Module Descriptor

Title	Software Design for AI-Driven Systems		
Session	2025/26	**Status**	Published
Code	COMP11137	**SCQF Level**	11
Credit Points	10	**ECTS (European Credit Transfer Scheme)**	5
School	**Computing, Engineering and Physical Sciences**		
Module Co-ordinator	Dr Aboua Ange Kevin N'DA		

Summary of Module

This module (may be used as) a core module in all graduate program in Artificial Intelligence field.

This module supports students in learning and implementing the design process for AI-driven systems. The module begins with an introduction to AI-driven systems and the challenges for designing them. It then discusses the importance of design principles and introduces current Design industry standards, such as Modularity, Reusability, and Privacy, to guide the development of AI-driven systems. It demonstrates how to apply these principles in practice for AI-driven system.

By undertaking this module, students will develop a range of graduate attribute. Key components of AI-driven System will be identity and understood. Software Design principles will be understood and Design principles specific to AI-driven system will be apply by student to design AI-based solution. Case studies will help graduate to develop problem solving skills with Design principles, methods and technologies.

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)

[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

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	Understand the key components of AI based system and challenges in designing AI-driven systems.
L2	Demonstrate understanding of Design principles specific to AI-driven systems by applying techniques in analysis and design of AI driven system.
L3	Critically evaluate the effectiveness of AI-driven system Design principles
L4	Demonstrate the ability to model and prototype AI-based solutions using Design principles, technologies
L5	

Employability Skills and Personal Development Planning (PDP) Skills	
SCQF Headings	**During completion of this module, there will be an opportunity to achieve core skills in:**
Knowledge and Understanding (K and U)	**SCQF 11** Understanding the Key Components of AI based System. Understading the Design principles for using standard methods to analysis and design AI based System.
Practice: Applied Knowledge and Understanding	**SCQF 11** Analysing and Design AI-driven System using specifics Design principles and associated methods taught Critically evaluate the AI System
Generic Cognitive skills	**SCQF 11** Being able to use the taught Design principles, methods and technologies specific to AI systems to communicate with the user and other members of a team.
Communication, ICT and Numeracy Skills	**SCQF 11** Using problem-solving skills to effectively identify and address issues. Critically reflecting on the connection between theory and practice in analysing design of AI driven systems.
Autonomy, Accountability and Working with Others	**SCQF 11** Demonstrate the ability to model AI-based solutions using standard techniques

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.

Following lectures, tutorials/lab are used to apply knowledge and skills taught to a set of defined tasks in terms of case studies with business requirements in practice.

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	12
Tutorial / Synchronous Support Activity	4
Laboratory / Practical Demonstration / Workshop	12
Independent Study	72
Please select	
Please select	
TOTAL	100

Indicative Resources

The following materials form essential underpinning for the module content and ultimately for the learning outcomes:

outcomes:

Software Design for AI-Driven System Course Notes, University of the West of Scotland.

Building Machine Learning Powered Applications: Going from Idea to Product, Emmanuel Ameisen 2020

Foundations of Software Architecture, Ali Jafari, Shohreh Jafari 2020

(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:

It is expected that students will attend all scheduled classes or participate with all delivered elements as part of their engagement with their programme of study. Please refer to UWS Regulation 5.7.

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.
(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	
Moderator	Prof Naeem Ramzan
External Examiner	
Accreditation Details	
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	1.0

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
A coursework assignment (100%)
Assessment 2
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**
A coursework assignment (100%)	☒	☒	☒	☒	☐	100	0

Component 2

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

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
	☐	☐	☐	☐	☐		
Combined total for all components						100%	hours

Change Control

What	When	Who