



## MODULE SPECIFICATION

Part 1: Information			
Module Title	Aircraft Structural Design		
Module Code	UFMEWB-15-M	Level	Level 7
For implementation from	2019-20		
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> Module Entry requirements, the module is intended for science and engineering graduates, or equivalent, with strong mathematical skills.</p> <p><b>Educational Aims:</b> See learning outcomes.</p> <p><b>Outline Syllabus:</b> Design requirements, airworthiness, aircraft loading actions.</p> <p>Fatigue and damage considerations, safe life, fail safe and damage tolerant design philosophies.</p> <p>Materials selection for strength and stiffness, joining methods and design for manufacture issues.</p> <p>Aircraft Construction: - Layout, configuration and roles of structural members elements and layout, jointing, design for manufacture.</p> <p>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.</p> <p><b>Teaching and Learning Methods:</b> Lectures will introduce the general theoretical concepts and present examples in the use of these techniques.</p>

## STUDENT AND ACADEMIC SERVICES

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 achieve the following learning outcomes:	
	<b>Module Learning Outcomes</b>	<b>Reference</b>
	Airframe design philosophies, design criteria and requirements	MO1
	Material properties and design for manufacturing issues	MO2
	The external loads acting on aircraft	MO3
	The layout, configuration and roles of structural members	MO4
	The evaluation and implementation of solutions to airframe design problems	MO5
	The theories, methods and analysis tools used in the design of airframes and sizing of members	MO6
	The derivation of net airframe loads from given external loading actions	MO7
	The design, layout and preliminary sizing of primary structural elements and members	MO8
	The detail stress analysis of structural members	MO9
	Awareness of professional literature	MO10
	Problem formulation and decision making [	MO11
	Progression to independent learning	MO12
Self-management skills	MO13	
Contact Hours	<b>Independent Study Hours:</b>	
	Independent study/self-guided study	114
	<b>Total Independent Study Hours:</b>	114

## STUDENT AND ACADEMIC SERVICES

	<b>Scheduled Learning and Teaching Hours:</b>	
	Face-to-face learning	36
	<b>Total Scheduled Learning and Teaching Hours:</b>	36
	<b>Hours to be allocated</b>	150
	<b>Allocated Hours</b>	150
Reading List	<p><i>The reading list for this module can be accessed via the following link:</i></p> <p><a href="https://uwe.rl.talis.com/modules/ufmewb-15-m.html">https://uwe.rl.talis.com/modules/ufmewb-15-m.html</a></p>	

### Part 5: Contributes Towards

This module contributes towards the following programmes of study: