ALAR
Training Center

SUMMER SCHOOL

INTL SUMMER SPACE SCHOOL

AUGUST 30 — SEPTEMBER 10 2021

Future Space Technologies and Experiments in Space
Samara University
Russian Academy of Cosmonautics
The International Summer Space School

THE MOTTO OF THE SCHOOL: "FROM MISSION IDEA TO NANO SATELLITE PROJECT"

ECTS credits: 5.0

SAMARA UNIVERSITY

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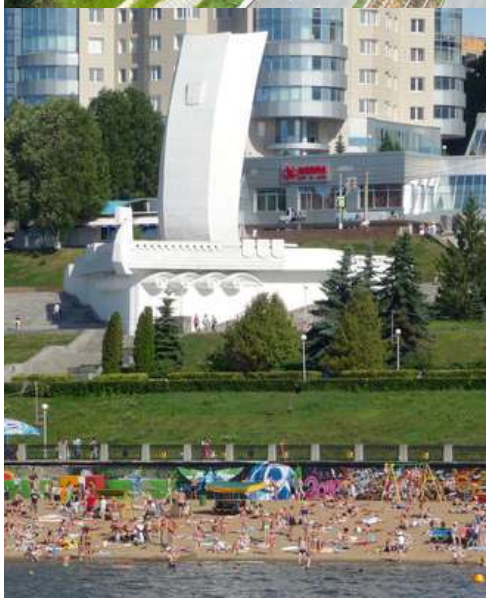

BRIEF DESCRIPTION

Attending the School participants have an opportunity to share there challenging ideas of new space missions with russians and people from other countries and establish inter university cooperation. Discussing the results of realized space projects, visiting lectures and seminars given by leading scientists and experts in the field of space technologies and space experiments. According to the concept of competitive activity participants included in one of the teams working on nano satellite projects with regard to their interests and background.

AIMS

The overall aims of the School is to involve young people into the development of micro/nanosatellites and implementation of experiments in space, to provide new fundamental knowledge and skills in applied technologies.

Costs

Only for students selected to the 'Full time education stage'

500 US$ - until May 10th 2021

Registration fee and migration support: US$400

Costs include: Studies, 5 ECTS Certifivate, accommodation in university hostel, two meals a day, transfer from the airport (on the day of arrival), 62 h Russian survival virtual course with certificate of conclusion

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Distant Education stage

Registration : Deadline - March 25th 2021

Entrance requirements:

. Intermediate English B1 or higher

. At least second year of university studies of technical directions or specialties

Duration: April 05 - April 18 , on line at homeland

Applicants should study lecture materials and do assignments and tests on-line. During distance stage, participants will gain basic knowledge in the field of space flight mechanics and dynamics. According to the results of assignments and tests, participants for the full-time stage (in Samara) will be selected.

Full-time Education stage

Duration: August 30 - September 10 in Samara

Entrance requirements:

. To approve the studies of 'Distant Education Stage' and obtain the necessary score to be selected for next stage

Main goals and topics of the School program:

. Lessons learned for nano satellites missions

. Attitude control technologies for nano satellite

. Advanced space navigation technologies

. Discussion of new nanos atellites missions

. Project work on nano satellites mission analysis

. Problems of nano satellites piggyback launch

. Establishing cooperation between universities in the field of space technologies and experiments in space.

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Courses:

. Introduction to the nano satellite design
. Design of electronic subsystems for nano satellites
. The space environment and its impact on a spacecraft
. MatLab for mission analysis
. Mission analysis: space flight mechanics
. Features of the nano satellite dynamics in LEO
. The problems of nano satellite cluster launching and the deployers for nano satellites separation
. Space navigation
. Methods and algorithms for nano satellite attitude determination & control
. Tests of nano satellites; facilities, types and programs of tests
. Aviation engines history center / Nano satellite testing center
. Introduction to the software development for nano satellite micro controllers
. Operating of nano satellites and the ground operating center
. Software development for microcontrollers
. Innovation education programs in space technologies of Samara University

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