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TAILORING OF ECSS STANDARDS FOR STUDENT SPACE PROJECTS

Abstract

Developing a space project following the ECSS (European Cooperation for Space Standardization) standards is a reliable path to obtaining satisfactory results. However, doing so in the context of student space projects can be daunting and cumbersome. Thus, it is usual that when trying to apply ECSS to student projects some tailoring is done to adapt the standards. However, there is not a clear answer as to what methodology one should follow when tailoring the standards. This paper proposes a methodology for tailoring the ECSS standards for university-level student space projects. To achieve this, the experience and lessons learnt throughout the years at ESA Academy have been compiled, combined, and distilled into this publication. ESA Academy has been coordinating and supporting student projects for over a decade. Tailoring the ECSS is a common and necessary task carried out in multiple of its programmes and projects. The Academy thus has a substantial number of practical cases that form the basis of this methodology.

This article presents a breakdown of the proposed methodology. This includes both the rationale guiding these tailoring activities, as well as, some of the main conclusions and guidelines distilled from this particular know-how. The intent is that it serves as a tool for both academic supervisors and student teams to better understand the ECSS standards and adapt them to their needs, without losing the most relevant aspects of the ECSS standards. It provides some insight into how to structure some of the main elements of a space project from a project management and systems engineering point of view. Primarily, this paper presents some guidelines for the phase-by-phase breakdown of projects, for the creation of project reviews, and for the setting of milestones. It will also provide some insight into how to adapt the document collections expected for certain project milestones into more manageable and personalized groupings and documents tailored to the project and its requirements. Finally, this paper will present a breakdown of the educational return that can be expected from adhering to certain elements of the ECSS standards. This will allow project supervisors to also tailor the standards with respect of the educational return they would like the students to have.

The methodology presented will both help increase the success rate of student space projects and ensure that the experience gained by students remains relevant for future interactions they may have with ECSS standards in their professional careers.