MODULE SPECIFICATION

Part 1: Information			
Module Title	Introduction to Aeronautics		
Module Code	UFMFDH-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

Overview: This module aims to provide an introduction to the degree topic. Other level 1 modules provide a more general set of fundamental engineering modules which are vital to a student attaining a firm basis in the discipline.

This module is designed to provide a solid foundation of knowledge, with practical exercises to reinforce which will be used to extend specialist knowledge in future years.

Educational Aims: See Learning Outcomes.

Outline Syllabus: Introduction to fluid dynamics, pressure, density, hydrostatic pressure

Volumetric and mass flow rates, continuity and Bernoulli's equation

Flow measurement devices and calculations

Dimensional analysis for engineering problems

Flow types: laminar and turbulent flow, characteristics including solving basic problems

Introduction to aircraft familiarisation

Introduction to basic aerodynamics.

Use of the university subsonic windtunnel and the flight simulator

Wing design for a model aircraft and basic performance and balance calculations

Teaching and Learning Methods: Large group lecture supported by small group tutorial sessions. Study time outside of contact hours will be spent on going through example problems and designing/testing and manufacturing the model aircraft.

Lab sessions (small groups) will provide experience of the use of the flight simulator and the windtunnel.

Scheduled learning includes lectures, tutorials and laboratory session

Independent learning includes hours engaged with essential reading, assignment preparation and completion etc

Approximate contact hours:
Lecture 24
Tutorial 12
Laboratory 4

Part 3: Assessment

Component A:
Assessed via end of semester Exam (50%) in which LO1,LO2,LO4 and LO6 are covered through the specific exam questions.

Formative assessments (not contributing to module mark) is provided via support in tutorial sessions.

Component B:
Report on the model aircraft assignment in the form of a group presentation of 30 mins held during term time.(50%). In this assignment it is required that use of the subsonic windtunnel is made by the student group (LO3). The presentation will cover aspects of wing design, aerodynamic modelling and aeroplane balance (LO5, LO6, LO7).

Formative assessments provided via support in tutorial sessions.

First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Examination (Online) - Component A	✓	50 %	Online End of semester exam
Presentation - Component B		50 %	Model aircraft design and build project (Group presentation 30 mins.)
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Examination (Online) - Component A	✓	50 %	Online Exam
Presentation - Component B		50 %	Model aircraft design and build project (presentation 30 mins.)

Part 4: Teaching and Learning Methods

Learning Outcomes

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

Module Learning Outcomes	Reference
Show a detailed knowledge and understanding of key principles in fluid dynamics and aerodynamics analysis	MO1
Demonstrate a basic understanding and knowledge of modelling and solving numerical problems in fluid dynamics, based on knowledge of the relevant engineering principles	MO2
Demonstrate the ability to use specific aerospace equipment such as the subsonic windtunnel and the flight simulator	MO3
Understand the basics of aircraft composition	MO4
Show an understanding of basic model aircraft flying requirements, specifically the basics of wing design, and the balance of the model aircraft in flight	MO5
Show cognitive skills with respect to modelling and simplifying real problems, and applying mathematical methods of analysis	MO6
Demonstrate key transferable skills in problem formulation and decision making, interpreting experimental results	MO7

Contact Hours

Independent Study Hours:	
Independent study/self-guided study	110
Total Independent Study Hours:	110
Scheduled Learning and Teaching Hours:	
Face-to-face learning	40
Total Scheduled Learning and Teaching Hours:	40
Hours to be allocated	150
Allocated Hours	150

Reading List

The reading list for this module can be accessed via the following link:

https://uwe.rl.talis.com/modules/ufmfdh-15-1.html

Part 5: Contributes Towards
This module contributes towards the following programmes of study: Aerospace Engineering (Design) {Apprenticeship} [Sep][PT][UCW][4yrs] BEng (Hons) 2020-21 Aerospace Engineering [Sep][PT][UCW][8yrs] MEng 2019-20 Aerospace Engineering [Sep][PT][Frenchay][8yrs] MEng 2019-20 Aerospace Engineering (Design) [Sep][PT][Frenchay][8yrs] MEng 2019-20 Aerospace Engineering (Manufacturing) [Sep][PT][Frenchay][8yrs] MEng 2019-20 Aerospace Engineering (Systems) [Sep][PT][Frenchay][8yrs] MEng 2019-20 Aerospace Engineering {Foundation} [Sep][FT][Frenchay][4yrs] BEng (Hons) 2019-20 Aerospace Engineering (Design) {Foundation} [Sep][FT][Frenchay][4yrs] BEng (Hons) 2019-20 Aerospace Engineering (Design) {Foundation} [Sep][SW][Frenchay][5yrs] BEng (Hons) 2019-20 Aerospace Engineering (Manufacturing) {Foundation} [Sep][FT][Frenchay][4yrs] BEng (Hons) 2019-20 Aerospace Engineering (Manufacturing) {Foundation} [Sep][SW][Frenchay][5yrs] BEng (Hons) 2019-20 Aerospace Engineering (Systems) {Foundation} [Sep][FT][Frenchay][4yrs] BEng (Hons) 2019-20 Aerospace Engineering (Systems) {Foundation} [Sep][SW][Frenchay][5yrs] BEng (Hons) 2019-20