

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
SPACE WORKFORCE DEVELOPEMENT – CHALLENGES AND OPPORTUNITIES (7)

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INTEGRATING OF EDUCATIONAL AND SCIENTIFIC-TECHNOLOGICAL AREAS DURING THE
PROCESS OF EDUCATION OF AEROSPACE ENGINEERS

Abstract

National priorities, defined by modern state of high-tech industries demand adequate solving the problem of training professionals possessing required modern qualifications. Modern tendencies of the development of aerospace technologies, harsh competition at the market of space services, expansion of international cooperation at implementation of space projects, demand sharp increase of the scientific/technical level and competitiveness of developed projects. Especially important is to be able to solve technological problems, which in turn define cost and quality attributes of designed item, as well as ability to utilize the most modern design principles. Training of highly efficient, creative professionals, which are capable to generate and implement new ideas, is a very important factor driving not only the development of national economy and industry, but also enriching the human capital of the country. Moscow State Technical University name after N.E. Bauman developed and successfully implemented project-oriented technology of professional training for aerospace industry. It assumes the multitude of forms, methodologies and organizational events, which allow to prepare the specialists – at the basis of integration of scientific/technological and educational environment – who are adapted for the conditions of the intellectual market. Youth Space Center of the University is the base where graduate and post-graduate students are attending unique lectures as part of facultative course “Applied Cosmonautics”, participate in annual International youth science school “Space Development: Theory and Practice”, develop innovative technical projects aimed at creation of real-life space hardware. Microsatellite technologies are being developed in Bauman University through various projects, which are implemented in coordinated manner by way or accomplishing the following steps:

- - development of small-size satellites by universities, using them as test-beds for quick and affordable trial-and-test of new technologies and design solutions in aerospace followed by implementation of selected efficiencies in the industry
- - development and improvement of ground control infrastructure based in the university, which includes Mission Control Center and Earth Remote Sensing Center
- - development of cooperative partnerships with international partners in the field of micro-satellite technologies with the goals of sharing experience, uniting efforts in preparing and running scientific and educational experiments, creating of next-generation spacecraft by multi-national students groups.

Such approach allows creating seamless environment, which unites educational, scientific and innovative processes. This allows students to form high professionalism, modern engineering thinking, stable engineering skills at early stage of education at the university.