MODULE DESCRIPTION FORM

16309 Aero-Design 2

Module Registrar: Dr M Stickland
matt.stickland@strath.ac.uk

Other Lecturers Involved: Dr T Comlekci

Taught To (Course): Cohorts for whom class is compulsory

Credit Weighting: 20 (ECTS 10)
Semester: 2

Assumed Prerequisites: 16351 Flight and Spaceflight 2
Compulsory class
Academic Level: 3

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

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Tutorial</th>
<th>Laboratory</th>
<th>Groupwork</th>
<th>External</th>
<th>Online</th>
<th>Project</th>
<th>Assignments</th>
<th>Private Study</th>
<th>Total</th>
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<td>200</td>
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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 classes, to various stages of the design process together with new knowledge gained as part of project completion.

Learning Outcomes

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

LO1 Generate a deeper understanding of flight mechanics and aerodynamics
LO2 Develop a concept from inception to detail design level
LO3 Realise the crucial need for time-planning and scheduling
LO4 Appreciated design as a process of iteration

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. A typical project which might be available is:

**BMFA “University Challenge”**

Groups of approximately 5 students design, build and test a small scale remote control aircraft to take part in the BMFA University Challenge. Over the 12 weeks of the semester, the groups will develop their design, build, test and optimise the design. The aircraft are taken by the teams to fly off in the competition held at Elvingon Airfield, York, in June. A small budget is allocated to each group.

*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 Generate a deeper understanding of flight mechanics and aerodynamics
C1 By designing the model aircraft the students will demonstrate a deeper understanding
LO2 Develop a concept from inception to detail level
C1 Creation of the aircraft will demonstrate the students’ ability to take a design from concept through to detailed design

LO3 Realised the crucial need for time-planning and scheduling
C1 Create a Gantt chart to demonstrate time and project planning
C2 Keep a log book to demonstrate individual time and project planning

LO4 Appreciated design as a process of iteration
C1 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.

12 Principles of Assessment and Feedback
(On Learning & Teaching web pages: www.strath.ac.uk/learnteach/informationforstaff/staff/assessfeedback/12principles/)

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

| Individual Logbook (including organisation of time) + technical log | 10% |
| Design Presentation | 15% |
| Peer Mark | 20% |
| Report | 35% |
| Overall Design Assessment/Performance | 20% |

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 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.

At the BMFA competition the students will be required to give a presentation to a group of industry experts and submit a report for marking by the competition judges.

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

<table>
<thead>
<tr>
<th>Examinations</th>
<th>Courseworks</th>
<th>Projects</th>
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<tbody>
<tr>
<td>Number</td>
<td>Month(s)</td>
<td>Duration</td>
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<td>L/Outcomes</td>
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<tr>
<td>LO1-4</td>
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Indicate which learning outcomes (LO1, LO2 etc) are to be assessed by exam/coursework/project as required.

Coursework / Submissions deadlines: To be confirmed

Resit Assessment Procedures: Those who fail will be required to carry out an additional design project as agreed with Class Registrar and will be assessed by submission of a design report, prior to the commencement of the August examination diet.
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-examined. This re-examination will consist of an additional design project and submission of a design report.

Recommended Reading

** “Aircraft Performance” by Mair and Birdsall, Cambridge, ISBN 0521362644
or

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

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Session: 2014/15

Approved:

Course Director Signature: [Signature]

Date of Last Modifications: 29 August 2014
Module Code: 16309
Module Title: Aero-Design 2

Brief Description of Assessment:

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Weight</th>
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<tr>
<td>Individual Logbook (including organisation of time) + technical log</td>
<td>10%</td>
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<tr>
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<td>35%</td>
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<tr>
<td>Overall Design Assessment/Performance</td>
<td>20%</td>
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Assessment Timing:

Indicate on the table below the start/submission dates for each assignment/project and the timing of each exam/assessment(s).

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| Presentatio n Report Log book |
---|--------------------------------|
| All |

