

Systems Engineering Process of a CubeSat from the Perspective of Operations

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Abstract. This paper presents the application of a systems concurrent engineering approach to university CubeSats development. The university CubeSat, object of this paper, is a joint development between the Brazilian Institute for Space Research (INPE) and the Aeronautics Institute of Technology (ITA). The effort consists in developing a Brazilian CubeSat platform that can be industrialized in Brazil and takes advantage of a Systems Engineering Process approach. This Systems Engineering Process applied on the CubeSat includes mission and life-cycle analysis, requirements engineering, functional analysis, architecture design, and uses an operation life-cycle scenario as an example. The approach is supposed to be applied to every life-cycle process. Thus, System Engineering Process gives a wide range view of the problem, guiding engineers to develop product and organization solutions throughout life-cycle. This approach helps to solve technical and management issues that sometimes are not encompassed with just experienced staff and standard methods.