MODULE DESCRIPTION FORM

DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING

16309 AERO-DESIGN 2

Module Registrar: Dr Tugrul Comlekci t.comlekci@strath.ac.uk	**Taught To (Course): Cohorts for whom class is compulsory**		
Other Lecturers Involved: Dr Marco Fossati	**Credit Weighting: 20 (ECTS 10)**	**Semester: 2**	
Assumed Prerequisites: 16351 Flight and Spaceflight 2, 16259 Aero Design 1, 16231 Flight and Spaceflight 1	**Compulsory class**	**Academic Level: 3**	**Suitable for Exchange: N**

Module Format and Delivery (HOURS i.e. 1 credit = 10hrs of study):

Lecture	Tutorial	Laboratory	Groupwork	External	Online	Project	Assignments	Private Study	**Total**
			200						200

Educational Aim

It is essential that students should have experience in applying engineering principles in a design context. It is the aim of this class to have students experience the application of knowledge, gained primarily from previous prerequisite classes to various stages of the aircraft design process together with new knowledge gained as part of design project completion.

Learning Outcomes

On completion of the module the student is expected to be able to:

LO1 Apply and implement methods for the analysis of flight mechanics and aerodynamics

LO2 Develop a concept from inception to detail design level

LO3 Examine and implement time-planning and scheduling

LO4 Examine the design process

Syllabus

The class consists of a semester-long design/build/test group exercise.

The projects available each year will depend upon the staff involved in this class. Typical projects which might be available are:

Design a remote-controlled UAV to carry the maximum payload to mass ratio around a specified course,

or

Design a remote-controlled UAV to carry the most tennis balls around a specified course on one charge of a specified battery.

Please note that group participation is dependent on satisfactory peer mark in 16351.

Assessment of Learning Outcomes

Criteria

For each of the Module Learning Outcomes the following criteria will be used to make judgements on student learning:

LO1
C1 By designing the model aircraft the students will demonstrate a deeper understanding.

LO2
C1 Creation of the aircraft will demonstrate the students' ability to take a design from concept through to detailed design.

LO3
C1 Create a Gantt chart to demonstrate time and project planning.
C2 Keep a logbook to track individual time and project planning.

LO4
C1 Initial flight test, demonstrate understanding of performance, identifying and implementing modifications to the design as required.

The standards set for each criterion per Module Learning Outcome to achieve a pass grade are indicated on the assessment sheet for all assessment.

Principles of Assessment and Feedback
(within Assessment and Feedback Policy at: https://www.strath.ac.uk/professionalservices/staff/policies/academic/)

Assessment is carried out at the end of the semester on the following basis:

Design Presentation	15%
Report	30%
Drawings	10%
Tech Log	15%
Overall Design/Build Quality/Performance	30%

Feedback will be provided throughout the semester by:

- Informal discussion about the group's aircraft's design and manufacture.
- Constructive criticism of the group presentation.
- Comments on the technical content and presentation of the group's final report

A final mark will not be awarded until the group technical log is complete.

NB: A peer mark will be taken every two weeks and a student with a peer mark below 50% will be given an individual oral examination to establish if and why they are not contributing to the project. If a student does not contribute to the progress of the group an individual project may be assigned at any time during the semester. The size of this project will depend on when it is set.

For this module, peer assessment will be applied to the group assignment. Students will evaluate their peers' contributions to the assignment using Myplace. The students' grade will be determined by combining the staff grade for that assignment with the students' weighted contribution – determined from each member's evaluation of the student.

Assessment Method(s) Including Percentage Breakdown and Duration of Exams *(individual weightings)*

Examination				**Coursework**		**Practical**		**Project**	
Number	Month(s)	Duration	***Weighting***	Number	***Weighting***	Number	***Weighting***	Number	***Weighting***
								1	100%
*				*		*		* LO1-LO4	

* ***L/Os:*** *Indicate which Learning Outcomes (L01, L02, etc) are to be assessed by exam/coursework/practical/project as required.*

Coursework / Submissions deadlines (*academic weeks*):
Peer Mark due in Weeks 4 and 7
Design Presentation due in Week 10

Report due in Week 11
Drawings due in Week 11
Technical log due in Week 11

Resit Assessment Procedures:
Submission of alternate ^^coursework prior to commencement of the July/August exam diet.

^^Students must contact the module Registrar for details as soon as results confirm that a resit is required.

PLEASE NOTE:
Students must gain a summative mark of 40% to pass the module. Students who fail the module at the first attempt will be re-assessed prior to the July/August diet. This re-assessment will consist of an additional design project and submission of a design report. No marks from any previous attempts will be transferred to a new resit attempt.

Recommended Reading

*****Purchase recommended **Highly recommended reading *For reference**

** "Aircraft Performance" by Mair, W.A., and Birdsall, D.L., Cambridge, ISBN 0521362644, Online ISBN: 9780511607134, DOI: https://doi.org/10.1017/CBO9780511607134

or

** "Aircraft Performance and Design" by Anderson, J., McGraw Hill, ISBN 0-07-001971-1

Additional Student Feedback
(Please specify details of when additional feedback will be provided)

Date	Time	Room No
		Check timetable webpages for details

Session: 2024/25

Approved:

Programme Lead / Director Signature: Dr A McLaren

Date of Last Modifications: 09/09/2024

(MAE template updated July 2024)

MODULE TIMETABLE

Module Code:	**16309**	**Module Title:**	**Aero-Design 2**

Brief Description of Assessment:

Design Presentation	15%
Report	30%
Drawings	10%
Tech Log	15%
Overall Design/Build Quality/Performance	30%

Exact timings of assessments will be communicated during the semester.

Assessment Timing

Indicated on the table below are the start/submission dates for each assignment/project and the timing of each exam/assessment.

Please note: Timings could change during unforeseen periods of disruption; this should only be used as a guide.

Semester One	C&D Wk	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9	WK10	WK11	Exam Period
	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item.

Semester Two	C&D Wk	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9	WK10	WK11	Exam Period
	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Peer Review	Choose an item. Choose an item.	Choose an item. Choose an item.	Peer Review	Choose an item. Choose an item.	Choose an item. Choose an item.	Presentation	Drawings Report Tech Log Peer review	Choose an item.