



Module Specification

Flight Test and Airworthiness

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Part 1: Information

Module title: Flight Test and Airworthiness

Module code: UFMEWH-15-M

Level: Level 7

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: This module explores the flight test and airworthiness principles and processes and their application to support the design, development, certification and operations of aerospace vehicles.

Features: Not applicable

Educational aims: The aim of this module is to ensure that students acquire knowledge of industry standards, processes and regulations relating to the airworthiness of aerospace vehicles.

Outline syllabus: Introduction: Brief history of aircraft testing and flight safety, ICAO, EASA, FAA – e.g. Aerospace vehicle design, flight Test and into service.

Flight Test: Flight Test theory, testing the boundaries of the flight envelope; Instrumentation and systems test equipment, ground and air vehicle mounted; Data transmission, telemetry, data analysis; Links to design and product development e.g. military, civil fixed and rotary wing.

Airworthiness: Safety and Regulations; Design Organisation Approval- Route to Type Certification; ETOPS / LROPS; Airworthiness limitations- Individual Aircraft Certification, changes to type design- Certification of military and rotary wing aircraft, and engines, Continued Airworthiness, non-standard parts, bulletins, in-service repairs.

Part 3: Teaching and learning methods

Teaching and learning methods: Students will learn through traditional lectures and seminar sessions to which explore flight test and airworthiness principles through a variety of relevant case studies.

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

MO1 Evaluate the relevance of airworthiness regulations and whether they effectively encapsulate the current and future requirements of the aerospace and aviation industry

MO2 Identify and apply appropriate processes such as type and aircraft certification and continuing airworthiness to complete an airworthiness assessment of a complex aerospace or aviation design project.

MO3 Apply flight test principles and techniques to evaluate the flight envelope and handling characteristics of aerospace vehicles to support design, development and aircraft certification processes.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 125 hours

Lectorials = 25 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/ufmewh-15-m.html) via the following link <https://uwe.rl.talis.com/modules/ufmewh-15-m.html>

Part 4: Assessment

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

The in-class airworthiness activity is communicated and assessed in the form of a group presentation and provides the control condition assessment. The presentation assesses that students have a clear understanding of airworthiness processes and how they encapsulate the needs of a particular aerospace industry. The analysis and reflection of the findings will also be assessed.

An individual reflective report which requires demonstration of independent learning of flight test and airworthiness principles and processes and their application, evaluation and critical reflection of their work both during and outside timetabled sessions. The expected output is a 3500 word report.

Resit is the same as the first sit

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

Assessment tasks:

Presentation (First Sit)

Description: Group presentation and discussion (30 minutes)

Weighting: 20 %

Final assessment: No

Group work: Yes

Learning outcomes tested: MO1

Report (First Sit)

Description: Individual Report (3500 words)

Weighting: 80 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3

Presentation (Resit)

Description: Group presentation and discussion (30 minutes)

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

Weighting: 20 %

Final assessment: Yes

Group work: Yes

Learning outcomes tested:

Report (Resit)

Description: Individual Report (3500 words)

Weighting: 80 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Aerospace Engineering [Sep][FT][Frenchay][4yrs] - Not Running MEng 2020-21

Aerospace Engineering (Systems) [Sep][FT][Frenchay][4yrs] - Not Running MEng 2020-21

Aerospace Engineering (Systems) [Sep][FT][Frenchay][3yrs] - Not Running BEng (Hons) 2020-21

Aerospace Engineering with Pilot Studies [Sep][FT][Frenchay][4yrs] - Not Running MEng 2020-21

Aerospace Engineering with Pilot Studies (Systems) [Sep][FT][Frenchay][4yrs] - Not Running MEng 2020-21

Aerospace Engineering [Sep][SW][Frenchay][5yrs] MEng 2019-20

Aerospace Engineering with Pilot Studies [Sep][SW][Frenchay][5yrs] MEng 2019-20

Aerospace Engineering with Pilot Studies (Systems) [Sep][SW][Frenchay][5yrs] MEng 2019-20

Aerospace Engineering (Systems) [Sep][SW][Frenchay][5yrs] MEng 2019-20