



# UPM International Summer School

## Cubesats



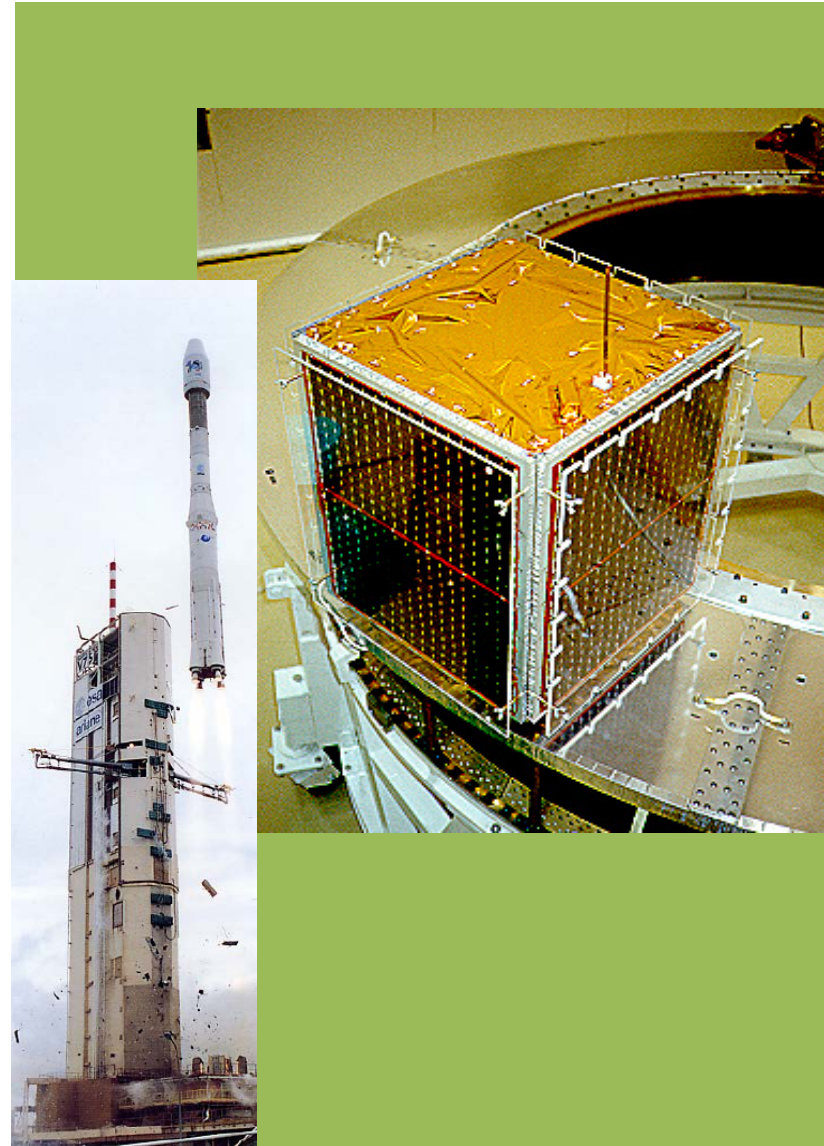
ETSIAE, 17, 18 & 21 June 2019

Director: Dr. Gustavo Alonso

CubeSat has become an increasingly widespread concept in various types of space missions due to the standardization, the relatively simple design and its low cost, making the space more accessible and making it available to practically anyone.

We are living a change in paradigm: from large, complex, expensive satellite to constellations of small satellites. The first generation of satellite constellations (Iridium, Globalstar, OneWeb, SpaceX) is being replaced by the new generation based on Cubesats, (Planet, Spire, Astrocast, etc.).

Small satellites aimed at educational, scientific and in-orbit technological demonstration missions can be developed in a university environment, integrated in the educational offer (project-based learning), promoting the participation of faculty, students and also the space industry.





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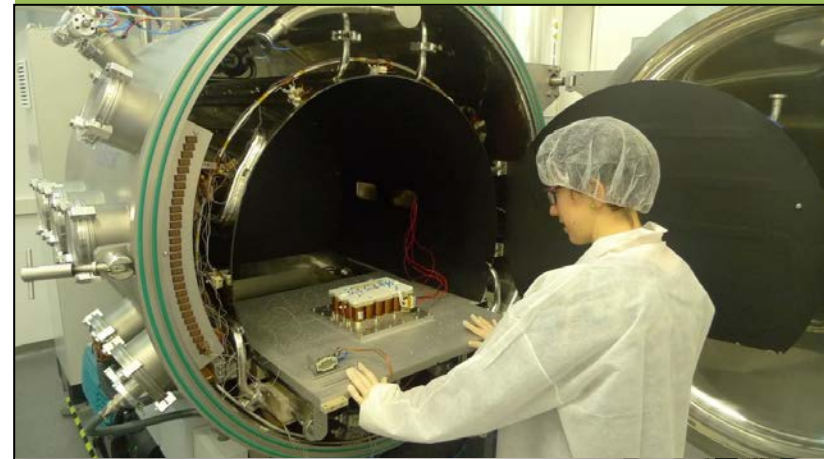
### Syllabus

**MODULE 1:** I. Introduction to space environment and mission design analysis  
II. Small satellites: existing missions and lessons learned; challenges to be addressed

**MODULE 2:** I. Simulation exercise at a concurrent design facility  
II. Visit to a space environment test laboratory and a small satellite integration facility

**MODULE 3:** Potential applications of small satellites in a context of industry-university partnerships  
Ángel Fernández  
Airbus

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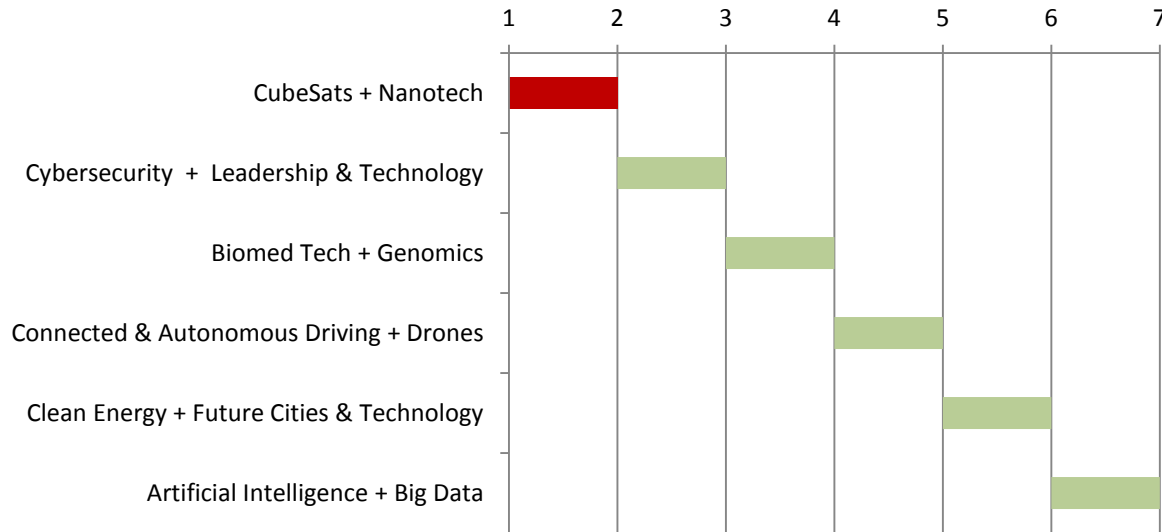




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### Schedule



Week	Monday	Tuesday	Wednesday	Thursday	Friday
1	Lecture I Lecture II	Simulation Exercise Visit			Industry Talk



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Dr. **Gustavo Alonso** is Associate Professor and Deputy Director of the School of Aerospace Engineering (ETSIAE/UPM), Universidad Politécnica de Madrid. His research interests include space systems engineering, aerospace structures and air transport. He is involved in the organization and management of different courses and seminars. He has participated in about 40 research projects funded by public institutions (European Union, Spanish government) and private companies, resulting in the publication of 40 papers in JCR indexed journals and 60 presentations at international conferences. He is a visiting professor and guest lecturer at several universities worldwide. He previously worked for the European Space Agency and different engineering companies where he held technical and managerial positions.

**Ángel Fernández** is an aeronautical engineer and programme manager at Airbus Defence and Space (ADS) based in Madrid, where he is responsible for launcher programs.

