

47th STUDENT CONFERENCE (E2)
Educational Pico and Nano Satellites (4)

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DESIGN AND MANUFACTURING OF GALILEICUBESAT : A NANO-SATELLITE FOR HIGH
SCHOOL AND UNIVERSITY HANDS-ON EDUCATION**Abstract**

The introduction of the Cubesat standard, together with both miniaturization and improved performances of on-board satellite electronic components, allows to develop low cost scientific and education space missions. One focus of current space industry activity involves the study of nano-satellites, by the aid of novel technologies which are able to provide a remarkable scientific soundness with lightweight and cost-effective payloads. Such technologies are at disposal of students since the reduced hardware and the

possibility to use commercial components for the whole subsystems control. Aim of the present work was to join secondary school students with university students and professional researchers for a preliminary development of a nano-satellite for Earth observation. A group of high-school students from the ITIS - Galileo Galilei of Rome and university students from the Faculty of Civil and Industrial Engineering of Sapienza University of Rome have been involved in a hands-on education activity, to foster the awareness of space technology and the implementation aspects of a space program. The activity is focused both on small satellite numerical design and mechanical manufacturing, and on payload and control electronics analysis. The students developed a prototype of the complete satellite system, following standard space operational procedures and qualification test for launch. The key for the development of the program is the testing of space environment facilities available at ITIS - Galileo Galilei and operated by the DIAEE personnel.