

NANOSTAR: Hands-on higher Aerospace Education through Nanosatellite Student Challenges

- NANOSTAR is a European project, launched last 1st April 2018, to support the training and development of student nanosatellites in the south west of Europe.
- NANOSTAR project is funded by the Interreg Sudoe Programme through the European Regional Development Fund (ERDF). The project has a planned duration of 30 months and a total budget of 2 million euros.
- The consortium is composed of 7 universities and 2 aerospace clusters, plus 3 ESA Business Incubation Centres as associates, in France, Spain and Portugal.

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The nanosatellite standard is today used by many universities and companies to attract the best students and engineers, that supports the universities and industries competitiveness.

Several countries from the north of Europe have strongly invested in this approach, creating a commercial offer that has become very well positioned in the market. However, Southern Europe, despite its strong influence in the space sector, has only 14% of the projects in the European nanosatellite sector and no company created in this field.

The construction of a nanosatellite requires numerous tools and competences, which makes it an excellent training vector. However, it is necessary to have the appropriate experience, hence the need to work in a network and exchange experiences.

To support the emergence of such a dynamic environment in the south west of Europe, 7 universities and 2 aerospace clusters from France, Spain and Portugal have proposed a collaborative project to link their resources.

The main objective of the NANOSTAR project is to create a collaborative platform for the student nanosatellites development between France, Spain and Portugal.

The challenge of the NANOSTAR project is to provide students with the experience of a real space engineering process that includes all stages, from conception and specifications, to design, assembly, integration, testing and documentation.

NANOSTAR project will allow Southwest Europe to train students with a high level of skills in space engineering and project engineering, so that they are the future main players in the field of nanosatellites.

Student Challenges

Multidisciplinary teams of 5 students will engage in solving design and development challenges.

In Phase 1, student teams from all universities compete to create the best preliminary design of a Moon-flyby CubeSat mission according to a given set of requirements. Winners will receive an award and will be tasked with the systems engineering of the rest of the mission.

In Phase 2 begin the detailed design, development, and testing challenges. Each challenge will be approached by a minimum of two competing teams from different institutions.

The output is an integrated and tested engineering model of the whole mission. However, the objective of the project is not to build a complete nanosatellite, but to start up the tools to allow designing, manufacturing and testing a nanosatellite, totally or partially.

Partners

The consortium is composed of **2 aerospace clusters, 7 universities plus 3 ESA-BIC centres as associates**, in **France, Spain and Portugal**.

- Aerospace Valley (Project coordinator) www.aerospace-valley.com
- Madrid Aerospace Cluster www.madridaerospace.es
- Institut Polytechnique de Bordeaux www.bordeaux-inp.fr
- Institut Supérieur de l'Aéronautique et de l'Espace www.isae-supaero.fr
- Université de Montpellier www.umontpellier.fr
- Universidad Politécnica de Madrid www.upm.es
- Universidad Carlos III de Madrid UC3M www.uc3m.es
- Universidade da Beira Interior UBI www.ubi.pt
- Instituto Superior Técnico <http://tecnico.ulisboa.pt>

Associates:

- ESA BIC Sud France
- Instituto Pedro Nunes - Associação para a Inovação e Desenvolvimento em Ciência e Tecnologia www.ipn.pt
- Fundación para el Conocimiento madrimasd en su función de ESA BIC España www.madrimasd.org

Programme: NANOSTAR project is funded by the Interreg Sudoe Programme through the European Regional Development Fund (ERDF).

Project full name: Collaborative platform to create European student nanosatellites

Acronym: NANOSTAR

Duration: 30 months

Total budget: € 2 million

Web: www.nanostarproject.eu

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