Module Descriptor

Title	Introduction to Software Engineering		
Session	2025/26	**Status**	Published
Code	COMP07087	**SCQF Level**	7
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Computing, Engineering and Physical Sciences**		
Module Co-ordinator	Henry Hunter		

Summary of Module

This module introduces students to the fundamental principles and practices of software engineering, with a focus on their application in commercial software systems It covers key concepts such as requirements engineering, the software development lifecycle, design, implementation, maintenance, and extending legacy software. Additionally, students will explore quality assurance and testing methodologies. Furthermore, the module addresses critical social, legal, and professional considerations including open source, security, and ethical issues inherent in software product development.

The syllabus includes:

- Software engineering overview:
  - Definition of software engineering
  - Ethical and professional issues in software engineering: code of ethics, open source, security
- Software development life cycle models:
  - Common stages in software development life cycles
  - Software project management: planning, scheduling, risks, teamwork,
  - Waterfall model
  - Iterative and evolutionary models
  - Agile methodologies and key practices
- Software and product requirements:
  - Requirements engineering: Functional and non-functional requirements, Use-case analysis and description
  - Software features: identifying personas, scenarios and user stories for feature identification
- Software modelling and architecture:
  - Formal notation for systems modelling: Use case, sequence and class diagrams.
  - Multi-tiered (1/2/3) architectures and layers
- Software engineering aspects:

o Quality assurance in software engineering: software and process quality, quality attributes

Module Delivery Method	**On-Campus**[1] ☐	**Hybrid**[2] ☒	**Online**[3] ☒	**Work -Based Learning**[4] ☐
Campuses for Module Delivery	☐ Ayr ☐ Dumfries	☒ Lanarkshire ☐ London ☐ Paisley	☒ Online / Distance Learning ☐ Other (specify) Online Delivery / Distance Learning applies to delivery in the BSc (Hons) Data, AI and Software Engineering programme only	

Terms for Module Delivery	Term 1	☐	Term 2	☒	Term 3	☐
Long-thin Delivery over more than one Term	Term 1 – Term 2	☐	Term 2 – Term 3	☐	Term 3 – Term 1	☐

Learning Outcomes	
L1	Demonstrate an understanding of the key aspects of software engineering and ethical and professional issues in the field
L2	Identify and explain common stages in software development life cycles and determine suitable software development methodologies for given systems development projects
L3	Apply appropriate techniques and practical methods to identify requirements and features of a software system by analysing stakeholders, conducting use case analysis and eliciting requirements as well as using scenarios and stories to identify a systems features
L4	Analyse software modelling and architecture concepts by interpreting and using formal notation for system modelling such as use case, sequence, and class diagrams
L5	N/A

Employability Skills and Personal Development Planning (PDP) Skills

[1] Where contact hours are synchronous/ live and take place fully on campus. Campus-based learning is focused on providing an interactive learning experience supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus contact hours will be clearly articulated to students.

[2] The module includes a combination of synchronous/ live on-campus and online learning events. These will be supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus and online contact hours will be clearly articulated to students.

[3] Where all learning is solely delivered by web-based or internet-based technologies and the participants can engage in all learning activities through these means. All required contact hours will be clearly articulated to students.

[4] Learning activities where the main location for the learning experience is in the workplace. All required contact hours, whether online or on campus, will be clearly articulated to students

SCQF Headings	During completion of this module, there will be an opportunity to achieve core skills in:
Knowledge and Understanding (K and U)	**SCQF 7** Understand the process of software engineering. Have an awareness of ethical and professional issues within the software engineering sector.
Practice: Applied Knowledge and Understanding	**SCQF 7** Use basic and routine professional skills and techniques to elicit requirements and features for a well-defined software systems problem.
Generic Cognitive skills	**SCQF 7** Use a range of approaches to address defined and/or routine problems within familiar contexts.
Communication, ICT and Numeracy Skills	**SCQF 7** Use of standard word processing applications Select and use ICT applications to create formal models to support the software engineering process.
Autonomy, Accountability and Working with Others	**SCQF 7** Work with others to solve defined problems.

Prerequisites	**Module Code**	**Module Title**
	Other	
Co-requisites	**Module Code**	**Module Title**

Learning and Teaching	
In line with current learning and teaching principles, a 20-credit module includes 200 learning hours, normally including a minimum of 36 contact hours and maximum of 48 contact hours.	
Learning Activities During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	**Student Learning Hours** (Note: Learning hours include both contact hours and hours spent on other learning activities)
Lecture / Core Content Delivery	18
Tutorial / Synchronous Support Activity	6
Lecture / Core Content Delivery	25
Independent Study	152
Please select	
Please select	
TOTAL	200

Indicative Resources
The following materials form essential underpinning for the module content and ultimately for the learning outcomes: Kallman E. A., Grillo J. P. Ethical Decision Making and Information Technology: An Introduction with Cases. 3rd Edition. McGraw-Hill. 1999 Schwalbe, K. (2018). Information Technology Project Management. Cengage Learning, Inc. Sommerville, I. (2015). Software Engineering 10th ed. Addison-Wesley. Sommerville, I. (2020). Engineering Software Products: An Introduction to Modern Software Engineering. Pearson Education.
(N.B. Although reading lists should include current publications, students are advised (particularly for material marked with an asterisk*) to wait until the start of session for confirmation of the most up-to-date material)

Attendance and Engagement Requirements
In line with the Student Attendance and Engagement Procedure, Students are academically engaged if they are regularly attending and participating in timetabled on-campus and online teaching sessions, asynchronous online learning activities, course-related learning resources, and complete assessments and submit these on time. **For the purposes of this module, academic engagement equates to the following:** The School of Computing, Engineering and Physical Sciences considers attendance and engagement to mean a commitment to attending, and engaging in, timetabled sessions. You will scan your attendance via the scanners each time you are on-campus and you will login to the VLE several times per week. Where you are unable to attend a timetabled learning session due to illness or other circumstance, you should notify the Programme Leader that you cannot attend. Across the School an 80% attendance threshold is set. If you fall below this, you will be referred to the Student Success Team to see how we can best support your studies.

Equality and Diversity
The University's Equality, Diversity and Human Rights Procedure can be accessed at the following link: UWS Equality, Diversity and Human Rights Code. Aligned with the University's commitment to equality and diversity, this module supports equality of opportunity for students from all backgrounds and learning needs. Using the VLE, material will be presented electronically in formats that allow flexible access and manipulation of content. This module complies with University regulations and guidance on inclusive learning and teaching practice. This module has lab-based teaching and as such you are advised to speak to the Module Co-ordinator to ensure that specialist assistive equipment, support provision and adjustment to assessment practice can be put in place, in accordance with the University's policies and regulations.
(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)

Supplemental Information

Divisional Programme Board	**Computing**
Overall Assessment Results	☐ **Pass / Fail** ☒ **Graded**
Module Eligible for Compensation	☐ **Yes** ☒ **No**

	If this module is eligible for compensation, there may be cases where compensation is not permitted due to programme accreditation requirements. Please check the associated programme specification for details.
School Assessment Board	Business and Applied Computing
Moderator	Santiago Matalonga Motta
External Examiner	A Jindal
Accreditation Details	
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	1.1

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
A portfolio of practical work that consists of individual submissions of selected exercises from the practical classes covering requirements engineering and systems modelling (50%)
Assessment 2
A written class test that examines understanding of principles, aspects issues and methodologies within the field of software engineering (50%)
Assessment 3
(N.B. (i) Assessment Outcomes Grids for the module (one for each component) can be found below which clearly demonstrate how the learning outcomes of the module will be assessed. (ii) An indicative schedule listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Module Handbook.)

Component 1							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Portfolio of practical work	☐	☐	☒	☒	☐	50	0

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Class test (written)	☒	☒	☐	☐	☐	50	2

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
	☐	☐	☐	☐	☐		

Combined total for all components	100%	2 hours

Change Control

What	When	Who
Attendance and Engagement and Equality and Diversity statements updated	17/1/25	L Smith
Module Coordinator updated	10/03/25	A Adamson