University of the West of England
BRISTOL

CORPORATE AND ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Basic Data						
Module Title	Introduction to Aerospace Vehicle Design					
Module Code	UFMF73-15-M		Level	M	Version	1.1
Owning Faculty	FET		Field	Engineering Design and Mathematics		
Contributes towards	Engineering Capability Development Framework MSc Aerospace					
UWE Credit Rating	15	ECTS Credit Rating	7.5	Module Type	Project	
Pre-requisites	None		Co- requisites	None		
Excluded Combinations	None		Module Entry requirements	The module is intended for science and engineering graduates or equivalent engaged in professions which require a comprehensive understanding of the fundamental concepts of Aerial Vehicles		
Valid From	November 2012		Valid to			

CAP Approval Date	

Part 2: Learning and Teaching	
Learning Outcomes	On successful completion of this module students will be able to: (all assessed in component A) A. Show a detailed knowledge and understanding of: • The overall configuration of aerospace vehicles • Air vehicles in operation B. Demonstrate subject-specific skills with respect to: • Fundamentals of fluids and aerodynamics C. Show cognitive skills with respect to: • The basics of aerospace vehicle design and operation D. Demonstrate key transferable skills in:

	• Communication • Self-management • IT skills in context • Problem formulation and decision making • Progression to independent learning • Awareness of professional literature • Working with others These will be taught and practised, but not formally assessed.
Syllabus Outline	• International Standard Atmosphere • Aircraft Components and Configurations • Basic Fluid Mechanics • Basics of Aerodynamics • Wind tunnels • Introduction to Supersonics • Introduction to Aeroelastics • Introduction to Powerplant Installation Aerodynamics • Design for operation, manufacture and maintenance
Contact Hours/Scheduled Hours	30 contact hours: divided between lecture materials and aircraft familiarisation. 10-15 hours of pre-module work, plus approximately 15 – 20 hours of distance learning materials.
Teaching and Learning Methods	**Scheduled learning** There is an introductory day of lectures, followed by a three day aircraft familiarisation activity. This will be a "short, fat" intensive module, and the theory will be immediately applied and assessed in a project assignment, based in the student's own organisation. **Independent learning** There will be pre-work to familiarise students with the concepts to be taught. The post module assignment will require further independent learning within the workplace.
Reading Strategy	All students will be directed and given guidance on how to make full use of the print and electronic resources available to them through membership of the university. This includes journals and resources available through websites and information gateways, and relevant information from the Library's resources. In addition, students should have access to their organisation's own resources to support the assessment activity. Students will be encouraged to develop their information retrieval and evaluation skills, to enable them to effectively identify appropriate resources. The module will be available through Blackboard, where students are guided to find all necessary module documentation and include guidance on further reading. Where appropriate, direct links to information resources will also be provided from within Blackboard. The core text for this module is listed below (1). A second highly recommended text is also identified (2); students will also gain benefit from the other texts identified in the reading list below. Further reading is required as part of the student's assignment activity, to ensure they are familiar with current industry practice, research and materials specific to this subject. Students will be guided, but will also be expected to employ their own initiative to select appropriate materials.
Indicative Reading List	1. Barnard, R.H. & Philpott D.R. (2010) "*Aircraft Flight, 4th Edition*", UK, Pearson Prentice Hall, ISBN 978-0-273-73098-9

	2. Houghton E.L. & Carpenter P.W. (2003) *"Aerodynamics for Engineering Students, 5th Edition"*, UK, Elsevier Butterworth-Heinemann, ISBN 0-7506-5111-3 3. Kermode A.C., Barnard R.H. & Philpott D.R. (2012), "*Mechanics of Flight, 12th Edition*", UK Pearson, ISBN 0273773518 4. Kundu A. (2010) "*Aircraft Design*", Cambridge University Press, ISBN 0521885167 [e-book] 5. Matthews C. (2002) "*Aeronautical Engineer's Data Handbook*", Butterworth-Heinemann, ISBN 0750651253 [e-book] 6. Hunecke K. (2012) "*Jet Engines*", Airlife Publishing. ISBN 9781853108341

Part 3: Assessment	
Assessment Strategy	The single component and element in the assessment will be a project assignment to be submitted after approximately 8 weeks. The assignment will require demonstration of independent learning of theory and critical reflection of their work both in the classroom and during the assignment period outside the classroom. A mix of general and individual written feedback will be provided. The word-length of the assessment is not relevant as the its content will be judged on quality of content and conciseness of expression in order to maximise communication effectiveness and avoid reproduction of taught material, but will normally be expected to be around 3000 to 5000 words.

Identify final assessment component and element	**A**	
% weighting between components A and B (Standard modules only)	**A:**	**B**:
	100%	**0%**

First Sit	
Component A (controlled conditions) **Description of each element**	**Element weighting** **(as % of component)**
1. Project	100%
Component B **Description of each element**	**Element weighting** **(as % of component)**

Resit (further attendance at taught classes is not required)	
Component A (controlled conditions) **Description of each element**	**Element weighting** **(as % of component)**
1. Project	100%
Component B **Description of each element**	**Element weighting** **(as % of component)**

If a student is permitted an **EXCEPTIONAL RETAKE** of the module the assessment will be that indicated by the Module Description at the time that retake commences.