MODULE SPECIFICATION

Part 1: Information			
Module Title	Aircraft Systems Verification		
Module Code	UFMFQH-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
Overview: The module aims to provide an advanced study of how best to perform verification (both hardware and software) of an avionics system whilst ensuring conformance to the relevant safety standards which govern development. **Educational Aims:** See Learning Outcomes **Outline Syllabus:** What is verification? The context for verification -Why, when and where do we need it? Verification vs. validation Understanding the limits of what we can achieve -Level of confidence derived from verification The cost of bad verification Case study

Verification Leadership:

Judging the amount of verification we need for a particular project

Costing verification as part of a bid
-Understanding the supply chain
-Understanding what needs to be performed internally
-Understanding what needs to be delivered

Identifying the risks, and the mitigation plans
-Can we mitigate all risk?

What is the change management plan?

The verification process:

Defining a verification strategy

Integrating with the development process

Verification at different levels of hierarchy

Planning, tracking, signing off

Defining and tracking metrics

Managing change
-Performing an efficient impact analysis to a sufficient level of detail

Case study

Verification Techniques:

Choosing the appropriate techniques

What metrics will be needed

Case study

Understanding the supply chain from a verification perspective:

Assessing verification plans from suppliers

Assessing verification performed by suppliers

What is needed for COTS?

Case study

Safety and verification:

Conforming to safety standards

Case study

Teaching and Learning Methods: The module includes presented material and group project work based on a case study so that students can experience the issues when verifying complex aircraft systems.

Part 3: Assessment

The assessment will bring all the concepts together via the case study, which is based on real projects from the organisation. This will include:

Assessing the safety level

Generating an verification strategy and plan.

Identifying the expected cost of the verification.

Identifying deliverables, from suppliers; to the client.

It consists of a single submission – maximum 4000 words, comprising:

A group report describing and reflecting on the team coursework performed during and outside scheduled contact periods – maximum 2000 words. This element is expected to pick up on the technical details of the project, as per the learning outcomes.

An individual report, reflecting and speculating on the implications of the module content for his/her own experience – maximum 2000 words. This element is expected to focus on the individual's own learning experience, both the technical skills learnt and the team working / business skills required to achieve the project.

This submission will show how well the team worked on the case study to meet the organisation's capability requirements, and providing an individual reflection of the activity for personal career development.

Note: the re-sit submission will consist of an individual reflection. This will be undertaken with respect to a suitable group project report submitted by the rest of the relevant team. It will be a maximum of 4000 words.

First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Reflective Diary - Component A	✓	50 %	Individual Reflection
Project - Component A		50 %	Group project report
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Reflective Diary - Component A	✓	100 %	Individual reflection based on a suitable group report

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**
Demonstrate an understanding of verification: Be able to explain various aspects of verification including: how it differs from validation; the context for verification; describe the limits of verification; the costs associated with good and bad verification. Be able to apply that understanding to a project.	MO1
Explain the verification process and how it fits with the development process including verification at different levels of system hierarchy, justify with reason the	MO2

	choice of verification techniques, defining suitable metrics that can be used to track progress and define verification completeness.	
	Reflect on the impact on integration of any changes in the project (e.g. changes in product requirements) and assess the change management plan.	MO3
	Demonstrate the ability to put verification into the context of the safety requirements for a project and make suitable contributions to any safety assessments.	MO4
	Provide verification leadership within given a project context by demonstrating the ability to define a verification strategy and plan, estimate cost and duration, identify risks and create a risk mitigation plan.	MO5
	Critically evaluate a verification strategy and plan.	MO6
	Demonstrate an understanding of the supply chain including assessment of a supplier's verification plan and deliverables, and their verification responsibility to their customer.	MO7

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/ufmfqh-15-m.html	

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