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K'OTO PROJECT, MEXICAN NANOSATELLITE FOR TRAINING HUMAN TALENT

Abstract

In the context of the aerospace industry in Latin America, there has been an increase in the development of projects promoted by the academic sector of the countries, attending to the needs of the region and the research of technologies, such as the case study of the present document where the K'OTO nanosatellite project is presented, whose mission lies in the remote perception of the Mexican territory through images in the visible spectrum, being a technological demonstrator in parallel, an object to train university students of the branches engineering and exact sciences.

It is an initiative directed by academics and university students from the National Laboratory of Space and Automotive Engineering (LN-INGEA), of the Unidad de Alta Tecnología de la Facultad de Ingeniería de la Universidad Nacional Autónoma de México (UAT FI-UNAM), with the support of the Secretaría de Desarrollo Sustentable (SEDESU) of the Querétaro State Government.

The methodology that will guide the development of K'OTO integrates systems engineering and project management practices proposed by the National Aeronautics and Space Administration (NASA), in which it incorporates models for the development, validation, delivery, and adaptation of updates to procedural requirements, to comply with the standards and guidelines required for an evaluation of the project as it is through the Technological Readiness Level (TRL), proposed by NASA and established in NPR 7120.8 for program management and projects that are based on life cycles, KDP, and evolving products, thus being able to adapt it to the international guidelines of other space agencies such as JAXA.

The experiences obtained by the students in their training in aerospace engineering projects are presented, in which they participated from the description of the scientific mission, identifying the needs, the survey of the requirements for the design, design of the structure of their subteam, description of the integration phase, satellite operation plans and the final phase of the nanosatellite.