IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
On Track - Undergraduate Space Education (3)

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TRAINING OF AEROSPACE ENGINEERING PROFESSIONALS IN DEVELOPING COUNTRIES USING LOW-COST AND OPEN SOURCE TOOLS

Abstract

In developing countries, there are often no necessary resources to have large laboratories to train new aerospace engineering professionals, mainly due to the high economic costs that it represents. In the case of Latin America, many countries do not yet have professional schools in aerospace engineering. In the Peruvian case, there are only related careers that can develop some courses related to the aerospace field in some parts of the curricula. Faced with this situation, it is necessary to look for open source and low-cost alternatives to training, even in a primary way, the future professionals of other specialties but interested in the aerospace field. One of those options are GMAT and OpenApp, which are tools available for academic entities for educational purposes and mission preparation. GMAT is a tool to analyze the mission and simulate the dynamic fly and orbits. The OpenApp tool allows simulating the platform, the payload, the energy consumption, the number and time of contacts with the ground station, among other features. Also, one can work together with OpenKit, which can be purchased at a low-cost to laboratory proof of beginner possible payloads. In Peru, both in the Universidad de Ciencias y Humanidades (UCH), as in the Universidad Nacional Tecnológica de Lima Sur (UNTELS), these tools are started to be used in the training of professionals in electronic engineering, especially in courses related to satellite technology. The obtained results are promising, already having published scientific articles showing the progress made. Most of the students are motivated by these tools, and 97.4 percent did not know these tools before. Likewise, they would like to see the creation of an undergraduate program in aerospace engineering in Peru soon.