IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
Lift Off: Primary and Secondary Education (1)

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STARLEAP: AN EDUCATIONAL INITIATIVE TO FOMENT THEORETICAL AND HANDS-ON EXPERIENCE IN EMERGING SPACE NATIONS

Abstract

StarLeap is an educational initiative jointly developed by the Space Systems Laboratory (SETEC Lab) of the Costa Rica Institute of Technology and Orbital Space Technologies (OST) with the goal of making quality space education available to emerging space nations. With its first edition taking place in Costa Rica. The StarLeap initiative is aimed at high school students ages 15 to 17 and consists of a 10-week program of 2 hours of theory imparted by experts in the area and 2 hours of practice modules targeting different aspects of space mission design that culminate with the launch of an actual microgravity experiment designed by the students on board of a Suborbital Flight. The topics covered during the course include: an introduction to astronautics, space mission design, science in space, programming for space applications, electronics design for space experiments, telemetry, mechanical design, systems engineering and an assembly workshop. The initiative is designed so that it can be scaled up to the level of university students as well.

In order to cover the expenses of the course a mixed funding strategy was developed, where some of the students pay a quota that covers the materials of the course, and a sponsor covers the rest of the costs. This allows to sponsor a number of students that can not pay for the course. In order to reduce costs and allow the maximum number of students to participate, Orbital Space Technologies offers the hardware for the space flight at a discounted rate, while SETEC Lab offers their installations and equipment in order to impart the modules.

This paper will cover the educational methodologies behind the topics and the structuring of the course, the strategies to make quality space education that culminates with an actual space mission accessible to students on emerging space nations and details on the lessons learned from structuring the first iteration of the initiative.