Module and Assessment Guide

Module Title:	Software Engineering	
Module Code:	B7IS127	
Programme:	Bachelor of Science (Honours) in Computing Bachelor of Science in Computing	
Academic Year:	2023-2024	
Delivery Type F/PT	Full Time	
Delivery Mode	On Campus	
Lecturer Name(s):	**Luciana Nascimento**	**Email: luciana.nascimento@dbs.ie**

Learning Outcomes:

On completion of this module, learners will be able to:

1.	Demonstrate clear knowledge of the details of software engineering.
2.	Model software systems using UML.
3.	Demonstrate knowledge and application of architectural patterns.
4.	Detail different methodologies used in the SDLC.
5.	Articulate the principal tasks of software management.

Learning Activities:

Each week will consist of a number of different activities such as:

1. Presentation of concepts and theories using slides and video.
2. Case Study exercises to consolidate skills.
3. Problem solving exercises to demonstrate application of knowledge and skills.
4. Knowledge check quiz to assess concepts covered.
5. Moodle chat for Q&A.
6. Interactive exchange/polls.

Week by Week Teaching Plan:

Week	LO	TOPIC	Mode	ACTIVITIES
1.	*1*	Introduction to Software Engineering	*On Campus*	Poll Discussion Case Study Analysis
2.	*1, 4*	Software Processes and Models.	*On Campus*	Discussion Knowledge checks
3.	*1, 4*	Agile software development	*On Campus*	Case Study Analysis Knowledge checks
4.	*1, 4*	Requirements engineering	*On Campus*	Discussion Case Study Analysis Problem solving exercises
5.	*2*	System modelling – Introduction to UML Architectural design and Implementation	*On Campus*	Poll Discussion Case Study Analysis
6.	2,3	Architectural Design and Implementation(cont)	*On Campus*	Discussion Problem solving exercises
7.	2,3	Software testing & evolution	*On Campus*	Discussion
8.	4	Assignment 1 - Presentations	*On Campus*	Problem solving exercises
9.	1,4	Software Quality - Dependability and Security, Availability, Reliability, and its Maintainability.	*On Campus*	Discussion Knowledge checks
10.	3	Software design and architecture	*On Campus*	Poll Knowledge checks
11.	5	Software Management	*On Campus*	Discussion Case Study Analysis
12.	5	Software Management	*On Campus*	Discussion Case Study Analysis

Core Texts:

Tsui, F.F., Karam, O., Barnal, B. (2018). Essentials of Software Engineering. 4th ed. Jones and Bartlett

Supplementary readings

Pressman, R.S. & Maxim, B.R. (2020). Software Engineering: A Practitioner's Approach. McGraw-Hill
Sommerville, I. (2015). Software Engineering. 10th ed. Pearson

Larman, C. (2005). Applying UML and Patterns: An introduction to object-oriented analysis and design and
iterative development. 3rd ed. Pearson

Electronic Resources
DBS E-Learning Support http://elearning.dbs.ie
DBS Library Website http://library.dbs.ie/
Library Catalogue https://books.dbs.ie/
Databases https://libguides.dbs.ie/az.php
Institutional Repository (eSource) http://esource.dbs.ie/

Please note that the full reading list will be on the 'library reading list' link on Moodle

Assessment:

Method of Assessment	Percentage Weighting	Learning Outcome Being Assessed	Date of Submission
Assignment Part 1	50%	2, 3	
Assignment Part 2	50%	1, 4, 5	

***See Moodle Assessment link for assessment due dates**

Overview of Assessment:

CA1:

Assessment Title & Description:	Choosing and developing a software system of your choice applying Software Engineering methods/practices – Part 1
Task:	Main Goals: 1. To analyse the requirements for a particular software system 2. To design and model a software system using UML Details: A leading software development company asked candidates to develop the design and architecture of a system of candidate's choice. To fulfil this requirement, you are required to develop the specification of a system (min of 6 classes) of your choice, provide analysis, and write the technical documentation including the following: 1. Requirements Specification including. • Functional and non-functional requirements

	- Also, dentify stakeholders and constraints 2. Evidence of research and analysis to adopt an appropriate life-cycle model in the current situation. 3. Initial System Architecture/Design Specification. The design/architecture specification should be enhanced using **4** UML diagrams to model several phases of the system: - Use-case diagram - State chart diagram - Sequence diagram - Class diagram
MIMLOs being assessed:	2,3
Individual/Group:	Individual
Assessment Weighting:	50%
Issue Date:	06/11/2023
Submission Date: **(All assignments must be submitted through Moodle)**	13/11/2023
Feedback Date:	04/12/2023

CA2:

Assessment Title & Description:	Choosing and developing a software system of your choice applying Software Engineering methods/practices – Part 2 This assessment is the continuation of the previous
Task:	*A leading software development company asked candidates to develop the design, and architecture of a system of candidate's choice.* 1. System Architecture/Design Specification 2. Implementation of at least one class, containing at least two methods from your system using an OO programming language. Provide the code as zip file and include it in the project folder. 3. Test cases to test two methods/functions of the system. 4. Project plan detailing main releases, following a lifecycle model.

MIMLOs being assessed:	1, 4, 5
Individual/Group:	Individual
Assessment Weighting:	50%
Issue Date:	05/12/2023
Submission Date: **(All assignments must be submitted through Moodle)**	14/12/2023
Feedback Date:	12/01/2024

Grading Rubric:

Grade Criteria/LO	< 40	40 - 49	50 - 59	60 – 69	70 +
CA 1 - Technical Report (70 marks)	Insufficient or incomplete report with incomplete models, etc.	Some but insufficient and poorly written report with poorly developed models	Sufficient solves problem but lack of attention to technical report writing skills	Well-structured and well-written report with good specifications and models	Excellent solution to problem proving originality, creativity and evidence of research – very well written
CA 1 – Presentation (30 marks)	Very Weak presentation with no knowledge/ Understanding No evidence of research. Difficult to read and poorly structured slides with no examples	Weak presentation showing little knowledge/ understanding. Some evidence of research. Few examples	Average presentation showing some creativity and evidence of research. Some examples but not completely appropriate.	Good presentation showing good knowledge, evidence of research and creativity. Good examples to aid under-standing of Concepts.	Excellent presentation showing excellent knowledge and excellent research. Very well-structured slides. Excellent examples.
CA 2 –Technical Report (100 marks)	Insufficient or incomplete report with incomplete models, etc.	Some but insufficient and poorly written report with poorly developed models and code which doesn't solve the problem	Sufficient solves problem but lack of attention to technical report writing skills	Well-structured and well-written report with good specifications and models	Excellent solution to problem proving originality, creativity and evidence of research – very well written