Universidad Zaragoza

Year : 2020/21

27037 - Mathematical Astronomy

Syllabus Information

Academic Year: 2020/21
Subject: 27037 - Mathematical Astronomy
Faculty / School: 100 - Facultad de Ciencias
Degree: 453 - Degree in Mathematics
ECTS: 6.0
Year: 4
Semester: First semester
Subject Type: Optional
Module: ---

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as lectures, practice sessions and autonomous work and study.

4.2.Learning tasks

This course is organized as follows:

- **Lectures**. Theoretical contents will be explained by the teacher.
- **Practice sessions** with oral discussion of proposed problems whose solution the students should previously have handed in.
- **Autonomous work and study**. Problems proposed for personal work

In principle, teaching activities and students' performance assessment will take place in a conventional face-to-face learning mode, except in the case that (due to the health situation) new, unexpected, administrative regulations issued by the competent governmental, regional or academic authorities might compel us to resort to some telematic environment to carry out such activities.

4.3.Syllabus

This course will address the following topics:

- **Topic 1**. Space and time reference frames. Astronomical coordinate systems.
- **Topic 2**. Two-body problem. Keplerian motion.
- **Topic 3**. Artificial satellite orbits.

4.4.Course planning and calendar

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course will be provided on the first day of class or please refer to the Faculty of Sciences website and Moodle.

4.5.Bibliography and recommended resources

BB Abad, Alberto J.. Astrodinámica / Editorial Bubok /www.bubok.es//libro/detalles/219952/Astrodinamica. 2012

BB Abad, A., Docobo, J.E., Elipe, A.. Curso de astronomía / Prensas Universitarias de Zaragoza, 2002

BB Bond, V.R., Allman, M.C.. Modern Astrodynamics (Fundamentals and Perturbation methods). Princeton University Press, 1996

BB Danby, J. M. A. Fundamentals of celestial mechanics / J. M. A. Danby . - 2nd ed., 3rd printing corr. and enl. Richmond, Virginia : Willmann-Bell, 1992

BC Battin, Richard H.. An Introduction to the Mathematics and Methods of Astrodynamics. Rev. ed. American Institute of Aeronautics and Astronautics. 1999

BC Elices, T.. Introducción a la Dinámica Espacial. Instituto Nacional de Técnica Aeroespacial. 1991

BC Green, Robin M.. Spherical astronomy / Robin M. Green . Cambridge [etc.] : Cambridge University Press, cop. 198

BC Vallado, David A.. Fundamentals of Astrodynamics and Applications. 3rd. ed. Springer. 2007

http://biblos.unizar.es/br/br_citas.php?codigo=27037&year=2020