

Academic Year: ( 2023 / 2024 )

Review date: 22-03-2023

Department assigned to the subject: Aerospace Engineering Department

Coordinating teacher: MARCOS ESTEBAN, ANDRES

Type: Compulsory ECTS Credits : 3.0

Year : 1 Semester : 2

**DESCRIPTION OF CONTENTS: PROGRAMME**

Attitude dynamics and Guidance Navigation and Control. The program of the subject includes:

- 1 Introduction. Modeling and simulation
- 2 Requirements on AOCS
- 3 The kinematics, dynamics and control of 6-DOF motion
- 4 Navigation by star sight, inertial systems and radio systems (GPS, ranging, doppler, delta-DOR)
- 5 Inertial Sensors
- 6 State Estimation, Probability, Stochasticity and the Kalman Filter
- 7 Control Theory and Optimal Control
- 8 Case Study: Hardware on-the-loop AOCS with a hexapod

**LEARNING ACTIVITIES AND METHODOLOGY**

Theory sessions in master classes  
Problem sessions in reduced groups  
Personal and group work

**ASSESSMENT SYSTEM**

End-of-term exam (25%)  
Continuous evaluation (75%)

In order to pass the subject, two requirements need to be met:

- 1) to have a MINIMUM mark of 4.0/10 in the end-of-term exam;
- 2) to have a minimum overall mark of 5.0/10 (weighing 25% the end-of-term exam mark and 75% the mark of the continuous evaluation).

<b>% end-of-term-examination:</b>	25
<b>% of continuous assessment (assignments, laboratory, practicals...):</b>	75