)*. New York, USA: Addison Wesley.

Gamma, E. (2000) *Design Patterns: Elements of Reusable Object-Oriented Software (21st Edition)*. s.l.:Addison-Wesley.

Greene, J. (2013) *Head First C#. (3rd Edition)*. Sebastopol, CA, USA: O'Reilly.

## Module Learning Outcomes

### Subject Specific Learning Outcomes

*On successful completion of this module you will be able to:*

**LO 1** | Analyse requirements and apply key OO concepts in the design of a solution

**LO 2** | Use an OO language to write and test maintainable, robust, correct software that accurately reflects the design

**LO 3** | Document the final solution using industry-standard notation and terminology

Assessment Title or element	Weighting (%)
Assignment 1: report documenting the design of an object-oriented application, with evaluation (800 words) [mid semester]	35%
Assignment 2: Object-oriented application implementing the design proposed in assignment 1; report comprising code listings, test plans, and evaluation (800 words) [late semester]	35%
Exam: principles of object-oriented design and programming (1 hour) [end semester]	30%