Zurich University of Applied Sciences

School of Engineering

t.FMSI - Flugmechanik und Flugsimulation

Person responsible for the course:	Leonardo Manfriani, mani
Responsible OU:	ZAV
ECTS:	4
Valid for:	2012/2013
Last saved:	09.03.2013 18:07

Expertise:

To know and understand the fundamental principles of flight mechanics and flight simulation.

Methodological skills:

Solve flight mechanics problems with MATLAB and SIMULINK.

Social skills:

Work and learn effectively in a small group.

Personal skills:

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Learning objectives:

The scope of this course is to convey the foundations of aircraft flight mechanics and to give an introduction to flight simulation.

The emphasis, as described in the textbook preface, is on "basic principles rooted in the physics of flight, essential analytical techniques, and typical stability and control realities".

The students shall be able to work out simple problems in aircraft flight dynamics, stability and control using MATLAB and SIMULINK. These skills will be consolidated by completing a group project based on a flight mechanics or simulation problem.

Course content:

- The subject of flight mechanics
- Introduction to MATLAB and SIMULINK
- Static stability and control
- Aircraft equations of motion
- The stability derivatives
- Stability of uncontrolled motion
- Response to actuation of the controls
- Flight at high angle of attack
- Flight simulation

Previous knowledge:

This course is open to AV-TE students who have passed the first year assessment. For external auditors, a basic knowledge of physics and aerodynamics is necessary to understand the contents.

Since the lectures and the course notes are in English, good comprehension skills of this language are required.

Teaching method:

Type of lesson:	Number of lessons per week:
Lecture	14*2
Tutorial/Practicum	14*2
Block instruction	

Assessment:

According to the table or as specified in writing by the lecture at the beginning of the semester!

description	type	form	scope	assessment	weighting
Performance records during school hours	test	written	45 min.	grading	20%
Semester end exam	exam	oral	45 min.	grading	80%

Language of instruction:

English

Instruction material:

Textbook:

- Etkin and Reid, Dynamics of Flight, Stability and Control, Wiley, ISBN 0-471-03418-5

Presentation slides and complementary course notes

Additional literature:

B. N. Pamadi, Performance, Stability and Control of Airplanes, AIAA Education Series, ISBM 1-56347-222-8

Comments:

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