

IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
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Author: Dr. Oleksii Kulyk

Oles Honchar Dnipropetrovsk National University, Ukraine, alvk@meta.ua

Prof. Mykola Dron'

Oles' Gonchar Dnipropetrovsk National University, Ukraine, nord@dsu.dp.ua

Mr. Vadym Solntsev

The National Aerospace Educational Centre of Youth, Ukraine, vasun@mail.ru

Mr. Vladyslav Proroka

Oles' Gonchar Dnipropetrovsk National University, Ukraine, proroka@ftf.dnu.edu.ua

Prof.Dr. Vitaly Yemets

Oles Honchar Dnipropetrovsk National University, Ukraine, Vitaly.Yemets@yahoo.com

A STUDENT ROCKET PROJECT – NEW EXPERIENCE OF PRACTICAL TRAINING OF
SPECIALISTS IN THE FIELD OF ROCKET TECHNOLOGY

Abstract

Quality of training of specialists for rocket and space industry is always important for the states involved into aerospace activities. In this respect, Ukraine continues to actively develop its system of aerospace education. The paper will present current results of the “Student Rocket”, a pilot project in scientific education being developed at the Noosphere Engineering School of Oles Honchar Dnipro National University for students of bachelor’s and master’s degree courses of the “Rocket and Space Complexes” major. The goal of the “Student Rocket” is stage-by-stage development and implementation of a family of extra-light suborbital launch vehicles with various altitudes of flight from 2 to 100 km. The project is carried out by a student team with mentoring, organizational and financial support of governmental and non-governmental aerospace companies, among which there are Non-governmental non-commercial organization “Association Noosphere”, State Enterprise “Yuzhmash”, Firefly Aerospace Ukraine LLC, The National Aerospace Educational Center of Youth and others. The current achievements are three types of extra-light student rockets with altitudes of flight of 2.5 km, 7 km and 10 km that successfully passed flight tests in 2019 and 2020. Works on development of a two-stage rocket with the flight altitude of 40 km are in progress. For implementation of the “Student Rocket” project, the team of students solved practical problems of creating their own solid propellant rocket engine, designing, constructing and manufacturing structural components of the rockets, organizing a complete cycle of their manufacturing, assembling, experimental verifying and flight testing. The obtained results are completely incorporated into the bachelor’s and master’s degree training programs. The rockets with the flight altitude up to 2.5 km will be used for organization and carrying out of the national “CanSat” championship in Ukraine. For the rockets with the flight altitudes up to 10 km and higher, Noosphere Engineering School and Oles Honchar Dnipro National University are preparing educational and scientific experiments for bachelor’s degree programs and master’s qualification works.