IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
In Orbit - Postgraduate Space Education (4)

Author: Ms. Oksana Grigorieva
JSC Glavkosmos, Russian Federation

Ms. Anna Zakharova
JSC Glavkosmos, Russian Federation

MODERN AEROSPACE EDUCATIONAL PROGRAMS DEVELOPED BY RENOWNED RUSSIAN UNIVERSITIES

Abstract

The history of space exploration is connected to the names of known worldwide Russian scientists, designers and cosmonauts. The modern aerospace industry is based on highly qualified personnel prepared by the best Russian specialized universities. Glavkosmos (a subsidiary of Roscosmos State Space Corporation) works closely with famous Russian Universities proposing modern aerospace educational programs to all organizations and private persons worldwide interested in qualitative study, and secures the needed resources and support for implementation of such educational projects. Samara University is one of the most dynamically developing Russian institutions of higher education recognized by international academic community. It is one of the largest research and education centers in the world having its own orbital constellation of small spacecraft. In 2016 the first "Aist-2D" small spacecraft for Earth observation purpose, created by specialists of "Progress Space Rocket Centre" with participation of scientists and students from Samara University, was put into orbit by legendary and most reliable in the world "Soyuz" launch vehicle. Study at Samara University proceeds according to the principle "Education through research and practice". Such approach to organization of educational process implies that students study core courses while working on real space projects under the guidance of aerospace industry specialists. In particular, they create new types of small spacecraft, design nanosatellites onboard systems and virtual prototype models of gas turbine engines, working with real equipment. A novelty of this study approach is the availability of number of research and educational programs, in which the participants learn the new materials and model different situations together with eminent scientists. One of presented space educational program is "Nanosatellite technologies", the course consists of several lectures and practical studies and may last 1 week, 2 weeks or 1 month. The program includes the advanced study of space technologies and nanosatellite missions, space flight mechanics and navigation, nanosatellite design, space radio engineering, work with software for nanosatellite design, attitude determination and control, microcontrollers programming, ground stations application, testing of nanosatellites. This university program supposes preparing spacecraft to its insertion into orbit. Besides Samara University there is a variety of modern aerospace educational programs developed by other famous Russian Institutes and Universities.