

Module Title:	Aircraft Anatomy and Design 1
Language of Instruction:	English
Credits:	5
NFQ Level:	6
Module Delivered In	3 programme(s)
Teaching & Learning Strategies:	The module will be delivered with a blend of lectures and problem based learning for tutorials and laboratory sessions, and will be assessed through continuous assessment and a terminal examination.
Module Aim:	To give learners an understanding of the basic mechanical, electrical and instrument systems within an aircraft. To provide learners with the skills and techniques required to understand the basic concepts used in the conceptual design of an aircraft using industry standard tools. To provide learners with a foundation for subsequent modules in the area of aircraft design. To provide learners will an introduction to CAD drawing software.

Learning Outcomes	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	Describe the construction and control of a typical aircraft
LO2	Explain the design, construction and operation of the mechanical, electrical and instrument systems within an aircraft
LO3	Solve problems involving forces, moments and couples
LO4	Calculate basic aircraft design parameters of centre of gravity, take-off distance, stall speed, and flight endurance
LO5	Produce 2D CAD/technical drawings of a 3 dimensional product that would be understood and manufactured by a engineering workshop technician

Pre-requisite learning
Module Recommendations <i>This is prior learning (or a practical skill) that is recommended before enrolment in this module.</i>
No recommendations listed
Incompatible Modules <i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module.</i>
No incompatible modules listed
Co-requisite Modules
No Co-requisite modules listed
Requirements <i>This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.</i>
No requirements listed

Module Content & Assessment

Indicative Content

Mechanics Statics

- Scalars and Vectors - Resolution of vectors - Forces, moments and couples - Centre of gravity

Aircraft General Knowledge

- Basic of an Aircrafts - Airframe Structures - Primary Flight Controls - Tabs and High Lift Devices - Ignition and Electrical Systems - Powerplant - Propellers - Flight Instruments - Fuel Systems - Lubrication Systems - Cooling Systems - Landing Gear

Computer Aided Design

- 2D drawings software - 3 view drawings - 3D modelling fundamentals

Assessment Breakdown	%
Continuous Assessment	20.00%
Practical	20.00%
End of Module Formal Examination	60.00%

Continuous Assessment

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Examination	Learners will complete a mid term class test during the module which may be of written or online form.	1,3	10.00	Week 7
Practical/Skills Evaluation	The learner will complete a CAD drawing assignment to produce a set of 3 view drawings for a component to be manufactured.	5	10.00	Week 12

No Project

Practical

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Practical/Skills Evaluation	The learner will complete a number of practical exercises in the hangar pertaining to various systems used on aircraft.	1,2,4	10.00	Every Week
Practical/Skills Evaluation	The learner will complete CAD assignments demonstrating elements of software	5	10.00	n/a

End of Module Formal Examination

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Formal Exam	The learner will complete a written terminal exam on the topics presented in the module	1,2,3,4	60.00	End-of-Semester

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

Module Workload

Workload: Full Time		
<i>Workload Type</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	12 Weeks per Stage	2.00
Laboratory	12 Weeks per Stage	3.00
Independent Learning	15 Weeks per Stage	4.33
Total Hours		125.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_EEAER_B	Bachelor of Engineering (Honours) in Aerospace Engineering	1	Mandatory
CW_EEACS_D	Bachelor of Engineering in Aircraft Systems	1	Mandatory
CW_EEPLT_D	Bachelor of Science in Pilot Studies	1	Mandatory