

Regulations

on the VI International Olympiad in Fundamentals of Technical Systems Control Automation

These regulations have been developed in order to achieve the objectives of improving the quality of vocational education, developing students' creative potential and key professional competences.

These regulations define the Olympiad main aims and objectives, organizing procedure, participation procedure, and the winner determination.

The Olympiad aims and objectives

- developing students' creative potential;
- developing students' interest in learning about modern automation systems
- contributing to students' ability to find solutions to non-standard problems, as well as their deeper and more solid grasp of modern knowledge;
- identifying talented students;
- enhancing teachers' creativity;
- promoting the development of teachers' academic mobility.

The Olympiad organizer's responsibilities

- by 16 March 2023, the Olympiad organizer will develop, approve and publish on the USPTU official website <http://www.olimpiadaatm.ru> the conditions and requirements for the Olympiad;

- the Olympiad organizer will form the Organizing Committee, the Methodical Committee and the Olympiad jury, approve their composition and authority;

- the Olympiad organizer will ensure the development and storage of the tasks and the running of the Olympiad;

- the Olympiad organizer will approve the results of the Olympiad and communicate them to the participants;

- organizing the winner awarding;

- by 1 April 2023, the Olympiad organizer will publish the report on the Olympiad and the list of winners on the USPTU official website <http://www.olimpiadaatm.ru>.

The Olympiad procedure

Bachelor's and Master's students will participate in the Olympiad according to the results of the selection round within educational institutions or according to the results of

personalized selection by teachers on the subject of the Olympiad.

The Olympiad will be held on 23 March 2023 in Ufa State Petroleum Technological University (1 Kosmonavtov str., Ufa, Republic of Bashkortostan, Russia), at the Department of Automation, Telecommunication and Metrology of the Institute of Institute of Digital Systems, Automation and Energy.

The participation in the Olympiad will be free of charge, no registration fee will be charged. The participants will be responsible for travel costs and accommodation in Ufa during the Olympiad.

The identity of the students participating in the Olympiad shall be verified by a student ID card or passport during registration.

The Olympiad will include two stages.

Stage I will be a personal championship test in the following sections:

- Fundamentals of technological process automation;
- Metrological support for measurements;
- Artificial intelligence in technical systems control.
- Measuring and telecommunication systems.
- Smart-city technology.

Stage II will include solving a complex task in a team competition. The recommended number of participants in a team is 4-5 people.

Stage II provides for the participation of teams, which may include both Master's and Bachelor's students.

USPTU teams will be made up of students from the graduating Department of Automation, Telecommunication and Metrology.

In-person or remote (online) participation in the Olympiad will be possible.

The Olympiad will be held in a specially prepared and equipped room with internet access.

In order to provide the objective assessment of the results of Stage II team tasks, the Olympiad jury, along with representatives of USPTU Department of Automation, Telecommunication and Metrology, will include a curator from each university representing the participants.

The jury will consist of a coordinator from the teams of the universities participating in the competition.

Links for connecting to the opening event of the Olympiad, for the Stage I test (personal test), and for connecting to the team stage will be provided to the university coordinators.

Conditions for the Olympiad

1. **Stage I** will be a computer-based testing for each section, arranged remotely.

It will be possible to gather the participants in a university classroom with internet access, equipped with video surveillance and the possibility to connect to the general broadcasting. A tutor must be present in that room during the whole period of the test and video surveillance will be required. It will be also possible to connect individual participants to a specific e-room by prior agreement with the Organizing Committee.

The time for completing the tasks will be 60 minutes. The participants will receive individual tasks in the form of 40 test questions and tasks by lot. The weight of each question and task will be determined in advance and indicated on the ticket. Personal victory will be awarded to the competitor with the highest score.

A student will be allowed to participate in all the sections of the Olympiad as part of the individual competition.

2. **Stage II** will include solving a complex team task, using the handout provided by the Organizing Committee. Solving period will be 180 minutes. The complex task will deal with the development of a control algorithm and a tool to implement it.

Stage II may be arranged in-person or remotely (online).

The stage should be video monitored for general broadcasting and a supervisor should be present in the classroom during the whole period of the task solution. The topics of the task units will be: metrology, automatic control theory, automation engineering (lower level), technical measurement and instrumentation, electronics and electrical engineering, functional automation circuits.

3. The participants will not be allowed to use any mobile devices, the Internet or removable media during the Olympiad.

Summing up the results, awarding the participants of the Olympiad

The winners of the Olympiad in individual and team competitions will be awarded 1,2,3 places, Diplomas and prizes. The winners of the Stage I of the Olympiad will make up not more than 30% of the participants in each section.

Letters of appreciation will be sent to the educational institutions for the teachers who provided the participants of the Olympiad.