

Teaching Space Science: The *Aula Espazio* and the *Master of Space Science & Technology* in the Universidad del País Vasco (Spain)

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Abstract

Here we present the *Aula Espazio*, a facility of the *Universidad del País Vasco* (Spain) dedicated to teach Space Sciences at Master and Doctorate level, and impulse its development both in the public and private sectors. Several activities are organized. The most important is the new *Master in Space Science and Technology* offered in the Faculty of Engineering in Bilbao which is designed to provide a link between Basic Research and Space Technology. This facility is funded by the local government: Diputación Foral de Bizkaia, the Escuela Técnica Superior de Ingeniería de Bilbao and Universidad del País Vasco. The master and other activities start in September 2009.

Activities of the *Aula Espazio*

The *Aula Espazio* facility holds a teaching room for 25 students and a small observatory. The main activities carried on by the *Aula* are:

- Master in Space Science and Technology. This is a one year official Master (European Space for Higher Education) with 60 ECTS (European Credit Transfer and accumulation System).
- Hosting Ph.D. research in basic research and applied research in the Space Science area.
- Holding student projects and master thesis.
- Providing links between companies working in the space industry and the University.
- Public outreach activities at local level.

A broad summary of the *Aula Espazio* can be found in its webpage:

<http://www.ajax.ehu.es/aula-espazio/>

Master in Space Science and Technology

The Master in Space Science and Technology is a one year master designed to give an overall view of the science and technology involved in space projects. It is open for graduates in Engineering and graduates in Physics. This master covers both the basic science aspects of space science and the technological development that require space activities. It is a multidisciplinary master with several University departments participating (Applied Physics, Theoretical Physics, Systems Engineering and Automatic control and Electronics and Telecommunications) and with important contributions from companies involved in space technology and Spanish public organisms in the space area.

The broad subjects covered by the master are:

Compulsory:

Orbital Motion / Space Physics / Space Materials:
I. Fundamentals / Fundamentals of Optical instrumentation / Spacecrafts I / Spacecrafts II / Sensors and Detectors / Processing of Space data

Electives:

Space structures / Propulsion / Project management / Space centers organization / Antennas and radiotelescopes: Communications / Antennas and radiotelescopes: Control and monitoring / Non destructive essays in space materials / Space Materials: II. Applications / Optical systems and adaptive optics / Space interferometry / Astronomy and Astrophysics / Solar System Physics / Planetary Atmospheres / Physics of the Earth's atmosphere / Special and general relativity.

The students finish the master developing a short research project or an applied project in one of the collaborating companies or collaborating centers (15 ETCS).

More information about the master can be found in its dedicated web-page:

<http://www.ajax.ehu.es/mcyte/>

The Observatory

The Aula Espazio is building a small observatory dome in the Faculty of Engineering for Educational purposes. The dome hosts a 50 cm aperture automatic telescope with CCD cameras, broad and narrow band filters and other instrumentation, a secondary 127 mm telescope and a solar 100 mm telescope with H-alpha filter. The Observatory will hold student projects in the Master of Space Science and Technology but also other teaching activities for undergraduate students in the Faculty of Engineering.

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