



MODULE SPECIFICATION

Part 1: Information			
Module Title	Landing Gear Systems Design M3A-ATA 32		
Module Code	UFMFYH-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:	Project		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
<p>Features: Module entry requirements: Appropriate Engineering Graduate Level Work Experience.</p> <p>Educational Aims: The syllabus is constructed to provide a blend of academic learning and practical examples, in order to provide a detailed understanding of landing gear systems development and design processes.</p> <p>Outline Syllabus: Landing Gear Systems Architecture and Integration: Processes and specifications by which ATA32 systems are architected and the sub-systems integrated to develop a system that meets the end user requirements. Particular emphasis will be given to system safety analysis and system performance analysis as methods for architecting systems.</p> <p>System and Sub-Systems Requirements Development, Validation and Verification: Requirements development and flow down process as applied to landing gear systems. The V and V process will also be discussed and examples of validation and verification methods as applied to landing gear systems will be given.</p> <p>Landing Gear Sub-Systems Overview:</p>

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Architecture and design considerations for the major ATA32 sub-systems including Extension/Retraction Systems, Nose Wheel Steering Systems, Braking Systems, Wheels and Brakes and Landing Gear Dressings.

System Design Fundamentals:

Design principles governing the design of systems equipment including hydraulics, electronics and software.

Future Systems:

An overview of the technology being developed today for tomorrows landing gear systems, including Electro-Mechanic Actuation Systems, Electro-Hydrostatic Actuation Systems and Electric Taxiing Systems.

Teaching and Learning Methods: 35 hours over 5 days to be divided between formal delivery and learning support.

Scheduled Learning

There are 5 days of lectures, demonstrations and syndicated exercises. These are scheduled so that the lecture material is reinforced by practical exercises.

Independent Learning

Following an intensive short course delivery, students are required to conduct an independently managed investigation leading to an assessed report. This will require students to extend their knowledge and application beyond the scope of the taught material.

Part 3: Assessment

The assessment will cover the systems development process and system design considerations with associated calculations required for development of a landing gear system concept. The report will be assessed based on the student demonstrating understanding and application of the Learning Outcomes. The nature of the assessment will be a significant piece of individual work undertaken after the taught part of the module to allow the synthesis and evaluation of taught material.

As a focused, intensive module taught in a single week, the assessment aims to determine the student's ability to implement and reflect upon the skills learnt. The assessed report is to be submitted approximately 8 weeks after the workshop.

The assessment requires demonstration of independent learning of theory and critical reflection of the student's work, both in the classroom and especially during the assignment period outside the classroom. Students are expected to be able to show through the reflective element how they have achieved the module's learning outcomes.

A mix of general and individual written feedback will be provided. The assessment's content will be judged on quality of content and conciseness of expression in order to maximise communication effectiveness and avoid reproduction of taught material, and normally be expected to be not more than 5000 words.

First Sit Components	Final Assessment	Element weighting	Description
Report - Component A	✓	100 %	Report (5000 words)
Resit Components	Final Assessment	Element weighting	Description
Report - Component A	✓	100 %	Resubmission of report

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Part 4: Teaching and Learning Methods																	
Learning Outcomes	<p>On successful completion of this module students will achieve the following learning outcomes:</p> <table border="1"> <thead> <tr> <th style="text-align: left;">Module Learning Outcomes</th> <th style="text-align: left;">Reference</th> </tr> </thead> <tbody> <tr> <td>Describe and explain the ATA32 system and sub-systems architecture, interactions and interfaces.</td> <td>MO1</td> </tr> <tr> <td>Demonstrate understanding of the design concepts of the main ATA32 sub-systems.</td> <td>MO2</td> </tr> <tr> <td>Apply hydraulic, electronic and software design principles to the integrated design of landing gear systems.</td> <td>MO3</td> </tr> <tr> <td>Critically appraise the requirements development, validation and verification process.</td> <td>MO4</td> </tr> <tr> <td>Show critical understanding of the wider literature in this field that will inform the design of future landing gear systems.</td> <td>MO5</td> </tr> </tbody> </table>	Module Learning Outcomes	Reference	Describe and explain the ATA32 system and sub-systems architecture, interactions and interfaces.	MO1	Demonstrate understanding of the design concepts of the main ATA32 sub-systems.	MO2	Apply hydraulic, electronic and software design principles to the integrated design of landing gear systems.	MO3	Critically appraise the requirements development, validation and verification process.	MO4	Show critical understanding of the wider literature in this field that will inform the design of future landing gear systems.	MO5				
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Reading List	<p><i>The reading list for this module can be accessed via the following link:</i></p> <p>https://uwe.rl.talis.com/index.html</p>																

Part 5: Contributes Towards
This module contributes towards the following programmes of study: