MODULE SPECIFICATION

Part 1: Information			
Module Title	Aircraft Structural Design		
Module Code	UFMEWB-15-M	Level	Level 7
For implementation from	2018-19		
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		
Contributes towards			
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

Overview: Module Entry requirements, the module is intended for science and engineering graduates, or equivalent, with strong mathematical skills.

Educational Aims: See learning outcomes.

Outline Syllabus: Design requirements, airworthiness, aircraft loading actions.

Fatigue and damage considerations, safe life, fail safe and damage tolerant design philosophies.

Materials selection for strength and stiffness, joining methods and design for manufacture issues.

Aircraft Construction: - Layout, configuration and roles of structural members elements and layout, jointing, design for manufacture.

Design Analysis: - Basic material and stress data, buckling, postbuckling of compression and

shear members, bending and torsion of thin-walled box beam structures to meet required strength and stiffness limitations, detail stressing.

Teaching and Learning Methods: Lectures will introduce the general theoretical concepts and present examples in the use of these techniques.

Further learning will take place through discussion groups, case studies and tutorials.

Students will be expected to learn independently and carry out reading and directed study beyond that available in taught classes.

Part 3: Assessment

The module is examined via an exam of 3 hours which will cover the taught issues.

First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Examination - Component A	✓	100 %	Exam (180 minutes)
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Examination - Component A	✓	100 %	Exam (180 minutes)

Part 4: Teaching and Learning Methods

Learning Outcomes

On successful completion of this module students will be able to:

	Module Learning Outcomes
MO1	Airframe design philosophies, design criteria and requirements
MO2	Material properties and design for manufacturing issues
MO3	The external loads acting on aircraft
MO4	The layout, configuration and roles of structural members
MO5	The evaluation and implementation of solutions to airframe design problems
MO6	The theories, methods and analysis tools used in the design of airframes and sizing of members
MO7	The derivation of net airframe loads from given external loading actions
MO8	The design, layout and preliminary sizing of primary structural elements and members
MO9	The detail stress analysis of structural members
MO10	Awareness of professional literature
MO11	Problem formulation and decision making [
MO12	Progression to independent learning
MO13	Self-management skills

Contact Hours	**Contact Hours**	
	Independent Study Hours:	
	Independent study/self-guided study	114
	Total Independent Study Hours:	114
	Scheduled Learning and Teaching Hours:	
	Face-to-face learning	36
	Total Scheduled Learning and Teaching Hours:	36
	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/ufmewb-15-m.html	