Prifysgol Wrecsam
Wrexham University

Module specification

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Module Code	CONL714
Module Title	Systems Engineering
Level	7
Credit value	15
Faculty	FACE
HECoS Code	100371
Cost Code	GACP

Programmes in which module to be offered

Programme title	Is the module core or option for this programme
MSc Computer Science (online)	Core
MSc Computer Science with Artificial Intelligence	Core
MSc Computer Science with Big Data Analytics	Core
MSc Computer Science with Cyber Security	Core
MSc Computer Science with Software Engineering	Core
MSc Computer Science with UX	Core

Pre-requisites

None

Breakdown of module hours

Learning and teaching hours	15 hrs
Placement tutor support	0 hrs
Supervised learning e.g. practical classes, workshops	0 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
Total active learning and teaching hours	**15 hrs**
Placement / work based learning	0 hrs
Guided independent study	150 hrs
Module duration (total hours)	**150 hrs**

For office use only	
Initial approval date	04/09/2019

Module spec template 2023-24

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With effect from date	01/01/2020
Date and details of revision	27/06/2024 Programme revalidation
Version number	2

Module aims

The module aims for students to identify, explore, and evaluate concepts of analysis and design and a range of traditional and contemporary methodologies to enable the student to appreciate the nature of information and its role in the system's engineering process.

The module will provide students with the knowledge to develop a professional approach to practice and evaluate the impact of systems design, development and implementation on Society; to include consideration of professional, ethical, legal, political, cultural and sustainability issues.

Module Learning Outcomes - at the end of this module, students will be able to:

1	Research and appraise professional skills related to computing, focusing on developing a professional and ethical approach to practice.
2	Critically evaluate the impact of systems design and development on society and the environment.
3	Clearly explain and assess the concepts of information engineering and system requirements.
4	Evaluate a range of tools, techniques, and approaches applicable to the development of digital systems.

Assessment

This section outlines the type of assessment task the student will be expected to complete as part of the module. More details will be made available in the relevant academic year module handbook.

Indicative Assessment Tasks:

The first assessment will be coursework completed during the module to evidence learning and understanding of the content as well as ability to apply the knowledge gained to current computing technologies in modern society. This will be followed by a restricted response and timed online quiz during Week 9 to summarise the knowledge gained throughout the module with an indicative length of 90 minutes.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1,2	Coursework	70%
2	3,4	In-class test	30%

Derogations

None

Learning and Teaching Strategies

The overall learning and teaching strategy is one of guided independent study requiring ongoing student engagement. Online material will provide the foundation of the learning resources, requiring the students to log in and engage regularly throughout the eight weeks of the module. There will be a mix of suggested readings, discussions and interactive content containing embedded digital media and self-checks for students to complete as they work through the material and undertake the assessment tasks. A range of digital tools via the virtual learning environment and additional sources of reading will also be utilised to accommodate learning styles. There is access to a helpline for additional support and chat facilities through Canvas for messaging and responding.

Indicative Syllabus Outline

- The science of information and computing systems
- Information engineering and requirements determination processes
- Analysis and design of digital systems
- Development methodologies
- Modelling techniques
- Systems design and development processes and the impact on society
- Professionalism and social responsibility and accountability – ethical, social, cultural, environmental, political and security

Indicative Bibliography:

Please note the essential reads and other indicative reading are subject to annual review and update.

Essential Reads
P. Bocij, A. Greasley, and S. Hickie, *Business Information Systems: Technology, Development and Management for the Modern Business*, 6th ed. London, U.K.: Pearson, 2018.

Other indicative reading

K. E. Kendall and J. E. Kendall, *Systems Analysis and Design*, 9th ed. London, U.K.: Pearson, 2013.