Course Outline

Semester 1, 2015

AERO9500

SPACE SYSTEMS ARCHITECTURES AND ORBITS

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For a standard 24 UoC in the semester, this means 600 hours, spread over an effective 15 weeks of the semester (thirteen weeks plus stuvac plus one effective exam week), or 40 hours per week, for an average student aiming for a credit grade. Various factors, such as your own ability, your target grade, etc., will influence the time needed in your case.

Some students spend much more than 40 h/w, but you should aim for not less than 40 h/w on coursework for 24 UoC.

This means that you should aim to spend not less than about 10 h/w on this course, i.e. an additional 4 h/w of your own time. This should be spent in making sure that you understand the lecture material, completing the set assignments, further reading about the course material, and revising and learning for the examination.

Summary of the course

This course gives an overview of satellite systems from the space segment to the ground segment, describing the main applications of satellite systems, as well as providing a detailed introduction into the principles of orbital mechanics.

Aims of the course

The course is divided into two major parts: the first part will paint the overall picture of a satellite system, setting it in the wider context of space, describing its major components and central concepts, to provide students with a solid introduction to satellite systems and the associated technologies. The second part of the course focuses on the details of orbital mechanics, covering orbit description and analysis, orbital perturbations, orbital manoeuvres, and satellite launches.

Student learning outcomes

At the conclusion of this course, it is expected that you will be able to:

- explain the main applications of satellites and the way affect our everyday lives.
- describe the overall system design of a satellite and its supporting earth stations, and be able to cite the major functional subsystems of a satellite along with the principles of operation of each, and the associated overall design aspects.
- have a basic understanding of space mission design and analysis.
- understand basic spacecraft orbital principles, such as how satellites acquire orbits, maintain orbits, the key parameters used to describe an orbit, and commonly employed satellite orbits.

apply fundamental principles in the analysis of basic orbital mechanics problems
describe and plan

(b)

Submission

The assignments will be available on the Moodle course website and submission is electronic via Moodle. Late submission of assignments attracts a penalty of ten percent per *day*

plagiarise. They also hold workshops and can help students one-on-one. Information is available on the dedicated website Plagiarism and Academic Integrity website: http://www.lc.unsw.edu.au/plagiarism/index.html

You are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting and the proper referencing of sources in p

Recommended Internet sites