

IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
In Orbit - Postgraduate Space Education (4)

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DEVELOPMENT AND IMPLEMENTATION OF THE ESA ACADEMY INITIATIVE – CUBESAT
SUMMER SCHOOL

Abstract

ESA Education Office is developing an innovative new multi-week training opportunity: the CubeSat Summer School 2022 in the frame of ESA Academy's Training and Learning Programme. Space Applications Services is supporting ESA to design, develop and coordinate this initiative. This pilot edition of the Summer School will run for four weeks from 8 August to 2 September 2022 at ESA Academy's Training and Learning Centre in ESA-ESEC, Belgium. This unique learning opportunity is being offered to university students who are citizens of ESA Member States, Canada, Latvia, Lithuania or Slovenia; and have an engineering or physics background with basic knowledge in space science and technology.

In the frame of ESA Agenda 2025, the Summer School aims to transfer a set of multidisciplinary space-related skills and know-how to participating students, complementing their academic studies and helping prepare them to meet the employability demands of the European space sector. During the four weeks, the entire project lifecycle of a satellite mission is covered, from design to verification, launch and operations, including typical milestone reviews and new methodologies. Students are introduced to project management best practices, legal, cybersecurity, and economic aspects of space projects. The Summer School also introduces space entrepreneurship and business development skills, offering support in devising methods of turning a CubeSat into a viable business opportunity. Upon completing the Summer School, participating students will have gained the interdisciplinary knowledge and skills needed to undertake CubeSat or other space-related projects, be confident with space engineering and project management standards, and be better prepared to join the European space sector.

The development of the Summer School is based on various methodologies in instructional system design and project management. Its concept aims to meet the learning objectives by achieving a progressive build-up of knowledge and skills through an intensive and extensive mix of theory and hands-on activities that complement each other. Learning Design follows the space mission lifecycle. Foundational knowledge transfer on fundamentals of satellite engineering is done in order to form a strong basis and context for CubeSat projects whereas in-depth knowledge transfer and hands-on training on CubeSat missions are the focus. These learning experiences are delivered by ESA and external experts. Lessons learnt from the

design, development and implementation of the Summer School will be used to improve the current and develop future educational activities of the ESA Education Office.