Module Specification

1. Factual information			
Module title	**M251: Object Oriented Programming using Java**	**Level**	**2**
Module tutor	**Ms. Amal Al Sayed**	**Credit value**	**30**
Module type	**Taught**	**Notional learning hours**	**8**

2. Rationale for the module and its links with other modules

This module is intended to provide students a good understanding of object-oriented principles, including inheritance, polymorphism, class libraries, interacting objects, and the unified modelling language (UML). It uses the JAVA language to illustrate theses principles.

3. Aims of the module

The module aims to:

- Introduce all aspects of object-oriented principles
- Identifying and implementing class relationships using abstract classes, interfaces and inheritance
- Provide knowledge in using simple UML class diagrams
- Describe how these concepts are implemented in java
- Provide knowledge in how to explore the JAVA API and to develop your own
- Provide the knowledge necessary to construct java programs
- Describe a number of the advanced facilities of java including exceptions
- Show how java can be used in developing non-trivial programs
- Introduce good design and programming practice

4. Pre-requisite modules or specified entry requirements

Normally, students are expected to have completed study of their Level-1 TM105 module before they can undertake this module.

5. Intended learning outcomes	
A. Knowledge and understanding	**Learning and teaching strategy**
After studying the module, **the student will be able to** demonstrate: **A1.** An understanding of the object-oriented principles **A2.** Some knowledge of the main constructs and mechanisms in Java **A3.** An appreciation of the implications of object oriented software analysis and design **A4.** An understanding of the techniques used in developing a large Java program	• 25% face-to-face tutorial sessions • TMA work • Module learning booklets and support material

B. Cognitive skills	**Learning and teaching strategy**
After studying the module, **the student will be able to**: **B1.** Describe and apply key concepts and techniques in software design and development **B2.** Analyze and abstract away from the details of a problem **B3.** Design and formulate an appropriate solution to a problem and evaluate it	• 25% face-to-face tutorial sessions • TMA work • Module learning booklets and support material

C. Practical and professional skills	**Learning and teaching strategy**
After studying the module, **the student will be able to**: **C1.** Assemble, program, develop, debug, test and evaluate software systems **C2.** Use software tools such as a Java IDE **C3.** Use good design and programming practice **C4.** Develop and implement class relationships	• 25% face-to-face tutorial sessions • TMA work • Module learning booklets and support material

D Key transferable skills	Learning and teaching strategy
After studying the module, **the student will be able to**: **D1** Find information from a range of sources to support a task **D2** Plan complex tasks **D3** Use new Java libraries **D4** Use appropriate numerical, mathematical and abstraction skills **D5** Progress to more advanced level studies	• 25% face-to-face tutorial sessions • TMA work • Module learning booklets and support material

6. Indicative content.
Unit 1 Introduction to object orientated programming Unit 2 The unified modelling language (UML) Unit 3 Inheritance and method overriding Unit 4 Object roles and the importance of polymorphism Unit 5 Overloading Unit 6 Object oriented software analysis and design Unit 7 The collections framework Unit 8 Java development tools Unit 9 Creating and using exceptions Unit 10 Agile programming Unit 11 Case study

7. Assessment strategy, assessment methods and their relative weightings
TMA Work: 20% MTA: 30% Exam: 50%

8. Mapping of assessment tasks to learning outcomes

Assessment tasks	Learning Outcomes															
	A 1	A 2	A 3	A 4	B 1	B 2	B 3	C 1	C 2	C 3	C 4	D 1	D 2	D 3	D 4	D 5
TMA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MTA	✓	✓		✓			✓	✓		✓	✓				✓	
Final	✓	✓		✓			✓	✓		✓	✓				✓	

9. Teaching staff associated with the module	
Tutor's name and contact details	Contact hours
Ms. Amal Al Sayed, asayed@aou.edu.kw	

10. Key reading list				
Author	Year	Title	Publisher	Location
Simon Kendal	2009	Object Oriented Programming using Java	Ventus	Free online: https://sunsreynat.files.wordpress.com/2014/06/object-oriented-programming-using-java.pdf

11. Other indicative text (e.g. websites)
https://lms.arabou.edu.kw