

MODULE SPECIFICATION PROFORMA

Module Title:	Aircraft Maintenance Planning	Level:	6	Credit Value:	20
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Module code:	ENG699	Is this a new module?	Yes	Code of module being replaced:	
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Cost Centre(s):	GAME	JACS3 code:	H410
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With effect from:	September 17
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School:	Applied Science, Computing & Engineering	Module Leader:	N Burdon
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Scheduled learning and teaching hours	60 hrs
Guided independent study	140 hrs
Placement	0 hrs
Module duration (total hours)	200 hrs

Programme(s) in which to be offered	Core	Option
BEng (Hons) Aircraft Maintenance	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Pre-requisites
None

Office use only

Initial approval: February 17

APSC approval of modification:

Have any derogations received Academic Board approval?

If new module, remove previous module spec from directory?

Version: 1

Yes No N/A

Yes No

Module Aims

- To introduce the student to aircraft maintenance fundamentals with respect to airframe, systems and power plant.
- To provide the student with an advanced understanding of: Methods of life & failure analysis and monitoring to ensure flight safety, Human error factors on maintenance and planning,
- To ensure the students is fully aware of the legal requirements of aircraft maintenance with respect to the global regulation, and identify EASA categories of aircraft and their issues, e.g. Class M Complex, ELA1&2, EASA Pt145.
- To ensure the student appreciates and carries out correct safety procedure, and safe working practices embedded in aircraft maintenance.

Intended Learning Outcomes

Key skills for employability

- KS1 Written, oral and media communication skills
 KS2 Leadership, team working and networking skills
 KS3 Opportunity, creativity and problem solving skills
 KS4 Information technology skills and digital literacy
 KS5 Information management skills
 KS6 Research skills
 KS7 Intercultural and sustainability skills
 KS8 Career management skills
 KS9 Learning to learn (managing personal and professional development, self-management)
 KS10 Numeracy

At the end of this module, students will be able to

Key Skills

At the end of this module, students will be able to		Key Skills	
1	Assess the requirements of the airframe, systems, and power plant maintenance, and identify the key factors in maintaining airworthiness.	KS1	KS5
2	Explain and utilise material testing methods, such as destructive and non-destructive experimentation to analyse safety factors.	KS4	KS10
		KS5	
3	Identify EASA categories with respect to Continuing Airworthiness, the legal responsibilities, and how they relate to other global regulatory bodies.	KS1	KS6
		KS3	KS4
4	Identify safe working practices in a maintenance organisation, and analyse situations to risk and hazard.	KS6	

Derogations

A derogation from regulations has been approved for this programme which means that whilst the pass mark is 40% overall, each element of assessment (where there is more than one assessment) requires a minimum mark of 30%.

Assessment:

The student will be assessed with a Case Study to highlight the issues of an aircraft operated in a global market; and a report based on a practical experimental investigation, for example a specimen impact test.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)	Duration (if exam)	Word count (or equivalent if appropriate)
1	1,3,4	Case Study	70		3000
2	2	Report	30		1500

Learning and Teaching Strategies:

This module will be delivered as a series of lectures, case-study seminars and break-out sessions during which students will be encouraged to discuss the issues of flight safety. The student will also be required to undertake significant reading of regulatory material.

Syllabus outline:

Maintenance Procedures: Maintenance Planning, Maintenance Inspection, Aircraft Servicing Procedures, Modification Procedures, Stores Procedures, Quality Control / Quality Assurance, Control of Life Limited Components, Certification and Release, Aircraft Operation, Aging, Fatigue and Corrosion control programmes, Aircraft Weight and Balance. Tool Control, Working Practices, Aeronautical Standards eg ISO, MIL

Material Testing & Use of Information: NDT, Ultimate Tensile Strength, Hardness, Fracture Toughness, Fatigue, Creep. Wear, Ductility, Thermal, Optical. Critical use of e.g. British and/or EN standards, product data sheets, Extrapolation of experimental data to predict Life, Fatigue Index.

Legal Considerations: FAA, CAA, JAR, EASA, Part M Continuing Airworthiness, Part 66 Certification & Authorisation, Maintenance Organisation Approval - Part 145, Bilateral Agreements. Non-Regular Maintenance e.g CAA Mandatory Permit Directives.

Bibliography:

Essential reading

Kinnison, H.A. and Siddiqui T., 2013. *Aviation Maintenance Management*. 2nd Ed. New York: McGraw - Hill
De Florio, F., 2016. *Airworthiness - An Introduction to Aircraft Certification & Operations*. 3rd Ed. Oxford: Butterworth-Heinemann

Other indicative reading

EASA, 2016. *EASA Regulations*. [online] Available at:
<<http://www.easa.europa.eu/regulations>> [Accessed 29 November 2016]
CAA, 2016. *CAA Airworthiness Guide*. [online] Available at:
<<https://www.caa.co.uk/Commercial-Industry/Aircraft/Airworthiness/>> [Accessed 29 November 2016]
CAA, 2002. *Human Factors in Aircraft Maintenance*. [pdf] TSO: Available at:
<<https://publicapps.caa.co.uk/docs/33/CAP715.PDF>> [Accessed 29 November 2016]