Module Specification

1. Factual information

Module title	**TM354: Software Engineering**	**Level**	3
Module tutor	Dr. Moneef Jazzar	**Credit value**	30
Module type	Taught	**Notional learning hours**	8

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

Software engineering (TM354) – the intellectual tools needed to design, build, and test software systems. This module aims to provide you with an understanding of software engineering concepts and a view of practical software development. It follows a disciplined approach to the development of software systems to meet specified requirements. You will become familiar with a wide range of techniques to support the dialogue between software engineers and an organisation's stakeholders, and the work of the developers. You will also develop a good understanding of the different approaches to, and practices of, software development, including those followed by agile methods.

3. Aims of the module

1. To understand the business domain for a problem requiring a software solution or a change to an existing solution
2. To acquire the tools and knowledge to analyse and design such a solution or change
3. To understand how any chosen software architecture will impact on the satisfaction of all users requirements and expectations
4. To apply and reuse design expertise from a set of design patterns
5. To develop the skills for testing outputs of all activities throughout the development process.

4. Pre-requisite modules or specified entry requirements

M251

5. Intended learning outcomes	
A. Knowledge and understanding	**Learning and teaching strategy**
Upon completing this module, students will be able to: **A1.** Understand concepts of software development and maintenance, specialising in such topics as Web and Internet design and programming, advanced database techniques or human computer interaction **A2.** Acquire the methods and tools used to develop a range of software systems **A3.** Identify a range of situations in which computer systems are used, the ways in which people interact with them, and the ethical, social and legal problems that computer software can create.	 • 25% face-to-face tutorial sessions • TMA work • Module learning booklets and support material

B. Cognitive skills	**Learning and teaching strategy**
Upon completing this module, students will be able to: **B1.** Explain advanced software development concepts and apply them to practical problems, including in an extended piece of work **B2.** Analyse problems, and design and evaluate realistic solutions to them **B3.** Compare and contrast a variety of computing methods and tools, identifying the best choices to apply to specific problems **B4.** Explain the various roles, functions and interactions of members of a software development team.	 • 25% face-to-face tutorial sessions • TMA work • Module learning booklets and support material

C. Practical and professional skills	**Learning and teaching strategy**
Upon completing this module, students will be able to: **C1.** Work independently, planning, monitoring, reflecting on and improving your own learning and working practices **C2.** Work in a group, communicating computing ideas effectively in speech and in writing	 • 25% face-to-face tutorial sessions • TMA work • Module learning booklets and support material

C. Practical and professional skills	Learning and teaching strategy
C3. Find, assess and apply information from a variety of sources, using information technology where necessary, in a number of assignments, including at least one significant piece of work **C4.** Use numerical and analytical techniques confidently to solve complex problems.	

D Key transferable skills	Learning and teaching strategy
Upon completing this module, students will be able to: **D1.** Design, program, test and evaluate software systems **D2.** Use modern software tools, both within and outside your workplace **D3.** Identify and handle the ethical, social and legal issues that may arise during software development and use.	• 25% face-to-face tutorial sessions • TMA work • Module learning booklets and support material

6. Indicative content.
Block 1: From domain to requirements **Unit1** **Approaches to Software Development** **Unit2** **Requirements Concepts** **Unit3** **From Domain Modelling to Requirements Analysis** **Unit4** **The Case Study: Part 1** **Block 2 – From Analysis to Design** **Unit5** **Classes and Associations (**Structural modelling of domain versus the solution) **Unit6** **Interactions** (Dynamic modelling) **Unit7** **State and Activities (**More dynamic modelling) **Unit8** **The Case Study: Part 2** **Block 3 – From Architecture to Product** **Unit9** **From Model to Implementation (**architecture, patterns and reuse) **Unit10** **Components, Patterns and Architecture (**building blocks and enterprise architectures) **Unit11** **Product Quality: Metrics, Verification, Validation, Testing** **Unit12**

6. Indicative content.

The Case Study: Part 3
Unit13
Process Quality Management, Human Resources, Quality Assurance
Unit14
Human Factors and Professional Issues

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													
	A1	A2	A3	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3
TMA	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MTA	x	x	x	x	x						x	x		x
Final	x	x	x	x	x	x	x				x	x		x

9. Teaching staff associated with the module	
Tutor's name and contact details	Contact hours
Dr. Moneef Jazzar, mjazzer@aou.edu.kw	

10. Key reading list				
Author	Year	Title	Publisher	Location
Module adopted from OU, UK.				

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