



Module Specification

Group Design and Integration Project

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Part 1: Information

Module title: Group Design and Integration Project

Module code: UFMFV8-15-3

Level: Level 6

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Environment & Technology

Department: FET Dept of Engineering Design & Mathematics

Partner institutions: None

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: The ability to work in multidisciplinary teams is a key attribute and requirement of a professional engineer. Each team will work on a real engineering challenge from industry or research where an understanding of the principles behind mechanical and electronic systems is essential to create innovative solutions.

The delivery of the module through seminars and workshops will allow students to follow the development and design cycle of an engineering project. This is a problem

based learning module and students will apply the project management skills covered in Engineering Practice 2 in the management of the team and the successful development of an engineering solution to the challenge.

This module also provides an opportunity for students to demonstrate an entrepreneurial mind set with students expected to research the business context and opportunities to commercialise their engineering solution.

Features: Not applicable

Educational aims: The aim of this module is ensure that students demonstrate the ability to work in teams on real engineering problems that integrate knowledge and skills on a multidisciplinary engineering project.

Outline syllabus: The successful completion of the project will involve demonstration of the following knowledge or skill.

Creating the co-design environment and design management.

Use of modelling and coding guidelines.

Design verification and formal verification through simulation and testing, test pattern generation.

Vendor specific issues.

Testing and validation.

Use of Intellectual Property (IP) in a co-design context, design for reuse.

Project Management tools, code maintenance and review.

Aspects of safety and performance of systems.

User interface design or user needs and the role of aesthetics.

Part 3: Teaching and learning methods

Teaching and learning methods: This module integrates many facets of the students learning in a multi-disciplinary design and development project.

A combination of lectures, seminars and demonstrations are used to present core topics from the syllabus. Laboratory sessions are used for team meetings,

development work and familiarisation with specialist software and test equipment.

Independent learning includes hours engaged with essential reading, further team meetings and laboratory based development work undertaken outside the scheduled classes. Students will be expected to maintain the management tools used as part of the group coursework.

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

MO1 Select appropriate project management techniques and maintain relevant documentation to support a design and development project. (P11, G2, G3)

MO2 Integrate knowledge from engineering disciplines and fields outside of engineering to facilitate multidisciplinary project work. (P4, P5, EL4, D2, D3b)

MO3 Design and justify engineering solutions to an open-ended technical problem using a systems engineering approach. (SM3b, EA2, EA4b, D2, D4, P8)

MO4 Appraise the commercial opportunities of an engineering solution with reference to intellectual property legislation and relevant industrial standards. (P1, P5)

MO5 Implement an appropriate verification and validation strategy to ensure project requirements are met and risks are reduced. (D2, EL6)

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Total = 150

Reading list: The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/modules/ufmfv8-15-3.html) via the following link <https://uwe.rl.talis.com/modules/ufmfv8-15-3.html>

Part 4: Assessment

Assessment strategy: The overall assessment is through a team based design and implementation exercise. Formative feedback will come from informal progress reviews with tutors during the module. The formal assessment for this module is as follows:

A portfolio submission that includes a group technical report (8000 words, typical group size 4) and documentation that provides evidence of how the group has managed the project. The group must provide a full audit trail of their design and implementation, including minutes of meetings and technical reviews. Students will work each week in their laboratory sessions and at these classes staff will be able to observe and provide formative feedback. Each student will obtain an individual mark on application of the peer review process in accordance with the Department Group Work Policy.

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: Group submission of a portfolio that consists of a report and project management documentation (max 8000 words).

Weighting: 100 %

Final assessment: No

Group work: Yes

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5

Portfolio (Resit)

Description: Group submission of a portfolio that consists of a report and project management documentation (max 8000 words).

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

Weighting: 100 %

Final assessment: No

Group work: Yes

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Mechanical Engineering {Apprenticeship-UCS} {Top-Up} [Frenchay] BEng (Hons)
2023-24

Electronic and Computer Engineering [SHAPE] BEng (Hons) 2023-24

Mechanical Engineering {Apprenticeship-GlosColl} {Top-Up} [Frenchay] BEng
(Hons) 2023-24

Electronic and Computer Engineering [Aug][FT][SHAPE][1yr] BEng (Hons) 2023-24

Electronic and Computer Engineering [Aug][PT][SHAPE][2yrs] BEng (Hons) 2023-24

Mechanical Engineering (Nuclear) {Apprenticeship-UCW} {Top-Up}
[Sep][FT][MOD][2yrs] BEng (Hons) 2023-24

Mechanical Engineering {Apprenticeship-UCW} {Top-Up} [Frenchay] BEng (Hons)
2023-24

Engineering {Top-Up} [Frenchay] BSc (Hons) 2023-24

Engineering {Top-Up} [Frenchay] BSc (Hons) 2023-24

Engineering {Top-Up} [Frenchay] BSc (Hons) 2023-24

Engineering {Top-Up} [Frenchay] BSc (Hons) 2023-24

Engineering {Top-Up} [Frenchay] BSc (Hons) 2023-24

Engineering {Top-Up} [Frenchay] BSc (Hons) 2023-24

Electronic Engineering {Apprenticeship-UCW} {Top-Up} [Frenchay] BEng (Hons)
2023-24

Electro-mechanical Engineering {Apprenticeship-UCW}{Top-Up}[Frenchay] BEng (Hons) 2023-24

Electronic and Computer Engineering [SHAPE] BEng (Hons) 2023-24

Electronic Engineering {Apprenticeship-UCW} {Top-Up} [Frenchay] BEng (Hons) 2022-23

Mechanical Engineering [Sep][FT][Frenchay][3yrs] BEng (Hons) 2021-22

Automotive Engineering [Sep][FT][Frenchay][3yrs] BEng (Hons) 2021-22

Automotive Engineering [Sep][FT][Frenchay][4yrs] MEng 2021-22

Electronic Engineering [Sep][FT][Frenchay][3yrs] BEng (Hons) 2021-22

Electronic and Computer Engineering [Sep][FT][Frenchay][3yrs] BEng (Hons) 2021-22

Mechanical Engineering [Sep][FT][Frenchay][4yrs] MEng 2021-22

Robotics [Sep][FT][Frenchay][3yrs] BEng (Hons) 2021-22

Automation and Robotics Engineering {Foundation} [Feb][FT][GCET][4yrs] BEng (Hons) 2020-21

Automation and Robotics Engineering {Foundation} [Oct][FT][GCET][4yrs] BEng (Hons) 2020-21

Automotive Engineering [Sep][SW][Frenchay][4yrs] BEng (Hons) 2020-21

Electronic Engineering {Apprenticeship-GLOSCOLL} [Sep][FT][GlosColl][5yrs] - Withdrawn BEng (Hons) 2020-21

Electronic Engineering [Sep][SW][Frenchay][4yrs] BEng (Hons) 2020-21

Electronic Engineering {Foundation} [Sep][FT][Frenchay][4yrs] BEng (Hons) 2020-21

Robotics {Foundation}[Sep][FT][Frenchay][4yrs] BEng (Hons) 2020-21

Robotics [Sep][SW][Frenchay][4yrs] BEng (Hons) 2020-21

Electronic and Computer Engineering [Sep][SW][Frenchay][4yrs] BEng (Hons) 2020-21

Mechanical Engineering [Sep][SW][Frenchay][5yrs] MEng 2020-21

Mechanical Engineering [Sep][SW][Frenchay][4yrs] BEng (Hons) 2020-21

Automotive Engineering [Sep][SW][Frenchay][5yrs] MEng 2020-21

Mechanical Engineering {Foundation}[Sep][FT][Frenchay][4yrs] BEng (Hons) 2020-21

Automotive Engineering {Foundation}[Sep][FT][Frenchay][4yrs] BEng (Hons) 2020-21

Electronic and Computer Engineering [Sep][PT][GlosColl][5yrs] BEng (Hons) 2020-21

Electronic and Computer Engineering {Apprenticeship-GLOSCOLL} [Sep][FT][GlosColl][5yrs] BEng (Hons) 2020-21

Mechanical Engineering with Manufacturing {Apprenticeship-UWE} [Sep][FT][UCW][4yrs] BEng (Hons) 2020-21

Mechanical Engineering with Manufacturing {Apprenticeship-UWE} [Sep][FT][COBC][4yrs] BEng (Hons) 2020-21

Electronic and Computer Engineering {Apprenticeship-GLOSCOLL} [Sep][FT][GlosColl][5yrs] - Withdrawn BEng (Hons) 2020-21

Electronic and Computer Engineering [Sep][PT][GlosColl][5yrs] - Withdrawn BEng (Hons) 2020-21

Instrumentation and Control Engineering {Foundation} [Feb][FT][GCET][4yrs] BEng (Hons) 2020-21

Instrumentation and Control Engineering {Foundation} [Oct][FT][GCET][4yrs] BEng (Hons) 2020-21

Robotics [Sep][SW][Frenchay][4yrs] BEng (Hons) 2020-21

Electronic Engineering [Sep][FT][Frenchay][4yrs] - Withdrawn MEng 2021-22

Electronic Engineering [Sep][SW][Frenchay][5yrs] MEng 2020-21

Electronic Engineering {Apprenticeship-GLOSCOLL} [Sep][FT][GlosColl][5yrs] - Withdrawn BEng (Hons) 2020-21

Electronic Engineering [Sep][SW][Frenchay][4yrs] - Not Running BEng (Hons) 2020-21

Electronic Engineering {Foundation} [Sep][FT][Frenchay][4yrs] - Not Running BEng (Hons) 2020-21

Electronics and Telecommunication Engineering {Foundation} [Feb][FT][GCET][4yrs] BEng (Hons) 2020-21

Electronics and Telecommunication Engineering {Foundation} [Oct][FT][GCET][4yrs] BEng (Hons) 2020-21

Electronic Engineering [Sep][PT][Frenchay][6yrs] BEng (Hons) 2019-20

Electronic Engineering {Foundation} [Sep][SW][Frenchay][5yrs] BEng (Hons) 2019-20