

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
Education Outreach (3)

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EDUSAT: AN ITALIAN SPACE AGENCY OUTREACH PROGRAM

Abstract

The Group of Astrodynamics of the "Sapienza" University of Roma (GAUSS), about fifteen years ago, started the UNISAT (University Satellite) program at the School of Aerospace Engineering of Roma, with the aim to design, manufacture, launch and operate in orbit small university satellites involving students, researchers and professors in a real space program. In the framework of this program four student-built satellites have been launched, respectively in 2000, 2002, 2004 and 2006, from Baykonour Cosmodrome with DNEPR Space Launch System. On the basis of this previous experience, Italian Space Agency commissioned to Group of Astrodynamics of School of Aerospace Engineering the design and manufacturing of a new small satellite, EduSAT (Educational SATellite), involving university students, PhD students and also students from high school. This program is founded and coordinated by Italian Space Agency with the goal to promote space education among high school students and to support scientific careers of young people. Another target of this program is to develop a small space mission for low cost scientific experiments and technological tests in orbit. This project involves also a privately owned Company, IMT srl, active in the field of space system engineering, and University of Roma TorVergata, which are responsible for outreach program and high school student payload. This payload is a sun sensor which will be hosted on board EduSAT. The microsatellite is planned to be launched on February 2010 with DNEPR launch vehicle. This paper deals with a general project overview, program motivations and main goals, satellite architecture and main subsystems. Paper describes also payload proposed by students and educational program organization with high school students. Three didactical modules have been developed, divided onto theoretical and laboratory sessions. The first one is related to basic principles of Astrodynamics and space systems and several laboratory activities using free software are carried out. The second one is focused on spacecraft: in the framework of their training, young students use a technological demonstrator to understand all design and building phases of a space mission. The last one is a practical educational module based on demonstrator subsystems integration and ground station management.