

Winter University for Engineering Sciences «New Scientific Horizons» kicked off at the Advanced Engineering School of SPbPU «Digital Engineering»

On November 25, 2024, on the basis of the Advanced Engineering School «Digital Engineering» of Peter the Great St. Petersburg Polytechnic University (PES SPbPU), with the support of the Ministry of Science and Higher Education of the Russian Federation and FGANU «Sociocenter», SPbPU International Services and the Center for Work with Entrants of SPbPU, the Winter University for Engineering Sciences «New Scientific Horizons» was launched. The event will take place from **November 25 to December 9, 2024.**



The purpose of the Winter University is to strengthen ties between young engineers and deepen international cooperation. In addition to SPbPU, the Winter University will be held at the sites of Pskov State University and Yaroslavl the Wise Novgorod State University.

More than **1000** students applied for participation in the Winter University at SPbPU, among which **220** students from Russia, CIS and non-CIS countries were selected. Of the selected applications, **170** participants represent foreign universities of the Republic of Belarus, Kazakhstan, Kyrgyzstan, Uzbekistan,

Armenia, Tajikistan, China, South Africa, Iran and India, as well as **50** Russian students from Moscow and Moscow region, St. Petersburg, Nizhny Novgorod region, Karelia, Khabarovsk region, Kaliningrad region, Irkutsk region, Novosibirsk region, Astrakhan region and Samara region.

The main directions of the Winter University for Engineering Sciences «New Scientific Horizons» on the basis of the SPbPU NSPU:

- Digital technologies in engineering activities
- System digital engineering
- Digital twin technologies
- Artificial intelligence technologies.

The project program includes training of students in three equivalent parallel engineering tracks:

- **Sigma** (for Russian-speaking students)
- **Tau** (for Russian-speaking students)
- **Epsilon** (for English-speaking students).

These tracks include educational and project-laboratory blocks.

The **Sigma track** includes modules:

1. Project laboratory on design
2. Project lab on application of AI technologies to data of various kinds
3. Digital transformation and lean manufacturing lab
4. Polymer Composites Lab.

The **Tau track** includes modules on:

1. Strength analysis of equipment and pipelines, design of buildings and structures considering extreme impacts;
2. Fundamentals of laboratory testing of material properties
3. Aerodynamics of airplane wing profile
4. Personal efficiency. Personal and professional skills development training.

The **Epsilon track** includes modules:

1. Project design lab on design
2. Aerodynamics of airplane wing profile
3. Supply chain management
4. Recognizing opportunities and forming an idea for a high-tech startup.



The Winter University format will allow participants to try themselves in a variety of professional roles. Part of the educational block will be devoted to the development of Soft Skills: participants will be introduced to the work of engineering teams and will learn about project management in the field of UAVs. The Winter University will also include an Engineering Championship, in which all participants will be able to act as engineers, creating catapults from improvised materials. The organizers have developed a special cultural program, which will introduce the participants of the Winter University to the beauty, architectural and historical heritage of St. Petersburg in a daily format. The cultural program includes excursions to the State Hermitage Museum, Yusupov Palace, to the city of Pushkin with a visit to the Catherine's Palace, and to Kronstadt with a visit to the «Island of forts and true heroes» and St. Nicholas Sea Cathedral.

In the next two weeks, the participants of the Winter University will immerse themselves in the atmosphere of busy everyday life, modern technologies, cultural events and international cooperation.

Material taken from the website of the [Advanced Engineering School of SPbPU](#)

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