1 December 2008

You have in your hands or in front of your screen the first issue of the newsletter of the Space Center EPFL which summarises the latest development of space activities at EPFL and among the partners of the Space Center EPFL. The main articles in this issue deal with SwissCube and the Concurrent Design Facility, two among the leading projects of the Space Center EPFL. Enjoy reading!

Maurice Borgeaud

Intensive testing period for SwissCube

SwissCube is engaged in Phase D (testing and production) and all hands are on deck to help the little satellite prove its aptitude to fly in space. Whether radiation, shock or pressure, SwissCube has to show its robustness without flinching. The EQM (engineering and qualification model) successfully passed these intensive tests during October and November. The flight model (FM) is presently being assembled and will be tested in December for a launch foreseen in spring 2009.

EPFL CDF inaugurated and operational

The Concurrent Design Facility was inaugurated on May 7th, with the presence of the STI Engineering School Dean, Prof. Demetri Psaltis. A well-attended presentation of all the possibilities of the CDF for space and non-space applications took place. The goal of the CDF at EPFL is to give students the opportunity to tackle complex projects and learn to work in a team, thus enhancing their level of education.

There is a wide range of tasks and problems that can be addressed in the CDF framework. Concurrent Engineering approach is well suited for complex projects that involve more than 5 students in a group or different labs. In the context of EPFL academic calendar, complex semester projects are well suited for implementation in CDF. Early stage design studies, especially between EPFL labs and industry can greatly benefit from our new infrastructure.

Besides space applications, one of the most interesting projects that has been completed so far is the Hybrid Bike (part of the Homofaber* programme in Mechanical Engineering). This project’s goal is to construct an upgrade kit for a motorcycle to take advantage of an electric motor and kinetic energy of braking. The results are very satisfactory. Students have developed models in Matlab, Simulink and CATIA. All models were linked through an Excel database. Everyone on the team highly praised the idea of concurrent engineering, especially when compared to the method used for projects done in previous years. This Hybrid Bike project demonstrated that concurrent design is a very efficient tool not only for a specialized spacecraft design, but can be applied in an academic environment and in a project completely different from our space application.

During the winter semester 2008, students of the Space Minor program benefit of further courses in space systems, earth observation and system engineering using the CDF.

We invite all interested labs and professors to participate in this collaboration and benefit from such an excellent teaching environment. Please contact Anton Ivanov for more information on the CDF and how it can help your teaching and/or research.
Minor in Space Technologies

The Minor in Space Technologies is meant to enable students to obtain a solid understanding of space-related matters. It may be taken by all STI students (EL, MX, MT, GM) and students of the Physics Section (PH). It is also open to all other EPFL students who have selected a Master program with 90 ETCS (European Credit Transfer System).

ESA astronaut campaign

ESA launched early 2008 a recruitment campaign to select new Astronauts. The first European presentation made by ESA about the enrolment procedure took place at EPFL on 1 April and was attended by more than 250 participants. The on-line registration form was open by ESA between 19 May and 23 June and 8413 aspiring astronauts provided a medical certificate and finalised the application form, out of which 351 Swiss nationals. Candidates are currently being tested at ESA by a board of qualified astronauts, including EPFL Prof. Claude Nicollier.

The latest piece of news published by ESA states that so far 192 candidates have successfully passed the first tests, including a few Swiss citizens.

BMSTU Space Camp

Based on cooperation between the Space Center EPFL and the Baumann Moscow State Technical University, a group of 8 EPFL students attended the BMSTU Space Camp nearby Moscow during 10 days early July 2008. The programme included lectures, visits, and working on central project. The students enjoyed tremendously their stay and a presentation of their experience was made at EPFL on 23 October 2008.

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