



Module Specification

Introduction to Pilot Studies

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Part 1: Information

Module title: Introduction to Pilot Studies

Module code: UFMF8W-15-1

Level: Level 4

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: Training of professional flying personnel requires specific conditions monitored by Aviation Authorities. Students of Aerospace Engineering with Pilot Studies, when graduate, must demonstrate pilot competencies on the level of Private Pilot License at least. This module combines engineering knowledge in the field of aerospace engineering with certified theoretical training towards Private Pilot License (Aeroplanes).

The module is designed to provide a solid foundation of knowledge, with practical exercises and tutorials that reinforce theory and will enable the extension to specialist knowledge in future years. Students build and consolidate their knowledge in a variety of forms through traditional lectures, seminars, field trips and site visits and practical oriented sessions.

Students also undertake a model aircraft design and build project where they apply this aerospace knowledge and the engineering design process to define, select the most promising solution and manufacture and evaluate the prototype solution. Students communicate their model aircraft design and build project findings and analysis through a group presentation.

Features: Not applicable

Educational aims: The aim of this module is to introduce the field of aerospace engineering, the aerospace product life cycle and core aerospace knowledge and principles which are consolidated through an assessed model aircraft design and build activity. The module introduces elements of the theoretical training towards Private Pilot Licence (Aeroplanes) – PPL(A).

Outline syllabus: Aerospace Product Life Cycle

Introduction to Engineering Design Process

Selecting the most promising solution

Prototyping a solution

Evaluating a prototype

Sampling methods and statistical techniques

Human Performance and soft skills for aerospace engineers;

The Atmosphere and meteorology;

Radio communications and operational procedures;

Principles of flight, basics of airfoils and wings, lift generation, drag and its components, thrust and weight, pitching moment;

Basic flight mechanics and performance (steady);

Flight planning and navigation;

Aircraft general knowledge and familiarisation, aircraft controls, aircraft measurement systems;

Air law and airworthiness, Safety Management System in aerospace.

Part 3: Teaching and learning methods

Teaching and learning methods: The lectorial and practical sessions aim to prepare the student to the PPL(A) practical training as well as to CAA theoretical exams which are required before the practical part. In addition to that, basic familiarisation with the university flight simulator is provided, in terms of general handling and flight instruments indication interpretation.

Students will have the opportunity to further consolidate their learning and apply their knowledge and understanding to the hands-on model aircraft design and build activity.

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

MO1 Apply the engineering design process to design, manufacture and evaluate a prototype solution within the aerospace product life cycle (EA1b, D6, P3, P4, G1, G4)

MO2 Apply mathematical and statistical methods within simulation tools in the visualisation, analysis and solution of engineering problems (SM2b, EA1b, D3b, P8)

MO3 Demonstrate knowledge and understanding of aircraft composition and mechanical, hydraulic and electrical systems and the underlying scientific and engineering principles of their operation (SM1b)

MO4 Demonstrate knowledge and understanding of flight performance and planning (SM1b, EA2)

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Computer-based activities = 4 hours

Total = 150

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link

<https://rl.talis.com/3/uwe/lists/D2FB0C7D-B6D0-FF86-D03B-28FF7AFDFF18.html?lang=en-US&login=1>

Part 4: Assessment

Assessment strategy: The first assessment consists of 2 CAA PPL mock theoretical exams (Pass/Fail).

Second assessment

The model aircraft design and build activity is communicated and assessed in the form of a group presentation of 30 minutes held at the end of the teaching block. The presentation assesses that students have a clear understanding of the engineering design process and its application to model aircraft design and build project. The results, analysis and reflection of the project findings will also be assessed.

Peer review will be included within the assessment in accordance with the departmental group work policy.

The resit assessment strategy is the same as the first sit.

Assessment tasks:

In-class test (First Sit)

Description: PPL ground school mock exam marks (2 exams to be completed)
pass/fail

Weighting:

Final assessment: No

Group work: No

Learning outcomes tested: MO3, MO4

Presentation (First Sit)

Description: Group presentation for the wing design, manufacture and evaluation of a model fixed wing aircraft.

Weighting: 100 %

Final assessment: Yes

Group work: Yes

Learning outcomes tested: MO1, MO2

In-class test (Resit)

Description: PPL ground school mock exam marks (2 exams to be completed)

Pass/fail

Weighting:

Final assessment: No

Group work: No

Learning outcomes tested: MO3, MO4

Presentation (Resit)

Description: Group presentation for the wing design, manufacture and evaluation of a model fixed wing aircraft.

Weighting: 100 %

Final assessment: Yes

Group work: Yes

Learning outcomes tested: MO1, MO2

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Aerospace Engineering with Pilot Studies [Frenchay] BEng (Hons) 2023-24

Aerospace Engineering with Pilot Studies [Frenchay] MEng 2023-24

Aerospace Engineering with Pilot Studies {Foundation} [Frenchay] BEng (Hons) 2022-23