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ITAS UNIVERSITY SATELLITE PROGRAM

Abstract

This paper aims to present ITAs university satellite program. ITA is a world class engineering school in São José dos Campos, SP, Brazil. ITA is the berth of the Brazilian aerospace complex, including aeronautical technology institutes, INPE and EMBRAER (a global leading aircraft manufacturer). ITA was founded in 1950 by MIT (Massachusetts Institute of Technology) professors. Its students have to go through a selection process that selects 100 students out of 10000 candidates from various parts of Brazil. ITA started its aerospace engineering course on March, the 1st, 2010. As part of the course the students will develop satellites following a CDIO (Concept, Develop, Implement and Operate) approach. The satellite program is a phased program that aims at creating the basis for a sustainable space industry in Brazil. In the initial phases, we will learn with recent past Brazilian experience on developing university satellites, such as ITASAT (microsatellite) and SATEC (developed at the Parana State University at Londrina and ready for launch in 2003, when the Alcantara launching base accident happened, killing 21 technicians) and reuse international experience on Cubesats, Tubsats and Beesats. For the first satellite, requirements are to launch earlier than December 2012 from Alcantara Launching Center (CLA) in the Amazon region, to cost the order of hundred thousand US dollars, to reduce the risk of failure (as the operational success is key for the continuation of the program), to build the basis for future industrial involvement, to use a systems concurrent engineering approach from the mission definition phase up to the operation phase (for validation), to use already available software tools to support the systems engineering process. The paper will present the following phases of the program and provide a report of progress.