Module Specification

Module Summary Information

1	**Module Title**	Object-Oriented Programming
2	**Module Credits**	20
3	**Module Level**	5
4	**Module Code**	CMP5332

5	**Module Overview**

Programming is an engineering tool that plays a vital role to drive most of the modern technologies surrounding us, including the technological devices for communication, transportation and entertainment. In other words it can be said that our modern lifestyles are heavily dependent on programming. Moreover, businesses increasingly rely on computers and the software run on them. Programming skills and a broader and deeper understanding of programming are therefore becoming increasingly important to the jobs market.

The Computer Science course aims to give students an understanding of the theory and principles underlying the construction of modern computer systems and the development of high quality software. This module provides an introduction to object-oriented software development. Students will learn to design and implement applications in a widely used object-oriented programming language (e.g. Java). The module covers the fundamental concepts of object oriented including class design, inheritance and composition, polymorphism, overloading, dynamic binding and interfaces.

This module also has a focus on standard software development practices, including pair programming, test-driven development, code review, and using and generating documentation.

6	**Indicative Content**

- Basic Java syntax and semantics
- Classes and objects
- Methods and constructors
- Arrays and collections
- Console and file input/output
- Exceptions and error-handling
- Interfaces, information-hiding and message-passing
- Inheritance and polymorphism
- Unit testing using the JUnit framework
- Test-driven development
- Pair programming and code review
- Using and generating Javadoc documentation

7	Module Learning Outcomes On successful completion of the module, students will be able to:	
	1	Demonstrate knowledge of the fundamental principles of object-oriented programming.
	2	Apply object-oriented principles to design and implement programs from high level requirements specifications.
	3	Use a unit testing framework in the design, testing and debugging of object-oriented programs.
	4	Follow standard software development practices including pair programming and code review.
	5	Use and create technical documentation for object-oriented code.

8	Module Assessment			
Learning Outcome				
	Coursework	**Exam**	**In-Person**
1, 4			X
2, 3, 4	X		

9	Breakdown Learning and Teaching Activities	
Learning Activities		**Hours**
Scheduled Learning (SL) includes lectures, practical classes and workshops, peer group learning, Graduate+, as specified in timetable		48
Directed Learning (DL) includes placements, work-based learning, external visits, on-line activity, Graduate+, peer learning, as directed on VLE		104
Private Study (PS) includes preparation for exams		48
Total Study Hours:		200