Module Title:	Aircraft Systems
Language of Instruction:	English

Credits:	10

NFQ Level:	7

Module Delivered In	2 programme(s)

Teaching & Learning Strategies:	This module will be taught by Lectures, Tutorials, Class/Group Discussions and Practical Tasks on aircraft/engines using maintenance data, manuals and documents. Concepts will be demonstrated using model/actual aircraft/engines.

Module Aim:	The student will understand various aircraft systems and correctly apply appropriate maintenance procedures to develop essential analytical, troubleshooting and practical skills whilst working on aircraft/engine systems.

Learning Outcomes
On successful completion of this module the learner should be able to:

LO1	Identify and explain the correct operation of a wide range of aircraft systems
LO2	Demonstrate correct standard practices/procedures on (and safe operation of) aircraft systems
LO3	Analyse and troubleshoot common problems/faults on/with aircraft systems
LO4	Explain the interrelationships between different aircraft systems and the effect/impact on each other
LO5	Develop their own personal group/teamworking technical/ethical & practical skills in the aviation workshop/hangar/lab environment

Pre-requisite learning

Module Recommendations
This is prior learning (or a practical skill) that is recommended before enrolment in this module.

No recommendations listed

Incompatible Modules
These are modules which have learning outcomes that are too similar to the learning outcomes of this module.

No incompatible modules listed

Co-requisite Modules

No Co-requisite modules listed

Requirements
This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.

No requirements listed

Module Content & Assessment

Indicative Content
Hydraulic Power (ATA 29) System lay-out; Fluid Types; Components; Normal/Emergency Power Generation - Electrical/Mechanical/Pneumatic; Pressure/Flow Control; Power Distribution; Indication/Warning; Interface with Other Systems
Landing Gear (ATA 32) Design/Types/Construction, Shock Absorption; Normal/Emergency Extension/Retraction Systems; Indication/Warning; Wheels, Brakes, Antiskid & Autobraking. Tyres; Nose/Body Steering; A/G Sense
Pneumatic/Vacuum (ATA 36) System lay-out; Sources - Engine/APU, Compressors, Air Bottle, Ground Supply; Pressure/Flow Control; Distribution; Indication/Warning; Interface with Other Systems
Air Supply, Conditioning & Pressurisation (ATA 21) Air Supply - Source, Engine Bleed, APU & Ground. Air Conditioning - Air Cycle & Vapour Cycle Machines; Distribution/Flow/Temperature & Humidity Control; Heating. Pressurisation - Control/Indication; Cabin Pressure Controllers; Safety/Protection/Warning Devices
Oxygen (ATA 35) System lay-out - Cockpit/Cabin; Storage, Charging & Distribution; Supply Regulation; Indication/Warning
Fuel Systems (ATA 28) System lay-out; Storage/Supply/Dump/Jettison/Vent/Draining/Cross-feed & Transfer Sub-systems; Indication/Warning; Re/Defuelling; C of G Control systems
Ice & Rain Protection (ATA 30) Ice formation/Classification/Detection; Anti/De-Icing - Electrical, Hot Air, Pneumatic & Chemical; Probe/Drain Heating. Rain Repellant/Wiper Systems
Fire Protection (ATA 26) Fire/Smoke, Detection/Warning/Extinguishing systems; Testing, Portable Fire Extinguishers
Water & Waste (ATA 38) System lay-out, Supply/Distribution/Servicing & Draining; Toilet System lay-out, Flushing & Servicing; Corrosion
Equipment & Furnishings (ATA 25) Emergency Equipment Requirements; Seats/Harnesses & Belts; Cabin/Equipment lay-out; Cabin Furnishing/Installation; Cabin Entertainment Equipment; Galley Installation; Cargo Handling/Retention Equipment; Airstairs
Integrated Modular Avionics (ATA 42) Core System/Network Component Function; Integrated Modular Avionics (IMA) including - Bleed Management, Air Pressure/Temperature & Air/Cockpit/Avionics Ventilation Control, Air Traffic/Avionics Comms, Electrical Load Management, Circuit Breaker Monitoring, Electrical System (BITE), Fuel Management, Braking/Steering Control Temperature Monitoring, Landing Gear Extension/Retraction, Tyre/Oleo Pressure Indication, etc.
Cabin (ATA 44) & Information (ATA 46) Systems Passenger Entertainment & Cabin Intercommunication Data Systems; Cabin Network Service; Data exchange between LRUs, typically operated via Flight Attendant Panels including - Data/Radio Comms & In-Flight Entertainment/Cabin Core/External Comms/Cabin Mass Memory/Cabin Monitoring/Miscellaneous Cabin Systems; Storage, Updating & Retrieval of Digital Information. Electronic Library Mass Storage Control including - Air Traffic/Information Management/Network Server/Aircraft General/Flight Deck/Maintenance/Passenger Cabin/Miscellaneous Information Systems

Assessment Breakdown	%
Continuous Assessment	30.00%
Project	40.00%
Practical	30.00%

Continuous Assessment				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Written Report	Each student will accurately record and collate evidence of their practical tasks/activities into a Training Logbook, during term time for which a maximum of 30% will be awarded	1,2,3	30.00	n/a

Project				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Project	Each student will record and collate a range of their own personal experiences into a Journal/Reflective Learning Portfolio, during term time for which a maximum of 40% will be awarded	2,4,5	40.00	n/a

Practical				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Practical/Skills Evaluation	Each student will successfully complete a range of Practical Labs/Engineering Tasks on aircraft/engines during term time for which a maximum of 30% will be awarded	1,2,3,4,5	30.00	n/a

No End of Module Formal Examination

SETU Carlow Campus reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full Time		
Workload Type	*Frequency*	*Average Weekly Learner Workload*
Lecture	12 Weeks per Stage	5.00
Practicals	12 Weeks per Stage	4.00
Independent Learning	15 Weeks per Stage	9.47
	Total Hours	250.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_EEAER_B	[Bachelor of Engineering (Honours) in Aerospace Engineering](#)	6	Elective
CW_EEACS_D	[Bachelor of Engineering in Aircraft Systems](#)	6	Mandatory

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