



## MODULE SPECIFICATION

Part 1: Information			
Module Title	Aerospace Engineering		
Module Code	UFMFRU-15-1	Level	Level 4
For implementation from	2020-21		
UWE Credit Rating	15	ECTS Credit Rating	7.5
Faculty	Faculty of Environment & Technology	Field	Engineering, Design and Mathematics
Department	FET Dept of Engin Design & Mathematics		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
<p><b>Overview:</b> This module introduces student engineers to the field of aerospace engineering including an overview of the aerospace industry and the aerospace product life cycle. Core aerospace knowledge and principles are introduced including aircraft familiarisation, effects of the atmosphere on aerospace vehicles and basic principles aircraft flight. Students build and consolidate this aerospace knowledge in a variety of forms through traditional lectures, seminars, field-trips and site visits and practical oriented sessions. This provides a solid foundation to enable deeper exploration and analysis of aerospace concepts in modules at higher levels.</p> <p>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.</p> <p><b>Educational Aims:</b> 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.</p>

## STUDENT AND ACADEMIC SERVICES

### **Outline Syllabus:** Aerospace Product Life Cycle

The Atmosphere  
 Aircraft General Knowledge  
 Introduction to Engineering Design Process  
 Selecting the most promising solution  
 Prototyping a solution  
 Evaluating a prototype  
 Sampling methods and statistical techniques  
 Basic Principles of Aircraft Flight Performance  
 Flight Performance and Planning

**Teaching and Learning Methods:** This module uses a blend of traditional lectures to introduce and convey concepts and core aerospace knowledge and principles which are consolidated through tutorials and self-paced sessions. 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.

### **Part 3: Assessment**

#### Component A

The model aircraft design and build activity is communicated and assessed in the form of a group presentation (Component A) of 30 minutes held at the end of the teaching block and provides the control condition assessment. 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.

#### Online e-assessment (Pass/Fail)

The assessment strategy is designed to encourage regular engagement with the acquisition of core aerospace knowledge and understanding and assessed through periodic online DEWIS tests. Students will receive unlimited opportunities, but must achieve a pass mark (40%) in each online exam.

First Sit Components	Final Assessment	Element weighting	Description
Presentation - Component A	✓	100 %	Group presentation for the wing design, manufacture and evaluation of a model fixed wing aircraft.
Pass/Fail module outcome			e-assessment covering aircraft knowledge, balance and performance
Resit Components	Final Assessment	Element weighting	Description
Report - Component B	✓	100 %	Individual report for the wing design, manufacture and evaluation of a model fixed wing aircraft.
Pass/Fail module outcome			Online tests covering aircraft knowledge, balance and performance

### **Part 4: Teaching and Learning Methods**

## STUDENT AND ACADEMIC SERVICES

Learning Outcomes	On successful completion of this module students will achieve the following learning outcomes:	
	<b>Module Learning Outcomes</b>	<b>Reference</b>
	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)	MO1
	Apply mathematical and statistical methods within simulation tools in the visualisation, analysis and solution of engineering problems (SM2b, EA1b, D3b, P8)	MO2
	Demonstrate knowledge and understanding of aircraft composition and mechanical, hydraulic and electrical systems and the underlying scientific and engineering principles of their operation (SM1b)	MO3
	Demonstrate knowledge and understanding of flight performance and planning (SM1b, EA2)	MO4
Contact Hours	<b>Independent Study Hours:</b>	
	Independent study/self-guided study	114
	<b>Total Independent Study Hours:</b>	114
	<b>Scheduled Learning and Teaching Hours:</b>	
	Computer-based activities	4
	Laboratory work	2
	Lectures	12
	Tutorials	18
	<b>Total Scheduled Learning and Teaching Hours:</b>	36
	<b>Hours to be allocated</b>	150
<b>Allocated Hours</b>	150	
Reading List	<p>The reading list for this module can be accessed via the following link:</p> <p><a href="https://rl.talis.com/3/uwe/lists/B9C0D62B-29E8-6A7C-120C-210D4AF60937.html?lang=en-US&amp;login=1">https://rl.talis.com/3/uwe/lists/B9C0D62B-29E8-6A7C-120C-210D4AF60937.html?lang=en-US&amp;login=1</a></p>	

### Part 5: Contributes Towards

This module contributes towards the following programmes of study: