

Module specification

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Module Code	COM569
Module Title	Systems Engineering and Project Management
Level	5
Credit value	20
Faculty	FACE
HECoS Code	100162
Cost Code	GACP
Pre-requisite module	N/A

Programmes in which module to be offered

Programme title	Core/Optional/Standalone
BSc (Hons) Computer Science	Core
BSc (Hons) Computer Science with Industrial Placement	Core
BSc (Hons) Cyber Security	Core
BSc (Hons) Cyber Security with Industrial Placement	Core
BSc (Hons) Software Engineering	Core
BSc (Hons) Software Engineering with Industrial Placement	Core
BSc (Hons) Computing for Business	Core

Breakdown of module hours

Learning and teaching hours	20 hrs
Placement tutor support hours	0 hrs
Supervised learning hours e.g. practical classes, workshops	10 hrs
Project supervision hours	0 hrs
Active learning and teaching hours total	30 hrs
Placement hours	0 hrs
Guided independent study hours	170 hrs
Module duration (Total hours)	200 hrs

Module aims

This module focuses on concepts and practices related to managing complex engineering projects and applying systems engineering principles. It will explore the principles, methodologies, and processes of systems engineering, plus the project management techniques needed.

Module Learning Outcomes

At the end of this module, students will be able to:

1	Apply systems engineering principles, methodologies, and processes to design and plan complex engineering systems.
2	Manage engineering projects effectively using industry standard techniques.
3	Analyse the requirements for engineering projects, ensuring alignment with stakeholder needs and project objectives.
4	Apply systems thinking, analysis techniques and model complex systems.
5	Identify and evaluate system boundaries, interfaces, system behaviour and performance.

Assessment

Indicative Assessment Tasks:

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.

This may be in the form of a case study where students, working in groups, are required to analyse the challenges and make recommendations using systems engineering and project management principles, concluding in a critical evaluation, reflecting on their learning experiences and personal growth.

Assessment number	Learning Outcomes to be met	Type of assessment	Duration/Word Count	Weighting (%)	Alternative assessment, if applicable
1	1, 2, 3, 4, 5	Portfolio	4000 Words or Equivalent	100%	Equivalent portfolio tasks as required.

Derogations

None



Learning and Teaching Strategies

In line with the Active Learning Framework, this module will be blended digitally with both a VLE and online community. Content will be available synchronously and asynchronously and will include the key concepts, ideas, theories, and examples. Discussion boards and other online learning activities will allow for the further exploration of the topics to give students the opportunity to investigate, discuss and acquire further subject specific knowledge and understanding and how this applies to the real-world environment.

Welsh Elements

This module is designed to support Welsh-speaking students in line with the Welsh Language Standards. While the primary delivery will be in English, students will have the opportunity to submit assessments, including coursework and projects, in Welsh if preferred. Relevant module materials, such as reading lists, key texts, and guidance, will be available bilingually upon request, ensuring accessibility for all students. Additionally, where possible, guest speakers, case studies, or examples may include references to the Welsh business context, especially in areas such as data use in local industries and Welsh public sector organisations.

The department encourages students to develop bilingual digital skills by incorporating Welsh-language datasets, tools, and resources where appropriate, offering an inclusive learning environment. We also support the development of bilingual visualisation techniques, enabling students to create digital outputs that reflect the Welsh language, should they wish to do so.

Indicative Syllabus Outline

Indicative syllabus includes topic areas that may include:

- Introduction to Systems Engineering
- Project Planning and Management
 - Project lifecycle models
 - Scope management
 - Scheduling
 - Resource allocation
 - Risk management
 - Stakeholder engagement
- Systems Architecture and Design
- System Analysis and Decision Making
- System Integration and Testing
- Emerging Trends in Systems Engineering and Project Management

Indicative Bibliography

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

Essential Reads:

No essential reads required for this module.



Other indicative reading:

- D. Avison and G. Fitzgerald, Information Systems Development, 4th ed., McGraw-Hill, 2006.
- K. Schwalbe, Information Technology Project Management, 9th ed., Cengage Learning, 2019.
- D. Kung, Software Engineering, 2nd ed., McGraw Hill, 2023.
- I. Sommerville, Software Engineering, 10th ed., Pearson, 2016.
- A. Dennis, B. Wixom and R. M. Roth, Systems Analysis and Design, 8th ed., Wiley, 2022.

Administrative Information

For office use only	
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