Module Specification

Systems Engineering

Version: 2028-29, v2.0, Approved

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Part 1: Information

Module title: Systems Engineering

Module code: UFMF9W-15-2

Level: Level 5

For implementation from: 2028-29

UWE credit rating: 15

ECTS credit rating: 7.5

College: College of Arts, Technology and Environment

School: CATE School of Engineering

Partner institutions: GC

Field: Engineering, Design and Mathematics

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: With the increasing complexity of systems formalised approaches to system development are required to ensure compliance with Stakeholder needs. The module is intended to prepare the student for multi-disciplinary projects and the complexity they will encounter as they enter the engineering sector.

Features: Not applicable

Educational aims: To provide the background necessary to understand multidisciplinary and deeply integrated systems of modern systems engineering applications in, for example, the electronics, vehicle technology and aerospace industries.

Outline syllabus: Topics typically include:

Systems Engineering approach and a non-systems approach to systems design

Key principles of Requirements driven design

Emergent properties that may enhance or degrade the containing system's performance

Decision support tools to inform system design

Identifying customers/stakeholders, eliciting Requirements and translating these into specific, precise and measurable technical Requirements

Problem solving in system design

Part 3: Teaching and learning methods

Teaching and learning methods: Lectorial supported by small group tutorial sessions. Study time outside of contact hours will be spent on private study, on project work and team interactions.

Scheduled learning includes lectures, tutorials and project work.

Independent learning includes hours engaged with essential reading, assignment preparation team interaction, analysis, completion.
Reading Strategy

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Analyse and evaluate the principles of a Systems Engineering approach , including its impact on complexity, integration and lifecycle performance.

MO2 Identify, analyse and translate customer, stakeholder and system needs into clear, specific and measurable technical requirements.

MO3 Apply modelling techniques, analytical methods and systematic problem-solving approaches to investigate and solve real-world engineering system design problems.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Staff-guided learning = 36 hours

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://uwe.rl.talis.com/index.html

Part 4: Assessment

Assessment strategy: The assessment for this module is as follows:

The module is assessed via a portfolio of project work undertaken by the student working in teams . This work is carried out and progressed each week through the module delivery.

Group presentation where students can articulate the principles used in their design solution with individual questioning used to assess deeper and specific understanding.

Resit is the same as the first sit

Resit deliverable(s) will be scaled appropriately to group size and task complexity

Assessment tasks:

Portfolio (First Sit)
Description: Portfolio of project work (3000 words) followed by a group presentation.
Weighting: 100 %
Final assessment: Yes
Group work: Yes
Learning outcomes tested: MO1, MO2, MO3

Portfolio (Resit)
Description: Portfolio of project work (3000 words) followed by a group presentation.

Resit deliverable(s) will be scaled appropriately to group size and task complexity
Weighting: 100 %
Final assessment: Yes
Group work: Yes
Learning outcomes tested: MO1, MO2, MO3

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Electronic and Computer Engineering [GlosColl] BEng (Hons) 2026-27

Electronic and Computer Engineering {Apprenticeship-GLOSCOLL} [GlosColl] BEng (Hons) 2026-27

Electronic and Computer Engineering [Frenchay] BEng (Hons) 2027-28

Electronics Engineering and Embedded Systems Design {Apprenticeship-UCW} [UCW] BEng (Hons) 2026-27