SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
On Track - Undergraduate Space Education (3)

Author: Dr. Anton Ivanov
Swiss Space Center, Switzerland, anton.ivanov@epfl.ch

Dr. Volker Gass
Swiss Space Center, Switzerland, volker.gass@epfl.ch
Mrs. Muriel Richard
Swiss Space Center, Switzerland, muriel.richard@epfl.ch
Mr. Stefano Rossi
Swiss Space Center, Switzerland, stefano.rossi@epfl.ch
Mr. Federico Belloni
Swiss Space Center, Switzerland, federico.belloni@epfl.ch
Mr. Luzius Kronig
Swiss Space Center, Switzerland, luzius.kronig@epfl.ch

CONCURRENT DESIGN FACILITY IN AN ACADEMIC ENVIRONMENT

Abstract

Concurrent Design is a process in spacecraft system engineering that has been widely adopted in space organizations, (e.g. space mission oriented RMA team at JPL [1] or CDF at ESA's ESTEC [2]). This paper will describe the process of setting up a facility in a university and will try to answer a question of where CDF concept can fit into education. Currently our facility at the Swiss Space center is used for project and course oriented activities in the framework of Minor in Space Technologies. This program is offered for Master level students at EPFL from diverse sections: Microengineering, Materials, Physics, Robotics and others. All of the CDF projects are multidisciplinary.

The CDF room contains 10 desktops and 3 workstations. Each subsystem is capable of showing its data on the screen and the facilitator can switch between various subsystems. There are 3 projectors and 2 SmartBoards. In 2011 all projects at the Center were migrated to Excel/database interface using CDP software from the J-CDS company [3], used via an academic license. This allowed much easier maintenance of the database, switch between options and iterations and much more. We kept necessary interfaces with other engineering packages.

Since its inception in early 2007 all of the CDF hardware and software has been setup and operational [4]. Focus of our work was to create an Integrated Design Model (IDM) for nanosats and microsats. This IDM was used to design various space related projects including a Cubesat missions, suborbital plane and a space telescope. Facility is also used for other multidisciplinary projects.

We are currently conduct activities to develop a facility to support many student projects. We will present examples of projects that were implemented in the Swiss Space Center CDF and lessons learned, especially on organization during the semester. We are also planning a set of training sessions for Swiss industry to attract potential partners with their projects to be implemented using CDF infrastructure.

References

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