Space Safety

Academic Year: (2024 / 2025) **Review date: 19-03-2024**

Department assigned to the subject: Aerospace Engineering Department

Coordinating teacher: MERINO MARTINEZ, MARIO

Type: Compulsory ECTS Credits : 3.0

Year : 1 Semester : 2

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Orbital Dynamics

OBJECTIVES

Understand the risk related to space activities, both into the spacecraft orbiting the Earth and on-ground. Know the different mechanisms to mitigate those risks. Understand the main sources of information used for such risk evaluation and work with some of them.

DESCRIPTION OF CONTENTS: PROGRAMME

Common topics to all the subjects, as indicated in the learning outcomes, are related to the social and business context of space engineering.

Specific topics of each subject:

Space Security. The program of the subject includes:
1 Space Situational Awareness. Definition and history
2 Space Surveillance and Tracking
  a Status of Environment
  b Sensors, Data Processing & Orbit Determination
  c Risk Analysis
  d Clean Space Technologies
  e Current Initiatives
3 NEOs
  a Detection and Orbit Determination
  b Risk Analysis
4 Space Weather
  a Ground & Space Effects
  b Monitoring

LEARNING ACTIVITIES AND METHODOLOGY

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

ASSESSMENT SYSTEM

% end-of-term-examination:	60
% of continuous assessment (assigments, laboratory, practicals…):	40

End-of-term exam (60%)
Continuous evaluation (40%)

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;

% end-of-term-examination:	60
% of continuous assessment (assigments, laboratory, practicals…):	40

2) to have a minimum overall mark of 5.0/10 (weighing 60% the end-of-term exam mark and 40% the mark of the continuous evaluation).

BASIC BIBLIOGRAPHY

- Klinkrad, H. Space Debris, models and risks, Springer-Praxis, 2006