

SPACE SYSTEMS SYMPOSIUM (D1)  
Space Systems Architectures (4)

Author: Mr. Leonardo Oliva

The Brazilian Institute for Space Research, Brazil, leonardoleite.oliva@gmail.com

SYSTEMS CONCURRENT ENGINEERING FOR THE CONCEPTION OF A ATTITUDE AND  
ORBIT CONTROL SYSTEM**Abstract**

This paper presents a systems concurrent engineering approach for the conception of a Attitude and Orbit Control System for a Satellite (AOCS). Systems Engineering uses a multidisciplinary approach in order to better understand complex systems and its processes, its products and its organization. The main goal is to satisfy all stakeholders involved in the product and its processes. In this paper, concurrent engineering is applied from the very earlier stages of a complex systems development. The systems concurrent engineering approach develops simultaneously the product and its life cycle process performing organizations by applying the systems engineering processes of stakeholder analysis, requirements analysis, functional analysis and architectural design, via modelling, simultaneously, to product and organization. Differently from traditional systems engineering approaches, that focus on operations and development, this approach conceives a product, contextualizing the product at every life cycle process scenario. Organizations within project scope can be designed simultaneously to product development. Conclusions are that this approach promotes gains in productivity that are manifold if compared with the concurrent engineering of parts or simple products. It also diminishes later changes, reducing life cycle cost and development time.