



## **Module Specification**

### **Aircraft Systems Design**

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#### **Contents**

<b>Module Specification .....</b>	<b>1</b>
<b>Part 1: Information .....</b>	<b>2</b>
<b>Part 2: Description .....</b>	<b>2</b>
<b>Part 3: Teaching and learning methods .....</b>	<b>3</b>
<b>Part 4: Assessment.....</b>	<b>4</b>
<b>Part 5: Contributes towards .....</b>	<b>5</b>

## Part 1: Information

**Module title:** Aircraft Systems Design

**Module code:** UFMEAL-15-2

**Level:** Level 5

**For implementation from:** 2025-26

**UWE credit rating:** 15

**ECTS credit rating:** 7.5

**College:** College of Arts, Technology and Environment

**School:** CATE School of Engineering

**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:** There are many industry approaches to systems design.

This module introduces apprentices to common generic approach to systems design along with some universal stages that can usefully be considered for airframe systems design.

**Features:** Not applicable

**Educational aims:** The aim of this module is to expand the apprentices knowledge of airframe systems, their role, design and integration. It may include an appreciation of the considerations necessary when selecting different aircraft power systems for sub-systems or for the entire aircraft.

**Outline syllabus:** The module will provide a description of current aircraft systems and provide an appreciation of why they take their present form. The syllabus may include:

- Introduction to Airframe Systems
- System Design Philosophy and Safety
- Systems certification process of AS9100/ISO9001
- Aircraft Primary and Secondary Power Systems
- Hydraulic, Pneumatic and Electrical Systems
- Aircraft Environmental Control
- Fuel Systems
- Current and possible future Airframe Systems

### **Part 3: Teaching and learning methods**

**Teaching and learning methods:** This module will combine lectures and tutorials to introduce and convey key concepts of a variety of systems and sub-systems required for an aircraft and their airframe structures. Design ethos and solution methods will be presented whilst maintaining a strong ethical approach during lectures with real aerospace scenarios. The material will then be explored in depth and discussed in small groups in tutorials by using a variety of case studies and problem solving activities.

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

- MO1** Identify the main airframe systems and explain their purposes and principles of operation.

**MO2** Analyse various airframe systems architectures and reasons behind the different types.

**MO3** Describe the effects of airframe systems power provision on aircraft power plants and analyse the penalties resulting from a given sub-system.

**Hours to be allocated:** 150

**Contact hours:**

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Total = 0

**Reading list:** The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://rl.talis.com/3/uwe/lists/F9656C07-6A17-098F-B729-299E464D8B31.html?lang=en-GB&login=1) via the following link <https://rl.talis.com/3/uwe/lists/F9656C07-6A17-098F-B729-299E464D8B31.html?lang=en-GB&login=1>

## **Part 4: Assessment**

**Assessment strategy:** A report to select, size and analyse a major airframe system for an example aircraft.

The assessment process will allow apprentices to develop the project management skills and team work as part of their apprenticeship. It will provide them with the experience to write technical reports in a collaborative manner.

The resit assessment will follow the same as the first sit.

**Assessment tasks:**

**Report (First Sit)**

Description: Technical report for the design and sizing of an airframe system (2000 words)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3

**Report (Resit)**

Description: Technical report for the design and sizing of an airframe system (2000 words)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3

**Part 5: Contributes towards**

This module contributes towards the following programmes of study:

Aeronautical Engineering {Apprenticeship-UCW}[UCW] BEng (Hons) 2024-25