DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING

16351 FLIGHT AND SPACEFLIGHT 2

Module Registrar: Dr S Bi sifeng.bi@strath.ac.uk	Taught To (Course): Cohorts for whom class is compulsory		
Other Lecturers Involved: Mr Chris Cameron	Credit Weighting: 10 (ECTS 5)	Semester: 1	
Assumed Prerequisites: 16231 Flight and Spaceflight, 16259 Aero Design 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	Group work	External	Online	Project	Assignments	Private Study	Total
2			98						100

Educational Aim

Flight and Spaceflight 2 builds on the initial work carried out in Flight and Spaceflight 1 and Aero Design 1 and is intended to develop the student's knowledge through the application of mathematical modelling of an aircraft's stability, control and performance in the design of a small scale UAV.

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 group design exercise.

The projects available each year will depend upon the staff involved in this class. A typical project which might be available is:

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.

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   Carry out performance, stability and control calculations on the chosen configuration

LO2

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

LO3

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

LO4

C1.   Write a report to demonstrate the development of the proposed design.
C2.   After 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 will be carried out through a laboratory and project reporting according to the following:

Peer assessment mark	15%
Technical logs	40%
Drawings	25%
Presentation	20%

Feedback will be provided throughout the semester by:

- Comments on the completed tech logs
- Informal discussion about the group's aircraft's design
- Constructive comments of the group presentations.

NB: A peer mark will be taken during the design project and a student with a peer mark, from any of the three returns, at or below 50% will be given an individual oral exam to assess if and/or why they are not contributing to the project and may be asked to submit an individual assignment.

If a student does not contribute to the progress of the group and gets a peer mark at or below 50% the student may not be able to take part in the build phase of the design in 16309 and an individual project will be assigned for the 16309 Aero-Design 2 class.

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: To be confirmed

Resit Assessment Procedures: Requirement to carry out additional work as agreed with Class Registrar.

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

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PLEASE NOTE:
Students need to gain a summative mark of 40% to pass the module.   Students who fail the module at the first attempt will be re-assessed by early August.   This re-examination will consist of carrying out additional work as agreed with Class Registrar or an alternate submission of laboratory and/or flight test course reports.   No marks from any previous attempts will be transferred to a new resit attempt.

Recommended Reading

***Purchase recommended   **Highly recommended reading   *For reference (do NOT purchase)
**   "Fundamentals of Flight" by Shevell, Prentice Hall, ISBN 133329178 ***   "Introduction to Flight" by Anderson, McGraw Hill, ISBN 0-07-109282-X

Additional Student Feedback

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

Date	Time	Room No

Session:	2023/24

Approved:

Course Director Signature:	**S Connolly (on behalf of E Henderson)**
Date of Last Modifications:	**25/08/2023**

(Updated August 2023)

MODULE TIMETABLE

Module Code:	16351	Module Title:	Flight and Spaceflight 2

Brief Description of Assessment:

Peer mark	15%
Tech logs	40%
Drawings	25%
Presentation	20%

Assessment Timing:

Please note: Timings can and will change, this should only be used as a guide.

Semester One	W&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 Tech log	Choose an item. Choose an item.	Choose an item. Choose an item.	Peer review Tech log	Choose an item. Choose an item.	Choose an item. Choose an item.	Presen tation	Peer review Tech log Drawings	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.	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.