Module Registrar: Dr M Macdonald  
malcolm.macdonald.102@strath.ac.uk

Taught To (Course):  Cohorts for whom class is
optional / elective

Other Lecturers Involved: Visiting lecturers

Credit Weighting: 10 (ECTS 5)

Semester: 2

Assumed Prerequisites:  
16351 Flight and Spaceflight 2

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>20</td>
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Educational Aim

This class is designed to provide a comprehensive overview of spaceflight systems. An overview of the complete spacecraft lifecycle from proposal, through delivery and operations is covered, along with the function and purpose of the spacecraft sub-system level components. In addition to the technical detail of spaceflight systems, the importance of ancillary skill-sets is introduced such as project management. Finally, the various elements of the class will be brought together through the production of competitive proposals for a typical spaceflight system development program.

Learning Outcomes

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

LO1 An understanding of the sub-system level components on-board a spacecraft

LO2 An understanding of the methods employed in spacecraft design

LO3 The ability to design a complete spacecraft system, with an understanding of the trade-offs required

LO4 The ability to prepare a funding proposal for development of a spacecraft system

Syllabus

The module will teach the following:

1) Spacecraft (sub-)systems
2) Spacecraft design and trade-offs
3) Spacecraft operations
4) Spaceflight systems lifecycle
5) Proposal writing, production and presentation

Assessment of Learning Outcomes

Criteria

A clear understanding of each learning outcome must be communicated in the funding proposal developed, and submitted for assessment twice, as the unit of assessment within the class.
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/](http://www.strath.ac.uk/learnteach/informationforstaff/staff/assessfeedback/12principles/))

Assessment is by production of a funding proposal in response to an actual Invitation to Tender from the European Space Agency. The funding proposal is assessed using the published assessment guidelines of the European Space Agency.

Vital informal feedback is provided at tutorials, and self and peer-directed feedback encouraged. Each student’s funding proposal is submitted for assessment twice, with a feedback session after the first submission providing critical mid-term assessment and direction, this feedback is given as a class wide discussion.

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

<table>
<thead>
<tr>
<th>L/Outcomes</th>
<th>Examinations</th>
<th>Courseworks</th>
<th>Projects</th>
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<tbody>
<tr>
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<td>Number</td>
<td>Month(s)</td>
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Indicate which learning outcomes (L01, L02 etc) are to be assessed by exam/coursework/project as required.

Coursework / Submissions deadlines:
Late submission will not be accepted, deadlines will be communicated in lectures.

Resit Assessment Procedures:
A second invitation to tender will be issued for resit assessment purposes (resubmission will be prior to the commencement of the August examination diet).

PLEASE NOTE:
Students need to gain a summative mark of 50% to pass the module. Students who fail the module at the first attempt will be re-examined during the August diet. This re-examination will consist entirely of coursework.

Recommended Reading


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: 28 August 2014
**Brief Description of Assessment:**

Funding proposal in response to an actual Invitation to Tender from the European Space Agency

**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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<th>Semester One</th>
<th>WK1</th>
<th>WK2</th>
<th>WK3</th>
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<th>WK7</th>
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