

Regulatory Guidelines to Support the Design of Nanosatellite Projects in Mexican Academic Contexts

Authors : Alvaro Armenta-Ramade, Arturo Serrano-Santoyo, Veronica Rojas-Mendizabal, Roberto Conte-Galvan

Abstract : The availability and affordability of commercial off-the-shell products have brought a major impetus in the development of university projects related to the design, construction and launching of small satellites on a global scale. Universities in emerging economies as well as in least developed countries have been able to develop prototypes of small satellites (cubesats and cansats) with limited budgets. The experience gained in the development of small satellites gives rise to capacity building for designing more complex aerospace systems. This trend has significantly increased the pace and number of aerospace university projects around the world. In the case of Mexico, projects funded by different agencies have been very effective in accelerating the capacity building and technology transfer initiatives in the aerospace ecosystem. However, many of this initiatives have centered their efforts in technology development matters with minimum or no considerations of key regulatory issues related to frequency assignment, management and licensing, as well as launching requirements and measures of mitigation of space debris. These regulatory concerns are fundamental to accomplish successful missions that take into account the complete value chain of an aerospace project. The purpose of this paper is to develop a regulatory framework to support the efforts of educational institutions working on the development of small satellites in Mexico. We base our framework on recommendations from the International Telecommunications Union (ITU), the United Nations Office for Outer Space Affairs (UNOOSA) and other major actors of the Mexican regulatory ecosystem. In order to develop an integrated and cohesive framework, we draw on complexity science to identify the agents, their role and interactions. Our goal is to create a guiding instrument available both in print and online that can also be used in other regions of the world

Keywords : capacity building, complexity science, cubesats, space regulations, small satellites

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