



TECHNICAL
ACADEMY
ROSATOM



IN THE PATH OF ATOMS FOR PEACE

ROSATOM TECHNICAL ACADEMY | DIGEST 2023

Supporting the Strategic Goals of ROSATOM



TECHNICAL
ACADEMY
ROSATOM

Strategic training partner – integrator of technological training

Rosatom Technical Academy Development Programme 2024–2026

INVESTMENT PROJECTS

New nuclear power

Maintaining the industry's production standards

International cooperation

Internal transformation

VISION-2045



ROSATOM
GLOBAL
TECHNOLOGY
LEADER

Proactive Personnel Training System for Small and Two-Component Nuclear Facilities

Multi-Purpose Centre for Physical Protection
Training and Certification Centre for Welding Engineers

Nuclear Infrastructure Centre
Transformation of the Moscow Branch

Training of Personnel for New Business Areas
Process Automation

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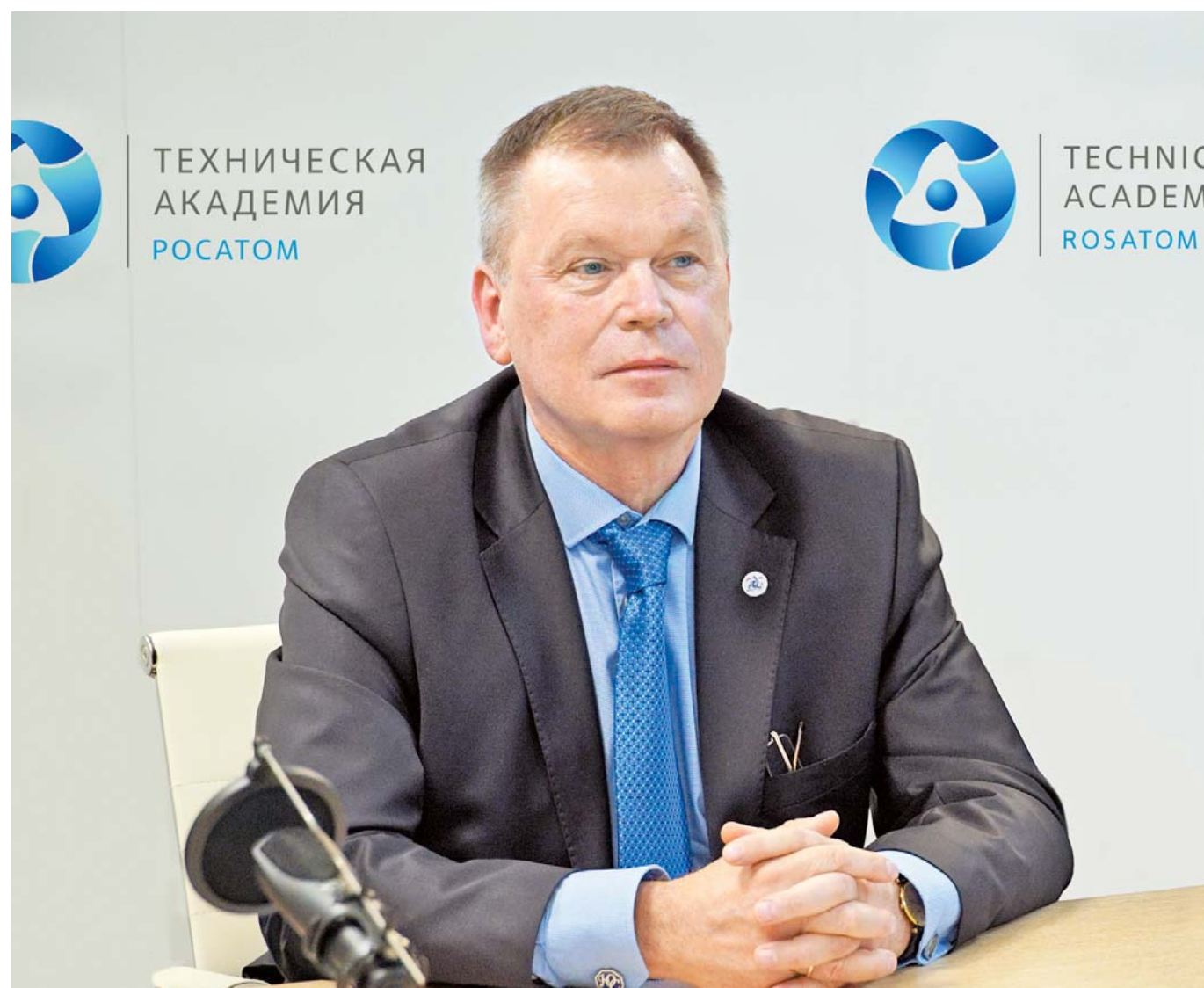
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IN THE PATH OF ATOMS FOR PEACE



The roadmap for the development of Russian nuclear technologies is laid out for a century ahead. ROSATOM is to build at least 17 more power units by 2035, including floating NPPs, land-based SMRs and commercial fast neutron reactors. More than 350,000 qualified specialists will be needed to implement these and other projects in Russia and abroad by 2030. Fulfilment of this task requires a transformation of the industry's system of personnel training. Yuri Seleznev, Rector of Rosatom Technical Academy, spoke about the search for new technologies, processes and approaches in nuclear education.

- Is Rosatom Technical Academy ready to propose a concept for the development of nuclear education in the strategic perspective of ROSATOM's interests?

- Rosatom Technical Academy has developed an intensive short-term development programme to provide training support for ROSATOM's strategic projects. The investment project will make it possible to ensure proactive personnel training in the future-oriented areas of ROSATOM's activities. The basis for this is the experience accumulated by Rosatom Technical Academy in the field of training in the safety of nuclear facilities, training of personnel of foreign NPPs, educational support of international projects and new high-tech businesses of ROSATOM.

Today, the Academy carries out complete training in the VVER technology. The development of the personnel training system for the Pilot Demonstration Energy Complex based on the BREST-300 reactor in Seversk has become a new development stage for us. Rosatom Technical Academy will train personnel not only for big NPPs, but also for innovative reactors.

The establishment of an integrated industry-wide centre for training of small nuclear power personnel for upgraded floating NPPs of the Northern Sea Route and land-based small power plants planned to be built in Yakutia, Norilsk and Myanmar could become a large-scale project of the current decade. This is a project of ROSATOM's external expansion, and it should certainly meet the requirements of an international centre. In addition, Atomenergomash is developing a project of an optimised floating NPP that can operate in hot countries. The American nuclear power plant project with first small modular reactors, which the United States planned to promote worldwide, was shut down. The costs were much higher than planned. Things, which were only in the calculations in the American project, have been justified and already work in our country.

- What tasks, which the Academy's specialists used to solve with heroic efforts, do they solve today in the course of their regular work?

- The investment project, implemented in 2018-2022, made it possible to create modern and efficient facilities to provide training activities in the nuclear industry and helped build a system for training of the personnel of NPPs that ROSATOM constructs abroad. The repairs have been carried out, the equipment purchased, the simulators put into operation, the training and methodological materials developed and the staff trained. Now, the system is working steadily: the Academy is training specialists of the plants under construction in Bangladesh, Turkey, Egypt, Hungary.

At the same time, we are exploring the opportunities and trying to build a system of proactive personnel training for the new nuclear power industry. The Moscow Branch has been completely transformed towards this goal. What is involved in building a new project? We need to follow the familiar path: people, facilities, training materials, simulators - everything has to be started from scratch. This is where heroic efforts never end. Nuclear power itself and the operation of a nuclear power plant is a quiet and confident job. But it originates in heroic efforts.

Last December, Rosatom Technical Academy concluded a framework agreement with NovaWind JSC. Today, the regular interaction with the Wind Power Division has been established and the training is provided. The cooperation with the Russian Association of Wind Power Industry allows us to assess the industry's training needs and expand the range of training courses. The Academy presented its training services for the new markets at this year's International Wind Energy Forum dedicated to the renewable energy and electric transport.

The system of personnel training for a new promising area of industrial waste treatment and utilisation is also being developed from scratch. We signed a corresponding agreement with the Federal Environmental Operator in January. The Novovoronezh Branch developed an investment project for the establishment of a welder training centre. We are talking about highly qualified specialists who will be certified by Rostekhnadzor in order to be allowed to work at the facility. Next year, we plan to start the construction of the Multi-purpose Centre for Physical Protection. The project is ready and has passed expert appraisal.

In 2023, more than 26 thousand specialists were trained at Rosatom Technical Academy.

- The international activities of the Academy (CICE&T at that time) began in 2010 along with the IAEA's commitment to assist newcomer countries. Today, the training of nuclear infrastructure personnel is once again in high demand. Why is that so?

- African countries are now showing great interest in the development of peaceful nuclear technologies. This was confirmed once again at the Second Summit and Russia-Africa Economic and Humanitarian Forum, which was held in Saint Petersburg this summer. On the sidelines of the Forum, ROSATOM and our partners from Africa signed five agreements aimed at recognition and implementation of nuclear technologies and training of personnel. As part of the event, Rosatom Technical Academy together with the Peoples' Friendship University of Russia organised a youth forum "Nuclear Education - Potential for Successful Regional Development", which brought together more than 350 young specialists from Russia and African countries.

The nuclear energy field is new for the African states, and in order to build it, nuclear infrastructure needs to be developed first and foremost. This involves cooperation in the area of training and human capacity building. Rosatom Technical Academy has extensive experience in training activities: since 2010, 3,294 specialists from 88 new countries have been trained at joint Russian and IAEA courses in various areas

of nuclear energy use. Today, the Academy has cooperation agreements with four IAEA Departments in the fields of nuclear energy, nuclear sciences and applications, nuclear security and safeguards.

Taking into account the accumulated experience, we plan to develop the idea of creating the Centre for Nuclear Infrastructure Personnel Training. For new countries, nuclear power is not just about electricity, but also about a strong educational environment, quality healthcare, an active social and cultural life, and a comfortable infrastructure. This is why the countries that can't afford a big plant try to build a small one. The managers there, even at the middle level, have two or three European educational qualifications. They realise the impact of the peaceful atom and are eager to learn. By helping these countries to develop their own university programmes in the nuclear education and organising the courses on building nuclear infrastructure, we are laying the foundation for relations between Russia and African countries in the area of nuclear energy development on the neighbouring continent.

- In 2023, Rosatom Technical Academy opened its doors to schoolchildren and young people. Regional, national and international events were held: Obninsk NEW Forum, preparations for the World Youth Festival, the Day of Science, Dynasty competition, guided tour programmes and others. How important is social partnership to the organisation?

- I have always asked myself, what do we have to offer to the city, the region? According to the Governor of the Kaluga region, Rosatom Technical Academy creates the city's image and promotes it abroad. In my opinion, this is not enough. Social issues are first and foremost an organisation's public stance.

We are delighted that our large conference hall, which can accommodate up to 400 people, has become a new communication platform for the city and the industry. It is equipped with multimedia and audiovisual systems, screens, videoconferencing and simultaneous interpretation systems. It is really comfortable here.

Earlier this year, a monument to the founding fathers of the Russian nuclear education, E.P. Slavsky and Y.S. Semendyaev, was established. It is important to us that the industry's history is preserved. To make it more "colourful", we are creating a square at the main entrance to the Academy building, where everyone in the city can relax and be inspired by its energy and spirit. By the next summer, there will be footpaths, benches and information boards here. We always aim to do something that people will be proud of.

ANTICIPATING THE TECHNOLOGIES FOR CENTURIES TO COME

The monument to the founders of the Russian nuclear education - Yefim Pavlovich Slavsky, Minister of Medium Machine Building, and Yuri Sergeyevich Semendyaev, Head of the Human Resources and Educational Institutions Administration of the Ministry of Medium Machine Building - has been unveiled in the square in front of Rosatom Technical Academy.





ALEXEY LIKHACHEV
Director General of
ROSATOM

“Rosatom Technical Academy is the successor to the half-century history of the Central Institute for Continuing Education and Training. Almost all of ROSATOM’s senior officials, starting with Yefim Pavlovich Slavsky, gave lectures here. Today, the IAEA sees our Academy as one of the driving forces in the global development of nuclear knowledge on the planet, and runs a number of programmes and projects here. Young specialists come here to be trained to work in the nuclear power plants and nuclear research facilities we are building around the world. Obninsk is a special place – it is home to a branch of MEPhI and a number of our historically significant enterprises – Karpov Institute of Physical Chemistry, Leypunsky Institute for Physics and Power Engineering. This concentration of knowledge is significant not only because of the glorious past and the present, which is very important for the industry and the country. There is a huge potential for development here.”

During the event, the guests learned about the advantages of the large conference hall, which was renovated as part of the “Development of Rosatom Technical Academy” investment project.

The bronze monument, which is more than two metres high, was created by the sculptor Vitaly Kazansky. The sculptural composition commemorates the decision taken in 1967. In order to improve the training system for nuclear industry personnel and increase the safety of nuclear facilities, the legendary minister signed the order to establish the Central Institute for Continuing Education and Training of managers and specialists (CICE&T).

Leaders of the Rosatom State Corporation, Rosenergoatom Concern, Rosatom Technical Academy and representatives of regional and city authorities gathered to pay their respects to the great founders of the industry.

As Alexey Likhachev, Director General of ROSATOM, pointed out at the monument unveiling ceremony, behind the figures of the great founding fathers there are hundreds of thousands of other people who, after the Great Patriotic War, created a new knowledge system, a branch of industry, and not only solved the problem of nuclear weapons, but



The representatives of the delegation attended the multifunctional simulator training session of the Rooppur NPP specialists and talked to the trainees

also ensured the development of nuclear power, nuclear medicine, materials science and the other industries that today are an integral part of Russia’s technological sovereignty.

“Taking into account life extension, modern nuclear plants are built to operate for 100 years. We need to look beyond the horizon of today’s knowledge to anticipate the technological platform of the next centuries to build the most efficient processes.”



INTERNATIONAL COOPERATION: COMPETENCES FOR SUSTAINABLE DEVELOPMENT

Russia-Africa: supporting economic growth

Russia-Myanmar: prospects for cooperation

IAEA Centre of Excellence

RUSSIA-AFRICA: NUCLEAR EDUCATION FOR SUSTAINABLE DEVELOPMENT



VICTOR MAZEPOV,
*Director for
International
Cooperation, Rosatom
Technical Academy:*

"The representatives of the African continent are keen to develop bilateral relations in the area of nuclear education. The event was attended by the heads of African ministries and young specialists who study in Russia or have graduated from Russian universities and work in their fields in their home countries. The Forum allowed our foreign colleagues to learn about the potential of nuclear technologies to improve the quality of life in remote regions."

The International Youth Forum "Russia-Africa: Nuclear Education as a Potential for Successful Development of the Region" gathered more than 350 young specialists from Russia and African countries at Rosatom Technical Academy in St. Petersburg on 26 July. The event was held as part of the Second Summit of the Russia-Africa Economic and Humanitarian Forum. The organisers were Rosatom Technical Academy and People's Friendship University of Russia.

During the Forum, the participants discussed the use of nuclear technologies for the development of hard-to-reach regions of the Earth, the specialties of the future in Africa, digital technologies in medicine, and talked about small modular reactors, closure of the nuclear fuel cycle, nuclear medicine, the energy potential of waste and other new advanced areas of the industry.



MINA TAWADROS,
*Forum Participant,
Egypt:*

"I was invited to the Forum to make a presentation on "Plasma Disposal of Radioactive Materials" in the "Ecology" section. In my opinion, it is the most effective technology in the post-industrial era. I graduated from Tomsk Polytechnic University with a Master's degree in Nuclear Physics and Technology. I am currently applying for postgraduate studies at this university. I have won a scholarship from ROSATOM. It will be great if other people receive education in the field of nuclear energy in Russia and drive scientific progress in their home country."



LARISA EFREMOVA,
*Vice-Rector for
International Affairs,
Peoples' Friendship
University of Russia:*

"The Forum identifies the projects and research that can lead to scientific advances and discoveries in the future. ROSATOM builds human scientific capacity among African students for specific branches of African science. Our university has the competences in building relationships with the graduates of the oldest Russian universities and with the authorities. We have many contacts in African countries, it is a large pool of graduates who assist in promoting the interests of ROSATOM, our science and education."

"The young people of Africa are talented people. Many of those present at the summit are fluent in Russian, even though it has been many years since they were educated in the Soviet Union. This further underlines the quality of Africa's human capacity."

VLADIMIR PUTIN,
*President of the Russian
Federation, Second
Russia-Africa Summit*



OBNINSK NEW: THE TERRITORY OF FORMATION OF THE GLOBAL PERSONALITY

The global challenges of creating the future based on the principles of sustainable development and the establishment of a new system of training and career management for industry specialists were discussed by the participants of the first Obninsk NEW International Youth Nuclear Forum.

The main goal of the Forum is to involve the youth of the world in the creation of the advanced international centre of nuclear education "Obninsk Tech" and the development of joint initiatives aimed at solving topical issues of the global nuclear and related industries.

The Forum was attended by more than 100 speakers from Russia, Bolivia, Turkey, Vietnam, Egypt, India, South Africa, Panama, Kyrgyzstan, Brazil, Tanzania, Namibia, Serbia, Armenia, China, Kenya, Brunei, Kazakhstan, Uzbekistan, England and Rwanda.



**MIKHAIL MISHUSTIN,
Prime Minister of the
Russian Federation:**

"With the support of the President of the Russian Federation, persistent efforts are in progress to establish the International Scientific and Educational Centre for Nuclear and Related Technologies. I am confident that it will become a leading cluster, a point of attraction for the talented youth from every corner of the world. It will contribute to the training of highly skilled professionals in demand in economic sectors and state corporations. It will enable to ensure technological sovereignty of Russia in the area of new scientific nuclear developments."



**ALEXEY LIKHACHEV,
Director General of
ROSATOM:**

"The establishment and development of Obninsk Tech will enable Russia to take at least 20% of the global nuclear and related education market by 2030. It will be a place where an active person with a global and strategic mindset is formed, a person who is not only knowledgeable in the natural sciences but also skilled in the humanities. The formation of a new human being, who will change the surrounding world, who will develop our planet, is what we will be working towards in the course of our long work."

The Forum brought together over 600 students, young scientists and experts from 70 countries at Rosatom Technical Academy and National Research Nuclear University MEPhI.



The plenary session "Empowering Education for the World's Sustainable Tomorrow" was attended by the IAEA Deputy Director General Mikhail Chudakov, Director General of the World Nuclear Association Sama Bilbao y León, Head of the Bolivian Nuclear Energy Agency Hortensia Jiménez Rivera, Head of the Nuclear Industry Association of Turkey Ali Kaan Çiftçi, Rector of the National Research Nuclear University MEPhI Vladimir Shevchenko.





RUSSIA-MYANMAR:

PROSPECTS FOR COOPERATION

The management of Rosatom Technical Academy and a delegation from the Republic of the Union of Myanmar led by the Union Minister for Science and Technology Dr Myo Thein Kyaw discussed possible areas of cooperation in personnel training for the development of nuclear energy.

The meeting was held at the site of the Moscow Branch of the Academy. Yuri Seleznev, Rector of Rosatom Technical Academy, presented the stages involved in the training of personnel for small modular reactor projects.

As the head of the Academy noted, the country that is developing nuclear power needs specialists first and foremost. In order to establish and develop nuclear education, in addition to training students at Russian universities, it is necessary to develop national nuclear education programmes. Rosatom Technical Academy con-

ducts specialised practice-oriented Train-the-Trainers courses for educators from all over the world.

An important step in the development of a national nuclear power programme in a newcomer country is the establishment of ministries, operating organisations and regulatory bodies. For this purpose, special courses on NPP technologies, international and Russian rules and regulations in the field of nuclear energy use, and physical protection programmes for national security officers have been developed and are conducted.



In May, as part of the intergovernmental agreement between the Russian Federation and the Republic of the Union of Myanmar on cooperation in the peaceful use of atomic energy, Rosatom Technical Academy held an online seminar entitled "Building Nuclear Infrastructure for Small Modular Reactors". During the event, the foreign experts learned about the work of the International Atomic Energy Agency in developing the national nuclear infrastructure. The participants were also told about the characteristics of Russian-designed floating nuclear power plants.



In October 2023, on the sidelines of the Russian Energy Week, ROSATOM and the Ministry of Science and Technology of the Republic of the Union of Myanmar signed a Memorandum of Understanding on the assessment and development of nuclear infrastructure for the implementation of an SMR project in the country. Roscongress Photo Bank



ROSATOM

ALEXEY LIKHACHEV
DIRECTOR GENERAL,
STATE ATOMIC ENERGY CORPORATION ROSATOM

DR. MYO THEIN KYAW
UNION MINISTER OF SCIENCE AND TECHNOLOGY,
THE REPUBLIC OF THE UNION OF MYANMAR

МЬО ТЕЙН ЧЖО
СОЮЗНЫЙ МИНИСТР НАУКИ И ТЕХНОЛОГИИ
РЕСПУБЛИКИ СОЮЗ МЬЯНМА

ЛИХАЧЁВ АЛЕКСЕЙ ЕВГЕНЬЕВИЧ
ГЕНЕРАЛЬНЫЙ ДИРЕКТОР
ГОСКОРПОРАЦИИ «РОСАТОМ»



RW MANAGEMENT: TRAINING SUPPORT FOR THE REPUBLIC OF BELARUS



Development of the system of initial and continuing training in the field of radioactive waste management was the main topic of the visit of Rosatom Technical Academy's specialists to Minsk. The working meetings were attended by managers and specialists from Belenergo, Belarusian Organisation for Radioactive Waste Management, Gosatomnadzor and leading Belarusian universities.

As a result of the meeting, it was agreed to prepare a Memorandum of Understanding and Cooperation between Gosatomnadzor and Rosatom Technical Academy for exchange of experience, organisation of seminars, meetings, consultations, professional training of employees to ensure safety in the use of nuclear energy and ionising radiation sources as a possible basis for further cooperation.



The meeting was the result of the cooperation between Rosatom Technical Academy and Belarusian partners within the framework of the activities of the CIS Member States Base Organization for Spent Nuclear Fuel and Radioactive Waste Management, and

Decommissioning of Nuclear and Radiation Hazardous Facilities, as well as of the work of the expert group on the development and implementation of professional training programmes in this area under the guidance of Rosatom Technical Academy.



DMITRY SIMONOV,
*Director of the
Central Institute for
Continuing Education
and Training of
Rosatom Technical
Academy:*

"The experts of the Central Institute for Continuing Education and Training have developed and conduct courses in the field of RW and SNF management and decommissioning of radiation hazardous facilities, as well as international training courses on the remediation of territories contaminated by radionuclides. The Academy has a modern Training and Practice Centre for Radiation Measurement Technologies for applied training of specialists of radiation hazardous facilities of the industry and employees of non-nuclear specialized enterprises and organisations. The training provides conditions as close as possible to the real conditions of dosimetry and radiation monitoring. It is also possible to arrange technical tours to the production sites of leading enterprises in the field of radioactive waste management. We hope to demonstrate these and other training opportunities to our Belarusian colleagues in the near future."



IAEA CENTRE OF EXCELLENCE

The IAEA Technical Cooperation Programme is an effective instrument of international cooperation in the peaceful use of nuclear energy. The developing countries receive assistance and the developed ones get the opportunity to apply nuclear technology, equipment and knowledge.



ALEXEY LIKHACHEV,
*Director General of
ROSATOM:*

"The cooperation between Russia and the IAEA continues to expand both in terms of depth and in terms of the scope of the projects. We see that our technologies and knowledge are in demand. We conduct many technical tours and events at our facilities, construction sites and other projects. It is mutually beneficial."

INTERNATIONAL COOPERATION

As members of the Russian delegation, the representatives of Rosatom Technical Academy took part in the 67th General Conference of the International Atomic Energy Agency. The event in Vienna brought together leading global experts and nuclear industry representatives from 177 countries.

During his speech at the plenary session, Alexey Likhachev, Director General of ROSATOM, stressed the importance of international cooperation in the field of nuclear technologies for achieving the UN Sustainable Development Goals and improving the quality of life, and expressed ROSATOM's readiness to expand cooperation with the IAEA.

Prior to the General Conference, the IAEA Secretariat held a meeting of donor countries in the field of nuclear infrastructure. The meeting summarised the results of the INT2021 Interregional Technical Cooperation Project aimed at supporting Member States introducing or expanding nuclear power programmes to develop a nation-

al nuclear infrastructure. Russia's achievements in the Project were presented by Victor Mazepov, Director for International Cooperation of Rosatom Technical Academy, and Anastasia Andryushina, Head of the Academy's Project Office for Interaction with International and Foreign Organisations.

The INT2021 Project involved a total of 68 countries and 57 events, with 50 developing countries receiving support. Russia was the only country to hold face-to-face training activities during the pandemic, meeting all the necessary anti-epidemiological requirements. Most of the events were held at various venues of Rosatom Technical Academy.

As part of the INT2021 project, Russia conducted **20** training courses and trained **372** representatives from **45** countries.





The capacity building of the industry and the transfer of experience to newcomer countries were discussed at Rosatom Technical Academy by Mikhail Chudakov, IAEA Deputy Director General and Head of the Department of Nuclear Energy, Vasily Aksenov, Director of the Moscow Centre of the World Association of Nuclear Operators, and Yuri Seleznev, Rector of Rosatom Technical Academy.

During the meeting it was decided to strengthen the coordination between the organisations and to develop the cooperation with the WANO Moscow Centre for the benefit of the newcomer countries. Special attention was paid to the 21st IAEA INPRO Dialogue Forum on

the Deployment of Small Modular Reactor Projects and Technologies. The Forum has become a key event on the path to the extensive deployment of small-scale power generation, not only from the technical point of view, but also in terms of training.



Issues of cooperation within the framework of the IAEA Technical Cooperation Projects in the field of nuclear infrastructure were discussed during a visit of an Agency's delegation led by Jing Zhang, Section Head of the Department of Technical Cooperation, to the Moscow and St. Petersburg Branches of Rosatom Technical Academy. During the meetings, particular attention was paid to the support of educational and scientific programmes.



YURI SELEZNEV,
Rector of Rosatom
Technical Academy

"Building competencies to accelerate the deployment of small-scale power generation is necessary to strengthen management systems, develop human capacity and engage stakeholders in the countries establishing and expanding national nuclear power programmes, as well as to ensure the safe, reliable and sustainable operation of nuclear power plants. For this purpose, since 2011, Rosatom Technical Academy, in cooperation with the IAEA, has been developing and organising training courses to raise awareness of the various processes involved in the operation of nuclear reactors. In 2023, only on the subject of small modular reactors, six joint ROSATOM-IAEA training events are planned."



SUPPORTING THE IAEA'S TECHNICAL COOPERATION PROGRAMME

Russia-IAEA Schools and training courses are held at Rosatom Technical Academy as part of the extra-budgetary contribution of the Russian Federation to the implementation of Technical Cooperation projects for the development of nuclear infrastructure of countries that have embarked on nuclear power programmes.

At the Fourth Joint Russia-IAEA Nuclear Knowledge Management School, 23 representatives of the nuclear science and technology organisations from 13 countries learned about the policy and strategy of nuclear knowledge management, prevention of risks of its loss and transfer, and human capacity building.

In 2023, 192 specialists from 38 countries were trained as part of Russia-IAEA training activities.



The Advanced Nuclear Energy Management School was attended by participants from Armenia, Bangladesh, Brazil, Belarus, Egypt, Ethiopia, Ghana, Jordan, Laos, Mongolia, Nigeria, Rwanda, Russia, and Uzbekistan. The School's programme focused on building the leadership skills needed to support the development of nuclear infrastructure in countries embarking on or expanding national nuclear power programmes.



A special feature of the School was a technical tour to the site of Leningrad NPP-2, which allowed the participants to get acquainted with the Russian technologies and experience of operating a nuclear power plant.

The objective of the School was to provide mid-level managers in the nuclear industry and representatives of governments of IAEA Member States with a broad understanding of the key issues and challenges associated with the peaceful use of nuclear technologies.



Russia-IAEA Nuclear Energy Management Schools have been regularly organised in Russia since 2016.

SMR: HUMAN RESOURCES FOR THE FUTURE



In 2023, Rosatom Technical Academy held four IAEA training courses, a seminar and an international round table on the topic of small modular reactors

Thanks to virtual technical tours to the nuclear industry enterprises, the participants of the course on the safety of small modular reactors learned about the Russian experience in their construction and operation using the examples of the Akademik Lomonosov floating NPP and the SVBR-100 reactor plant, and considered the issues of nuclear infrastructure, licensing, nuclear security and radiation safety.

A training course on the design features of cogeneration projects using small modular reactors and micro reactors introduced representatives from 12 countries to new developments in non-electrical applications of nuclear technologies in seawater desalination, hydrogen production, centralised heating and process heating for industrial needs.



The course participants carried out practical exercises using the Desalination Economic Evaluation Program DEEP



VLADIMIR ARTISYUK, Expert of the IAEA Nuclear Power Technology Development Section:

“Nuclear energy plays a key role in tackling climate change issues. Development in this direction remains a major challenge for many countries. The global implementation of SMRs projects can be carried out by 2030 if their development rate stays at the same level.”



The course programme included technical tours to Rosatom Technical Academy and JSC Machinery Manufacturing Plant

Possibilities of using SMRs to provide a reliable carbon-free energy supply were discussed by more than 50 representatives from 21 countries at a round table on small modular reactors. Establishing an international dialogue to share knowledge on the

implementation of small-scale power generation projects will address a wide range of technical, economic, social and political issues and enable the large-scale deployment of carbon-free innovative technologies around the world.



ANTON DYACHENKO, Director of the Centre for Advanced Nuclear Technologies of Rosatom Technical Academy:

“The availability of qualified personnel is necessary for the construction of a nuclear power plant and its safe operation in the future. Understanding the training process and the emerging challenges associated with staffing the innovative facilities will allow us to develop and successfully implement a national personnel training strategy.”





INPRO: KEY TO SUSTAINABILITY OF NATIONAL ENERGY SYSTEM

The International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO) assists newcomer countries in their long-term planning and cooperation on innovative reactors, fuel cycles and institutional approaches that will promote the sustainable development of nuclear energy.



Various aspects of small modular reactors are covered in a week-long training course programme on the application of the INPRO NESA methodology. At the St. Petersburg Branch of Rosatom Technical Academy, specialists from 14

countries learned the main INPRO concepts and tools in the fields of nuclear infrastructure, waste management, radiation safety and physical protection, and evaluated the nuclear power system using case studies.

In August, more than 80 participants from 31 countries shared their knowledge on how to ensure the sustainability of nuclear power through SMR technologies at the IAEA's 21st INPRO Dialogue Forum.



MIKHAIL CHUDAKOV,
*Head of the
Department of Nuclear
Energy, IAEA:*

"It is vital that knowledge of the IAEA's methodology and tools for assessing the sustainability of nuclear power is effectively transferred to specialists from developing countries. The IAEA is taking steps to help develop and deploy small modular reactors around the world. Of course, small reactors will develop, and this will result in a closed cycle that meets all non-proliferation standards. This is our future!"



VICTOR MAZEPOV,
*Director for
International
Cooperation, Rosatom
Technical Academy:*

"Today, there are high expectations around the world for the use of small-scale nuclear power. This means that it is time for us to develop the human resources. It is a labour-intensive process. If the world is to be ready for the full implementation of SMR, not only from a technical point of view but also in terms of rich human resource capacity, we need to start training the personnel now."



During the technical tour of Rosatom Emergency Response Centre, the participants learn about the industry's capabilities in emergency preparedness and response to accidents and other incidents at nuclear and radiation hazardous facilities

A large part of the interregional course on energy planning and the use of the IAEA tools for modelling energy systems that meet the needs and climate goals of small modular reactors is devoted to practical work with the MESSAGE long-term energy planning model. It is a tool that the IAEA offers to improve the development of energy strategies, power system development plans and other strategic power engineering documents of all Member States.



**ALEXANDER
BYCHKOV,** *Expert of
the Department of
Nuclear Energy, IAEA:*

"INPRO is future-orientated and makes sure that both senior managers and the next generation of nuclear experts receive the necessary education and further training in the nuclear field. We organise training events to ensure that the knowledge of the IAEA's methodology and tools for assessing the sustainability of nuclear power systems is effectively transferred to future leaders in this field."



Modelling of the national energy system ensures sustainable electricity supply, low greenhouse gas emissions and integration of nuclear and renewable energy.

A week-long IAEA course programme includes not only lectures by international and Russian experts, but also practical sessions and technical tours to the sites of nuclear industry organisations and enterprises.



Group activities aimed at simulating possible situations were organised by international experts as part of the course on Preparedness of the Owner/Operator Organization for Construction and Operation



As part of the course on building mechanisms and capabilities for emergency preparedness and response, the participants from 10 countries were able to apply their knowledge during a group work session on public protection measures



To familiarise the trainees of the Leadership and Management for Safety course with the peculiarities of maintaining safety culture at enterprises, a technical tour was organised to the Machinery Manufacturing Plant in Elektrostal (affiliated with ROSATOM's fuel company TVEL)



The participants of the Interregional Training Course on Effective Stakeholder Engagement for New Nuclear Power Programmes visited the Leningrad NPP Training Centre and the site of Unit 6

PHYSICAL PROTECTION: THE EFFECTIVENESS OF PRACTICAL TRAINING

Nuclear security training courses are conducted within the framework of the voluntary contribution of the Russian Federation to the IAEA's Nuclear Security Fund and combine advanced theoretical fundamentals of physical protection with applied practical modules. Practical training is held at the unique outdoor training facilities and laboratories of the Global Nuclear Safety and Security Institute of Rosatom Technical Academy. In 2023, 12 training courses were conducted as part of the contribution.



Certificates of completion of the course were presented to the trainees by the IAEA Deputy Director General, Mikhail Chudakov



The IAEA International Training Course "Preventive and Protective Measures against Insider Threats" brought together specialists from 14 countries at the St. Petersburg Branch of Rosatom Technical Academy. Instructors from

the IAEA, Russia, the Philippines and Kazakhstan presented the IAEA-recommended approaches and techniques for countering threats related to nuclear materials and shared their experience in this field.



EGOR BOLOGOV,
*Director of the
Department of
Industrywide Training:*

"Today there is a steadily growing demand for the throughput efficiency of training centres that are responsible for the capacity building of nuclear power facilities in operation and under construction. In this regard, there is a severe shortage of professional instructors in the field of security."



The training course on physical protection of radioactive materials was attended by the representatives of foreign regulators, operators and other organisations from 16 countries. During practical demonstrations, the course participants studied physical protection equipment: engineering barriers and structures, access control system, exterior and interior intrusion detection sensors, electro-optical surveillance system. In order to consolidate the acquired knowledge, the specialists, under the guidance of the instructors of the Global Nuclear Safety and Security Institute, offered their solutions for improving the physical security of a hypothetical “Scientific Research Centre”.



The employees of organisations and training centres working in the field of nuclear security for nuclear power programmes participated in a training course on the establishment of a nuclear security regime. During the practical part of the course, the trainees applied their knowledge of threat assessment in the development of a nuclear security plan and discussed the maintenance of the nuclear security regime.

The International Training Course on Nuclear Security in Practice: Field Training for University Students,



organised under the auspices of the IAEA, was attended by 35 university students and young professionals from 15 countries. The experts were specialists from the IAEA, Jordan, Kazakhstan and Rosatom Technical Academy. In order to consolidate the acquired knowledge, the specialists, under the guidance of the instructors of the Global Nuclear Safety and Security Institute, designed the physical protection system for a hypothetical training facility “Hypotron”. The effectiveness of this practice-oriented course was demonstrated by the results of the defence of the design solutions.



For the first time, Rosatom Technical Academy hosted the IAEA International Train-the-Trainers Course on Physical Protection of Nuclear Material and Nuclear Facilities. The course was attended by the representatives of organisations and training centres from around the world that train personnel for the units responsible for nuclear material security and counter-terrorism at nuclear facilities.

Experienced instructors from Rosatom Technical Academy described the training methods used to familiarise students with intrusion detection systems, physical barriers, access control systems for protected areas, and others. In the round table format, the course participants developed their training modules and presented them to their colleagues and instructors.



TRAIN-THE-TRAINERS: TRANSFERRING COMPETENCIES TO PARTNER COUNTRIES



Train-the-Trainers courses are held by Rosatom Technical Academy on a regular basis within the framework of ROSATOM's project "International Cooperation in Nuclear Education".

The courses include not only lectures, but also practicals and technical tours to the facilities of the industry's enterprises. Special attention is paid to the experience of partner universities in creating educational programmes.



Training Courses-2023:

- "Multipurpose Irradiation Centre as a Component of Centre of Nuclear Science and Technology" (Ural Federal University);
- "Research Reactors and Cyclotrons. Application, Infrastructure, Educational Programmes" (Tomsk Polytechnic University);
- Operation Issues of the Turbine Island for NPP with VVER (Peter the Great St. Petersburg Polytechnic University) International School on Radiochemistry (Lomonosov Moscow State University).



STEPAN KALMYKOV,
*Scientific Supervisor
of the Department of
Chemistry, Moscow
State University,
Vice-President of the
Russian Academy of
Sciences:*

"Today, the radiopharmaceuticals in use and in development, and the technologies for their application, make it possible to diagnose diseases at their earliest stages and to treat diseases that were previously incurable. The Russian Federation rightly holds a leading position in this field, and the Department of Chemistry of Moscow State University is rightly regarded as one of the main centres of competence in radiochemistry. By using our resources and engaging leading experts from the relevant organisations, we can train specialists to meet ROSATOM's high standards."



In 2023, the courses were attended by 214 faculty members, postgraduates and students from 37 countries



**AHMED ESLAM
SALMAN, Associate
Professor, Department
of Mechanical Power,
Robotics and Control,
Egyptian Atomic
Energy Authority:**

"Thanks to the modern training facilities, we were able to delve deep into the training within the courses. The emphasis on practical application of knowledge and real-life cases enriched our experience and prepared us for future industry-specific challenges. I am also grateful for the hospitality during our stay in Russia."



ACADEMIC ENVIRONMENT

Ildar Sufiyarov, Personnel Training Engineer of Rosatom Technical Academy, took part in an IAEA consultancy meeting. At the meeting, experts from different countries finalised a new document “Excellence in Maintenance and Good Practices – Lessons Learned”, which reflects modern approaches to the organisation of maintenance and repair of nuclear power plants. The preparation of the document took two years. Rosatom Technical Academy was actively involved in this process.



The participants of the meeting of the INSEN International Network discussed the development of training courses and methodological documents for nuclear security training in educational institutions of different countries, cooperation between universities, continuing training of educators and popularisation of nuclear security training.

Egor Bologov, Director of the Department of Industrywide Training of Rosatom Technical Academy, presented the experience of personnel training in nuclear safety and security.



In **2023**, Global Nuclear Safety and Security Institute trained **323** students from **40** countries



PERSONNEL FOR FOREIGN NPPS: PROACTIVE TRAINING

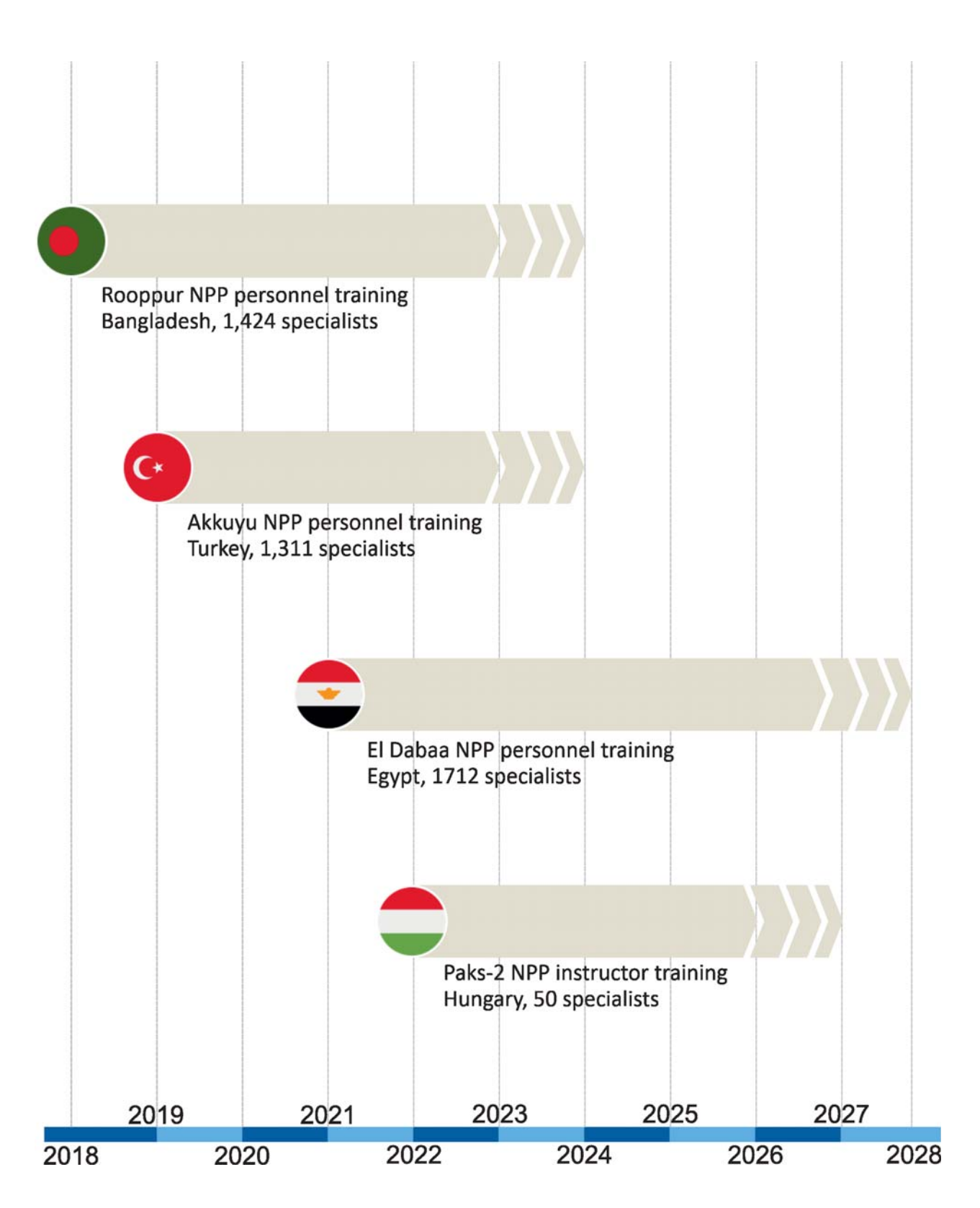
Akkuyu NPP: final stage of training

El Dabaa NPP: personnel for the megaproject

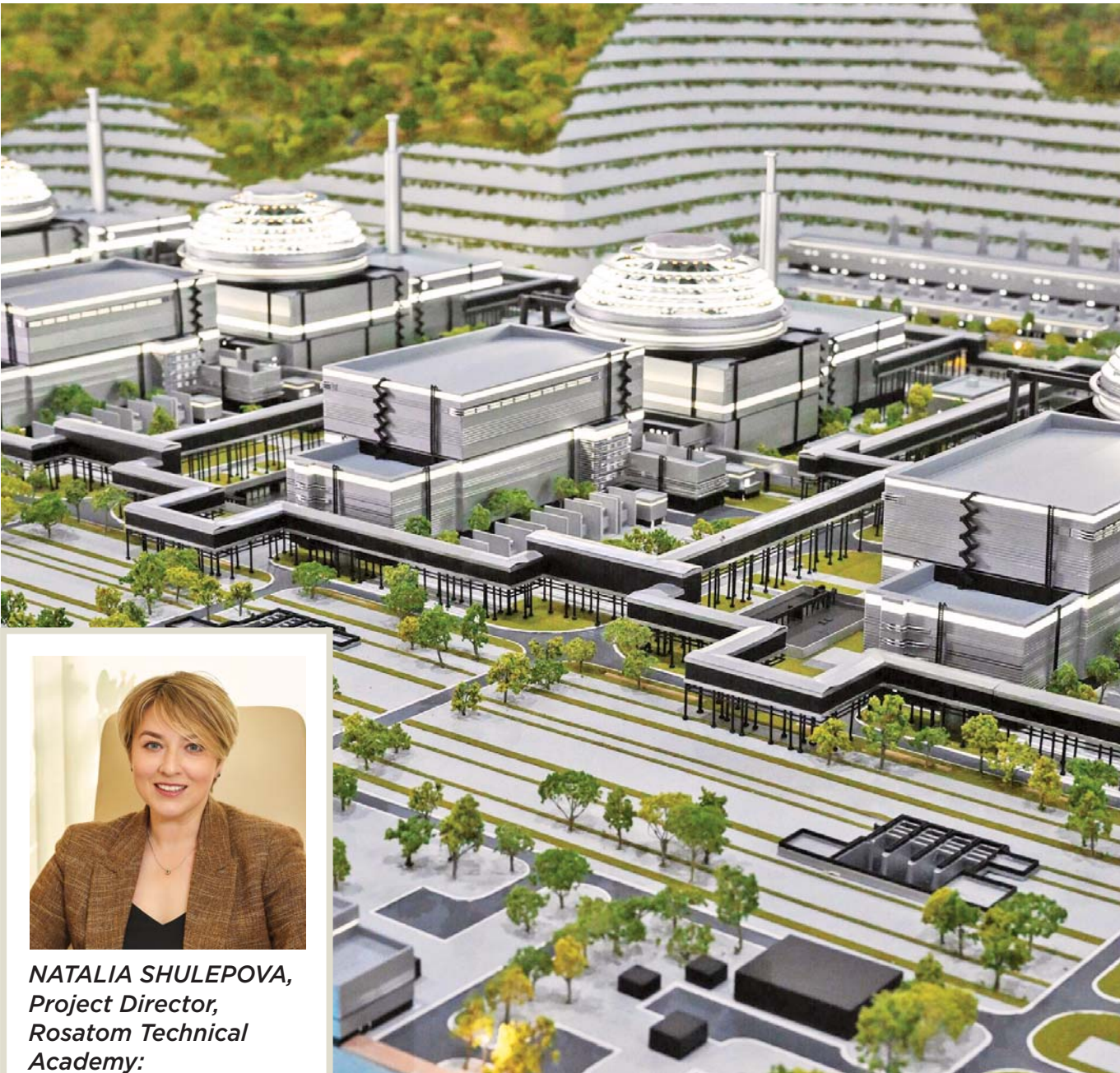
Rooppur NPP: preparation for first criticality

2

FOREIGN NPP PERSONNEL TRAINING



AKKUYU NPP: FINAL STAGE OF TRAINING



NATALIA SHULEPOVA,
Project Director,
Rosatom Technical Academy:

“Practical simulator training is the final stage of the initial training programme. Prior to this, the specialists studied the systems and equipment of the operating unit of the reference NPP in Novovoronezh and learnt about the differences between that plant and the Akkuyu NPP. During simulator training, the personnel practice all scenarios of power unit operation in real time, including emergency modes.”

The Akkuyu NPP is the first nuclear power plant in the Republic of Turkey. The project comprises four units with Russian-designed Generation III+ VVER reactors. Rosatom Technical Academy is to train 1,311 specialists to support the operation and maintenance of Units 1 and 2 of the plant

The first two shifts of the main control room personnel of the NPP under construction in Turkey have completed their pre-licence training on a full-scope simulator in the new building of the Training Centre at the Akkuyu NPP site and received their certificates. Akkuyu Nuclear JSC employees will now have to pass certification exams to obtain a licence from the Nuclear Regulatory Authority (NDK) of the Republic of Turkey.

361 Akkuyu NPP specialists trained in **2023**



A full-scope simulator is a software and hardware complex of NPP reactor power supply and control systems. All the instruments and panels are identical to the equipment of the main control room of the Akkuyu NPP power unit. The information displayed on the monitors and indicators is provided to the operator in a similar form and in similar values as in a real power unit. The simulator was commissioned at the end of October.

A significant milestone was the early commissioning of the integrated information system designed for automation and effective information support of the Akkuyu NPP Training Centre processes.



The group of developers of the integrated information system "Training Centre" received a patent for their invention



SALIH SARI, Head of Department for Nuclear Infrastructure Development at the Ministry of Energy and Natural Resources of the Republic of Turkey:

"In addition to extensive professional knowledge and high qualification, NPP employees must strictly adhere to the principles of safety culture and quality. The full-scope simulator will be used for decades to improve the qualification of the Akkuyu NPP personnel, contributing to the development of competencies of the NPP's operators and engineers. Thousands of Turkish engineers will be trained here."

During testing, the system was found to be fully compliant with international information security requirements. At present, the employees of the Training Centre are preparing to submit documents to the supervisory authority of the Republic of Turkey to obtain licences for the main control room personnel. In this regard, automation of the processes of the Training Centre is very important.

The integrated information system was developed by programmers Igor Bokov, Mark Orlov, Alexey Tyunin and Nikita Yavdoshchak of the Novovoronezh Branch of Rosatom Technical Academy. At the Belarusian NPP, this system has been put in operation. The adjustment of the system at the Rooppur NPP is proceeding on schedule.



The instructors help foreign partners not only to acquire comprehensive technical knowledge, but also to develop practical skills in the operation of innovative power units



Representatives of the Turkish regulatory authority at the examination of the Akkuyu NPP specialists

The training of foreign specialists at Rosatom Technical Academy consists of several stages: theoretical training, practical training in laboratories, developing skills on a full-scope simulator and on-the-job training at the NPP.



Visiting the Centre for Practical Training



Such visits help to gain a better understanding of the requirements of the Turkish regulatory authority and to monitor and improve the quality of training



A series of nuclear security training courses for the personnel and managers of the Security Service of the Akkuyu NPP has been adapted to the operating conditions of the nuclear power plant under construction in Turkey. The training is conducted by Rosatom Technical Academy's instructors in stages as part of the comprehensive plan for nuclear security training of NPP physical protection specialists, scheduled to last until 2027.

The topics of "Nuclear Security", "Information Security" and "Complex of Engineering and Technical Means of Physical Protection at a Nuclear Facility" attracted the greatest interest among the trainees. A large number of questions from the specialists were received on the subject of international documents and the organisation of access control.



Ömer Güngör, employee of Akkuyu Nuclear JSC:

"The general course on physical protection of nuclear facilities is very enriching – there is a lot of useful information that we will be able to use in our work. The training material was presented by experienced experts from the Global Nuclear Safety and Security Institute in an understandable and interesting way. We would like to visit Russian facilities to learn from the great practical experience of the specialists."

A total of 104 specialists of the Akkuyu NPP participated in nuclear security courses in 2023.



YAVUZ CABBAR, Secretary General of Ankara Chamber of Industry, Professor:

"The establishment of modern educational systems for training in the field of development and application of advanced nuclear technologies is one of the priority issues for new industries. In cooperation with Rosatom Technical Academy, we are developing this area in order to ensure a high level of personnel qualification."

The systematic model of personnel training based on Russian and international experience was discussed by the participants of the panel session "Personnel Training for the Implementation of the Akkuyu NPP Construction Project."

The event organised by Rosatom Technical Academy together with the Ankara Chamber of Industry was held in June as part of the business programme of the international exhibition "Nuclear Power Plants V Expo & IX Summit" (NPPES-2023) in Turkey.

The panel session was attended by representatives of Rosatom Technical Academy, Ankara Chamber of Industry, Akkuyu Nuclear JSC, Ministry of Energy and Natural Resources of the Republic of Turkey, Rosenergoatom Concern, Russian and Turkish educational organisations.



PAVEL ZHURAVLEV, Vice-Rector of Rosatom Technical Academy.

"The timely and high-quality training of personnel for the implementation of a complex and multifaceted nuclear project is very important. In Russia, they say, 'People make all the difference' – and this is not a metaphor, but a real key to success. The fact that we are moving in the right direction was confirmed at the event by the speeches delivered by young, competent, promising Turkish specialists – employees of Akkuyu Nuclear, educated in Russian universities and trained at Rosatom Technical Academy."



EL DABAA NPP: PERSONNEL FOR THE MEGAPROJECT



Egypt's first NPP based on the Russian design is being built on the Mediterranean coast, 300 kilometres north-west of Cairo. The NPP will consist of four power units with a capacity of 1,200 MW each with Generation III+ VVER-1200 reactors. As part of the contracts for the construction of the El Dabaa NPP, Rosatom Technical Academy will train 1,712 NPP specialists.

As part of their visit to the Russian Federation, the delegation from the Egyptian Nuclear Power Plants Authority visited Rosatom Technical Academy, the Training Centre and the Novovoronezh NPP site. During the meeting, the parties discussed current issues of the NPP personnel training, got acquainted with their living conditions, and learnt about the technical training aids available at the Academy's Branches.



150 specialists from the El Dabaa NPP trained in 2023

Egyptian delegation visiting the multifunctional simulator at Rosatom Technical Academy in Obninsk

The Egyptian trainees get the necessary language practice and quick adaptation to the new sociocultural conditions during the Russian language course. In addition to the general course, specialists from El Dabaa NPP also study the language of their future profession under the guidance of faculty members from Peter the Great St. Petersburg Polytechnic University. Having successfully passed the final exam in Russian, the Egyptian nuclear specialists start the technical part of the training.



**MOHAMMED SAAD
DWIDDAR, Project
Manager of the El Dabaa
NPP Project:**

"The construction of the El Dabaa nuclear power plant is a megaproject that epitomises cooperation between the peoples of Russia and Egypt. We are sure that if we work as a team, we will be able to fulfil all the tasks set, because they are the same for us."

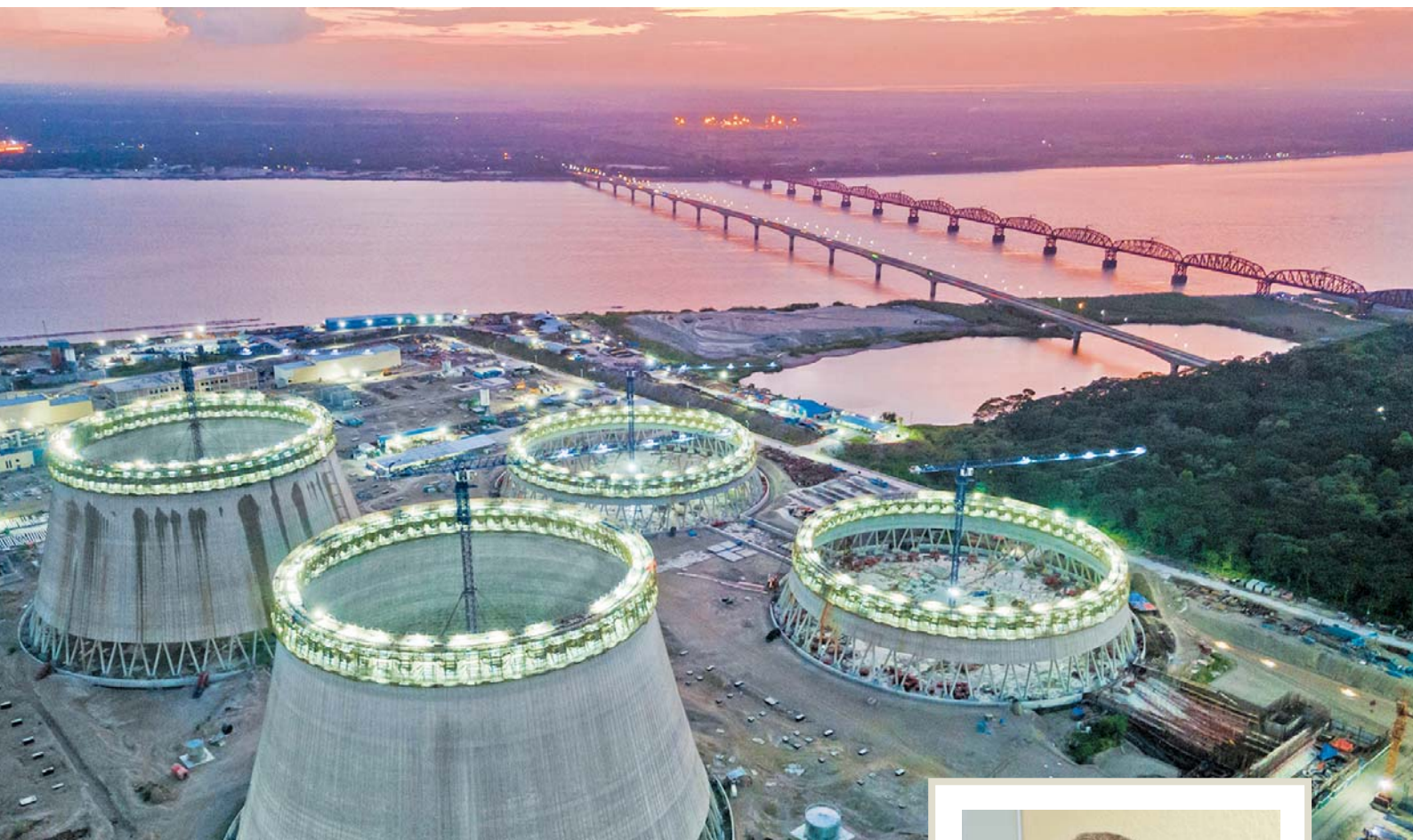


Egyptian representatives at the training centre for maintenance personnel, Novovoronezh Branch



Future specialists of the El Dabaa NPP with the management of the Egyptian Nuclear Power Plants Authority, St. Petersburg Branch

ROOPPUR NPP: PREPARATION FOR FIRST CRITICALITY



The first nuclear power plant in Bangladesh is being built based on a Russian design with Generation III+ VVER-1200 reactors. Under the contract, Rosatom Technical Academy will train 1,424 Rooppur NPP specialists. To date, around 1,000 Bengali nuclear specialists have been trained. Technical training aids are being fitted and commissioned at the site of the Training Centre in Bangladesh. Photo by @rooppur_tube



Sergey Lyulin, Director of the Rooppur NPP Personnel Training Project, Novovoronezh Branch of Rosatom Technical Academy:

“The main objective of all the parties concerned is to ensure the continued suitability, adequacy and effectiveness of the quality system for the training of the Rooppur NPP personnel.”



The visit to Rosatom Technical Academy by Kabir Hossain, Head of Human Resources Management of the Rooppur NPP Project, and Golam Shahinoor, Head of the Rooppur NPP Training Centre, was aimed at inspecting the training process of Bengali nuclear specialists.

251 Rooppur NPP specialists trained in **2023**



KABIR HOSSAIN, Head of Human Resources Management of the Rooppur NPP Project:

“During five years of joint work, we have improved the training process, finalised instructions and procedures, introduced new technical aids, and we are grateful for the support of the Russian side. I hope that together we will continue to fulfil the terms of the contract. If our trainees successfully complete the course, it means that we are also doing our job well to achieve the main goal, which is the safe operation of the nuclear power plant in Bangladesh.”



The delegation visited the facilities of the Novovoronezh NPP, where more than 200 additional Bengali specialists are to be trained by 2024

Professionals from Rosatom Technical Academy developed and conducted training courses on operational management of the system of engineering and technical means of physical protection for the personnel of the Rooppur NPP Security Service.



MAHMOOD HASIB RUBAYET, an employee of the Rooppur NPP:

"Our cooperation with ROSATOM has been going on for several years. The education field is not an exception. The specialists from Bangladesh, trained at Rosatom Technical Academy, are now successfully working at the nuclear facility. At the same time, they are expanding their knowledge and learning new things by working with Russian experts. Going forward, we plan to focus more on the training of personnel to provide and maintain the physical protection system at the Rooppur NPP in order to build our own human capacity."



The courses provided the participants with theoretical knowledge and practical skills in monitoring the situation at the nuclear facility, training of the personnel for the NPP physical protection system, and emergency response. Practical training sessions were held with the use of stands and equipment developed by the specialists of the ROSATOM's organisations.

NEW-GENERATION INSTRUCTORS

GREETINGS FROM THE SUNNY GREEN CITY!



Ilya Muratov and Georgy Ovchinnikov, new-generation instructors of the Novovoronezh Branch of Rosatom Technical Academy, were on a business trip to the Rooppur NPP in 2023. The young professionals talked about their work, their chosen profession and the city of nuclear specialists in Bangladesh.

- Why did you choose power engineering as your profession?

ILYA MURATOV: I'd chosen this field even before I went to university. Mainly because of the prospects for the development of the energy industry. Personally, I am convinced that our future lies in the nuclear industry. We use more and more electricity every year, and the nuclear power is one of the best ways to produce it.

GEORGY OVCHINNIKOV: I want to be an energy worker not only because the profession is in demand, but also because it is interesting and exciting. I am learning new things, meeting new people, doing new types of work and I'm never bored. I will be able to benefit the country and work for its good.

- How did you come to the School of New-Generation Instructors? What was the most interesting thing for you about this training?

I.M.: At university we were invited to come to the Academy for practical training, where I learnt about the training programme for new-generation instructors. The training started with English language and special courses on the equipment of a nuclear power plant. I studied the turbine island, which is something





I have never regretted later. A lot of the information was new to me, because the university provides a theoretical base. There, we had practice, we talked about more concrete things. It was challenging enough, but always interesting.

G.O.: I joined the Academy in September 2018 and started with the basic course. Then, together with my group, I attended special courses (reactor, turbine shop and others) and, of course, I received on-the-job training at the Leningrad NPP. I met knowledgeable and helpful instructors along the way, for which I am very grateful.

- What should a modern instructor be like?

I.M.: I think that a modern instructor is first and foremost a person who keeps up with the times and uses new approaches and modern technical aids in the training process. It is necessary to have a good knowledge of the subject, as well as to be a good speaker, because it is not enough to know everything, it is necessary to be able to convey information to other people, which is the basis of our work.

G.O.: In my opinion, a modern instructor should be able to use modern teaching methods and technical equipment (laser pointer, interactive whiteboard).

- What are your impressions of living and working in Bangladesh?

I.M.: My overall impression of the country is positive. The local population is very positive in the vast majority of cases, there are many places of interest and an interesting national cuisine, but it is hardly suitable for everyone. The city of energy workers is called Green City. It is a series of multi-storey buildings where people working at the plant live. There are shops and a sports field. The local training centre was a pleasant surprise. It is a large, beautiful building with modern facilities. The training process itself is almost identical to that in Russia, and many of the trainees turned out to be the people I knew – they had attended continuing training courses.

G.O.: The Bengalis are very friendly and amicable people. I teach them reactor physics, reactor shop systems, reactor operating modes – the basic course. The only difficulty is the weather (but that's only a seasonal problem). All classrooms and accommodation rooms have air conditioning. In our free time we play board games with colleagues, watch films, share experience, just chat and all together send greetings to our dear Academy from sunny Green City.



Getting to know the Russian culture and way of life is an integral part of foreign specialists' stay in our country. At Rosatom Technical Academy, all conditions are created to make the training process for foreign trainees as informative and comfortable as possible.

A RUSSIAN WONDER



Circus arts have a long tradition in Bangladesh, and attending circus shows is the most popular form of entertainment. That is why the Bengali nuclear workers were genuinely delighted with the performance of the Novovoronezh circus group "Cascade". The guests were particularly impressed by the gymnasts. According to the trainees, the circus in Bangladesh is different: they do magic tricks and fire shows.

A tour of the rivers and canals of St. Petersburg for Egyptian specialists was organised by the linguists from the St. Petersburg Branch as part of the Russian Conversation Club. Unsurprisingly, the tour was conducted in Russian.



The snow that fell in Novovoronezh on the 20th of November was the first time that the trainees from Bangladesh had ever seen snow. The day before, they were given a briefing on the rules of behaviour in winter. But it wasn't until the first flakes of snow swirled in the air that the Bengalis realised the meaning of the word 'slippery'. The guests shared abundant emotions and described the snow as a Russian wonder.

ACADEMIC ENVIRONMENT

The participants of the XVI International Conference “NPP Safety and Personnel Training” dedicated to the 70th anniversary of Obninsk Institute for Nuclear Power Engineering of the National Research Nuclear University MEPhI, considered the issues of building the necessary technical competencies for the sustainable development of nuclear technologies. Mikhail Bunda, Alexander Vishnyakov and Pavel Shorokhov, young specialists from the St. Petersburg Branch of Rosatom Technical Academy, took part in the sections “Personnel Training for Nuclear Power Complexes in Russia and Abroad” and “Digitalisation of Nuclear Engineering.” In their reports, the new-generation instructors analysed the process of developing training programmes for foreign trainees and suggested methods to improve it.



Rosatom Technical Academy took part in the support mission of the Moscow Centre of the World Association of Nuclear Operators to the Kudankulam NPP in India. The experts analysed documentation, visited workplaces and interviewed personnel. Ivan Goncharov, a specialist from WANO, and Maria Volos, an expert from Rosatom Technical Academy, assessed the performance of the plant's employees in the areas of “Maintenance and Repair” and “Work Management.”



PLATFORM FOR NEW NUCLEAR POWER INDUSTRY

Wind power industry: building a personnel reserve

Proryv Project: proactive training system

Centre for Practical Training: experience for related industries

WIND POWER INDUSTRY: BUILDING A PERSONNEL RESERVE



The project aimed at developing competencies for personnel training in the field of wind energy has been implemented by Rosatom Technical Academy since 2022. The signing of the Memorandum of Understanding between the Academy and NovaWind JSC was an important step towards the development of training programmes and building a personnel reserve for the renewable energy industry. The training is provided for the employees of the Wind Power Division and the list of training courses is being expanded.

It is planned that the development of training materials for the accelerated training of new personnel for wind power plants will commence in 2024.

In May 2023, Rosatom Technical Academy became a member of the Russian Association of Wind Power Industry (RAWI). Joining RAWI will enable Rosatom Technical Academy to cooperate with new organisations and become a reliable training partner for the renewable energy industry.

The share of low-carbon power generation in the Russian energy industry is now around 40 per cent.



SERGEY MOROZOV,
RAWI Chairman, Member of the State Duma, First Deputy Chairman of the Committee on Regional Policy and Local Self-Government:

“The development of renewable energy sources in Russia on the basis of domestic industrial enterprises is a promising national idea that combines economic benefits and takes into account the environmental consequences of our actions. The implementation of this idea contributes to the human capacity building of the country and of each region where renewable energy generation is introduced, and to the creation of high-quality jobs.”



Visitors of the exhibition were able to test their knowledge and take a test based on real occupational safety exam questions and receive a certificate



EGOR SAGACHEV,
Personnel Training Engineer, Rosatom Technical Academy:

“Today, enterprises in various industries are facing a shortage of skilled personnel. The solution to this problem is additional training in accordance with the process requirements of a particular production facility. Rosatom Technical Academy’s extensive experience in training personnel for such technically complex facilities as nuclear power plants is applicable to the training of operating and maintenance personnel for renewable energy power plants and in the production of equipment for them.”

Experts from the Training and Methodological Centre “Physical Protection and Anti-Terrorism Security” of the Global Nuclear Safety and Security Institute conducted a specialised training for the personnel of NovaWind JSC on the subject of anti-terrorism security of the facilities of the Fuel and Energy Complex. The training courses have been developed for two categories of personnel: managers of companies within the NovaWind JSC structure and specialists responsible for anti-terrorism security of the facilities of ROSATOM’s Wind Power Division.

Demonstration of first aid techniques at the forum by specialists from Rosatom Technical Academy

Educational solutions for new industries were presented by Rosatom Technical Academy at the International Wind Energy Forum-2023, dedicated to finding strategic solutions for renewable energy and electric transport.

The Academy’s specialists told the visitors of the exhibition-forum about the Centre for Practical Training, where trainees develop practical skills of working in confined space. The guests learnt about the training opportunities in the field of occupational safety, safety of work at heights, and operation and maintenance of process equipment.



PRORYV PROJECT: SCIENTIFIC AND EDUCATIONAL COOPERATION



The delegation of Rosatom Technical Academy visited the Training and Information Centre of the Experimental Demonstration Energy Complex (EDEC) currently under construction at the site of the Siberian Chemical Combine in Seversk to discuss the issues of proactive personnel training for the innovative BREST-OD-300 lead-

cooled reactor, staffing and optimisation of the number of EDEC specialists.

As a result of the meeting, agreements on cooperation between the organisations were reached and a roadmap for the further cooperation in the training of BREST-OD-300 operators was developed.



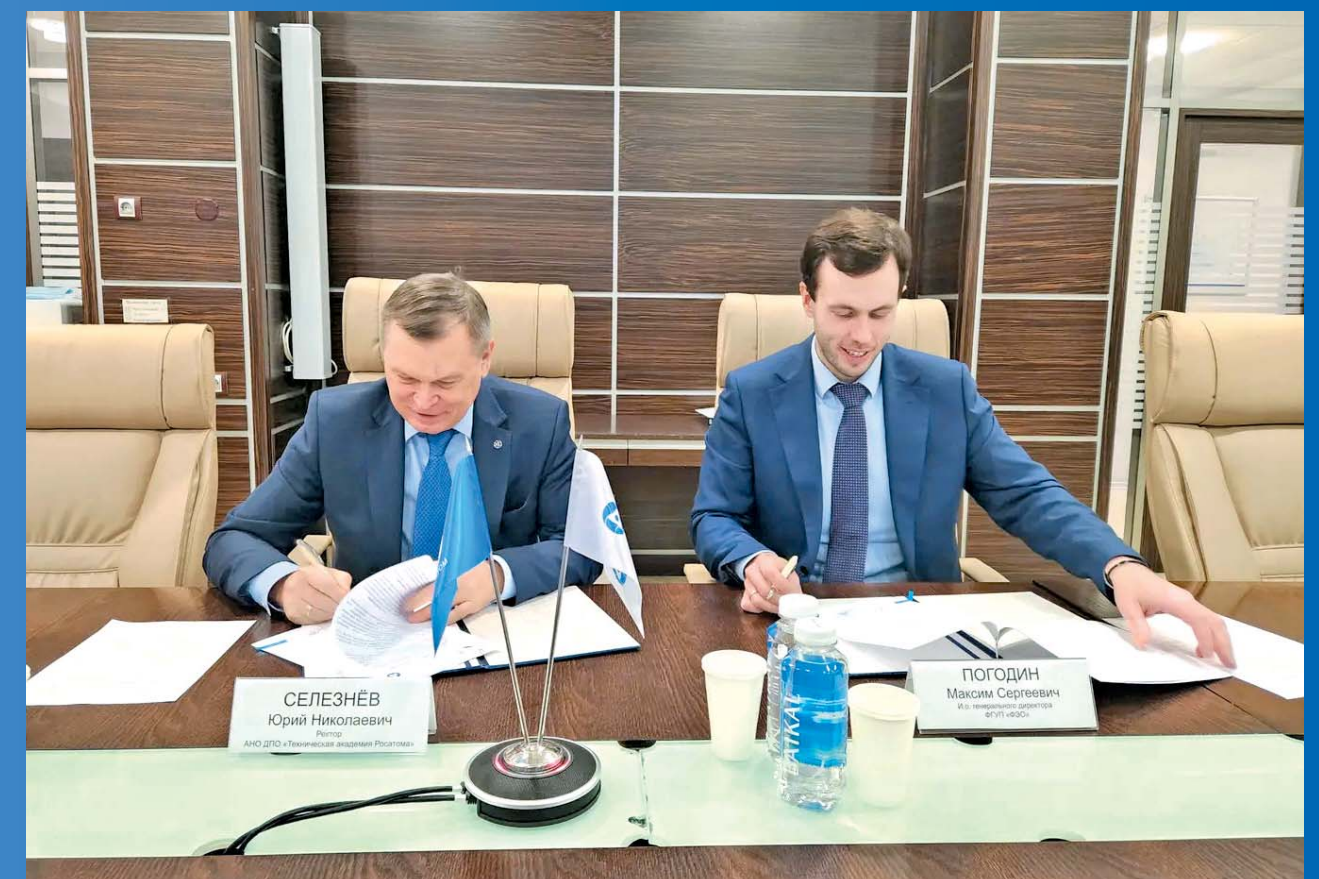
POLINA KOVALEVA,
*Director for Advanced
Nuclear Technologies
at Rosatom Technical
Academy:*

"A start-up of a new facility requires a proactive approach to capacity building. Today, the issues of both recruitment and training of specialists are on the agenda. At present, these issues are being addressed, in particular by universities, within the framework of the establishment of an educational platform for new nuclear power industry initiated by the Department of Scientific and Technical Programmes and Projects of the Rosatom State Corporation."



Technical tour of the Seminar participants to Sverdlovsk Chemical Engineering Research Institute

The equipment requirements related to the development of two-component nuclear power and the introduction of modern radiochemical technologies were discussed by the participants of the annual industrywide seminar on spent fuel management. The seminar was attended by more than 100 specialists from 32 organisations involved in the design and manufacture of unique equipment for various stages of the nuclear fuel cycle. The event was organised by ROSATOM's Project Office "Formation of the SNF Management System" and Rosatom Technical Academy's Centre for Advanced Nuclear Technologies.



In January 2023, Rosatom Technical Academy and the Federal Environmental Operator signed a Memorandum of Cooperation for training of personnel in the processing and long-term storage of Hazard Class I and II waste. The signing of the Memorandum is linked to the need to

train specialists to ensure the commissioning of seven environmental technology parks in different regions of the country. The organisations plan to cooperate in the development of concepts and design of proactive training systems for production, operating and maintenance personnel.

The Memorandum of Cooperation was signed by Yuri Seleznev, Rector of Rosatom Technical Academy, and Maxim Pogodin, Acting Director General of FEO

SCIENTIFIC AND TECHNICAL EXPERTISE:

SUPPORT FOR INVESTMENT DECISIONS

Provision of scientific and technical expertise is a mechanism to support R&D implementation and investment decisions on projects and programmes.

Information on the data of scientific and technical experts and on the expert examinations carried out is collected in ROSATOM's automated expert database and structured by areas of scientific and technical expertise. The capabilities of the automated database make it possible to promptly receive an automatically generated ranked list of

experts according to the parameters specified by the customer.

The list of experts is updated in accordance with the objectives of new product development. Thus, in 2021, "Quantum Computing", an additional field of the base was created. In 2023, Rosatom Technical Academy, together with the Russian Academy of Sciences, was designated as the expert organisation to carry out the scientific and technical expert examination of the results of the roadmap in this area.

Depending on the area of activity, there are 7 types of scientific and technical expert examinations: scientific and technical, process, examination of tender materials, of investment projects, etc. New types of expert examinations introduced in 2021, such as technical-economic and patent-technical examinations, are increasingly in demand. Rosatom Technical Academy as the industry operator of expert examinations organises 300-600 examinations of all types annually.



Polina Kovaleva, Director for Advanced Nuclear Technologies at Rosatom Technical Academy, presented ROSATOM's automated expert database at the scientific and practical seminar "International and Russian Databases and Archives of Scientific and Technical Information to Support Information and Analytical Activities of Industry Organisations"

VR TECHNOLOGIES IN EDUCATION



MARIA VOLOS,
Lead Expert, Rosatom
Technical Academy:

"Our cooperation with the Financial University began with the joint research into the economics of the nuclear fuel cycle and cost-effectiveness analysis of the nuclear industry digitalisation. Today, we see the future of our relationship in the joint development of VR technologies and the integration of education and production."

The issues of exchanging best practices in the use of virtual reality technologies in training were discussed during mutual visits of specialists from Rosatom Technical Academy and the Financial University under the Government of the Russian Federation.

The participants shared their experience and discussed the possibilities of using virtual and augmented reality to improve the quality of training and interaction with trainees, the prospects of using 3D modelling technologies to create prototypes and practical tasks, and the use of VR technologies for seminars and webinars.



ROMAN MOROZOV,
Deputy Vice-Rector
for Digitalisation,
Financial University:

"The introduction of virtual reality technologies and modern teaching methods in leading educational institutions will not only contribute to the improvement of the level of training, but will also have a positive impact on the improvement in the formation of an integrated digital educational ecosystem of the country, as well as determine new, higher requirements for educational activities."



CENTRE FOR SIMULATOR TRAINING: EXPERIENCE FOR RELATED INDUSTRIES



Exactly one year ago, the Centre for Practical Training was opened at the Novovoronezh Branch of Rosatom Technical Academy. The modern Centre includes 5 simulators and 45 mock-ups for professional skills development. Up to now, here, around 2,000 Russian and foreign nuclear workers have been able to take practical courses aimed at qualification maintenance and continuing training. 350 people have successfully completed confined space simulator training.

The unique simulator complex addresses a wide range of tasks in training personnel not only for nuclear power plants, but also for related industries. The employees of Rosatom Technical Academy, together with the engineering company "CROSS Technologies", have developed training programmes for employees of oil and gas companies and service enterprises on the confinement of blowholes and leaks of the working media in operating pipelines, as well as on the safe working methods, rescue and evacuation of victims in narrow and confined spaces.

At the site of the Novovoronezh Branch, 5 simulators and 45 mock-ups were commissioned to practise the operation and repair skills.

The instructors of the Centre for Practical Training have developed and are implementing more than 100 programmes for NPP operating personnel, specialists in occupational, radiation, industrial and fire safety.



The horizontal training module allows you to practise rescue skills in confined spaces with the use of protective equipment



Only a highly qualified specialist can locate the leak without stopping the equipment



VNIIAES's specialists get acquainted with the technical training aids of the Centre for Practical Training



MAXIM SHVETS,
*Head of Production
Department of
the contracting
organisation
"Roscontract":*

"As the head of the unit, before I can assign personnel to work and supervise safety, I must first gain hands-on experience in the use of radio communications, self-rescue and victim evacuation from both horizontal and vertical vessels. The narrow and confined space simulator at the Academy's Novovoronezh Branch is as close as possible to the real environment in which work has to be carried out at operating oil, gas and chemical facilities. Usually in cramped conditions, wearing a gas mask, sometimes in zero visibility."



A training session for the El Dabaa NPP specialists at the Centre for Practical Training

EXPERIENCE

MAJOR TASKS REQUIRE MAJOR ACTIONS



The main purpose of the visit of representatives of the Republic of Kazakhstan to the Novovoronezh Branch of Rosatom Technical Academy was to learn about the application of simulators in the training of qualified NPP personnel.

The visit was part of the pre-contractual work on prospective projects for equipping Kazakhstan's power facilities. The foreign delegation included representatives of the Institute of Energy and Green Technologies, Almaty University of Power Engineering and Telecommunications named after G. Daukeyev, TALAP NJSC, and School of Nuclear and Traditional Energy Technologies.

The specialists from Kazakhstan were introduced to the operation of the full-scope and multifunctional VVER-1200 simulators developed by the specialists of ETC GET JSC, visited the Centre for Practical Training, studied the capabilities of mathematical modelling and reviewed Russian best practices in the training of personnel for the power industry.



The Novovoronezh Branch of Rosatom Technical Academy, which continues the traditions of the Novovoronezh NPP Training Centre, is rightly considered a training institution for nuclear workers from all over the world. At the beginning of the 80s of the past century, it was a training facility for specialists from Hungary, Bulgaria, Czechoslovakia, Cuba and the German Democratic Republic. Half a century later, the facility is still in high demand. Andrey Solntsev, Director of the Novovoronezh Branch, told us about the tasks the Branch performs today as part of the unified training centre for the personnel of the nuclear industry.





Full-scope simulator training

– What major training projects for foreign trainees is the Novovoronezh Branch currently involved in?

– Rosatom Technical Academy is now providing the training on the “turnkey” basis for the specialists of Russian-design nuclear power plants in Bangladesh, Turkey, Egypt, and Hungary. The training of the Belarusian NPP personnel has been completed. Training contracts are being prepared with Uzbekistan and Saudi Arabia. All branches of the Academy work as a united team towards the goal set by ROSATOM.

Now is the time when the major tasks set by the State Corporation have to be transformed into major actions – to move forward and develop, to master new areas of business. The Academy has all the necessary technical equipment to do this. Most importantly, it has highly experienced staff. In addition to their knowledge of nuclear physics, our instructors have a thorough understanding of the most sophisticated equipment and digital technologies. They have also received psychophysical training.

– A year ago, the Centre for Practical Training was established at the



Training of maintenance personnel of the oil and gas industry

In 2023, 2,446 Russian and foreign specialists were trained at the Novovoronezh Branch of Rosatom Technical Academy.

Novovoronezh Branch. How was this project implemented and how many people have already been trained on the new equipment?

– It should be said that Rosatom Technical Academy works under the unified investment programme. Two years earlier, this programme enabled the Novovoronezh Branch to acquire a full-scope simulator – an exact copy of the main control room of the innovative 6th and 7th VVER-1200 power units of the Novovoronezh NPP – as well as a multifunctional simulator. Its virtual panel makes it possible to use the design of any power unit.

In 2022, state-of-the-art training facilities for maintenance and repair personnel, both for mechanical and electrical equipment, were put into operation at the Branch. Five simulators and forty-five mock-ups for practising operation and repair skills. Each of the simulators is custom-made, and some of them are unique.

With the help of the leak confinement simulator, we train personnel to act correctly in abnormal situations – for example, to repair a weld defect in real-life conditions when the equipment is pressurised. The functionality of the simulator allows the trainees to improve their repair skills, learn how to quickly eliminate faults, and therefore act correctly even in case of abnormal operation. This results in a higher quality of repairs and reduction of the time for maintenance and repair at a power unit.

Over the year, 1,922 representatives of Russian nuclear power plants, as well as maintenance and repair enterprises of the industry improved their professional skills at the Centre for Practical Training. The Centre also trained 215 foreign specialists. There has been a tremendous interest in training on the new equipment. We have also started to introduce advanced methods outside ROSATOM.

– How do you plan to develop the Branch in the future? Will new simulators be commissioned?

– Earlier this year, together with the specialists of the Training Centre of the Balakovo Nuclear Power Plant, we discussed the concept of the creation of new simulators aimed at prevention of incorrect actions of personnel. The name is complicated, but in essence, this simulator would help minimise errors made by the operating and maintenance personnel.

We are also planning to commission a simulator for training of I&C Shop personnel. The software and hardware complex is designed for vocational training, subsequent analysis of results and development of practical skills of nuclear workers. However, it will also be possible to train thermal power plant specialists. I think that is an important area as well.

We work in a wide area of responsibility, so safety is our foundation. The Vision Zero movement has been identified by the State Corporation as strategically important. It has an ambitious goal of zero injuries. To achieve this, we have reconstructed the confined space simulator and our colleagues from Atomtechenergo



Representatives of Siberian Generating Company getting acquainted with the experience of Novovoronezh specialists

have already been trained on it. In general, the safety culture training with the use of simulators is part of the mandatory course.

In addition, with the development of new nuclear power industry, Rosatom Technical Academy is expanding the competences of its branches. The Novovoronezh Branch may be involved in the training of personnel for small modular reactors. Discussions are held on the establishment of the Centre for Non-Destructive Testing and Welding on the basis of this Branch, with the possibility of certification of specialists.

– Today, Rosatom is creating an educational ecosystem to prepare young people for work in the nuclear industry from an early age. Is the Novovoronezh Branch working in this direction?

– As part of this ecosystem, the Branch conducts career guidance activities with school children: intellectual tours of the Branch, team quizzes and others. Last year, Voronezh State University established the specialised department “Operation of VVER-type NPPs”. Cooperation with the ROSATOM’s flagship university has been going on for 20 years, but it is only now that we have started to work with students. This includes mentoring assistance in thesis writing, practical training with experienced instructors, use of unique facilities, and the opportunities we provide to our students. We hope to encourage their interest in their chosen profession and eventually see them join the ranks of their colleagues.

Over **50** years, the Novovoronezh Branch of Rosatom Technical Academy has trained **44,000** specialists from nuclear power plants in Russia, Europe and Asia. For comparison, the population of Novovoronezh today is about **30,000**.



ROSATOM TECHNICAL ACADEMY — GUARANTEED QUALITY OF EDUCATIONAL SERVICES



SVETLANA DOMNENA,
*Quality Director, Rosatom
Technical Academy:*

“Rosatom Technical Academy has been successfully audited by various international certification bodies (TUV SUD, DQS, GSERT), and 2023 was no exception. We entered the third certification cycle and received a high assessment from the certification bodies (STANDCERT (Serbia), Russian Expert), which recognised that our management system meets all requirements of ISO 9001:2015, ISO 21001:2018, GOST R ISO 9001:2015. The auditors noted the high level of competencies of the training personnel and the management team. The obtained certificates demonstrate to our customers the reliability of Rosatom Technical Academy as a provider of education and training services, capable of implementing the most complex training and information projects for the nuclear industry in Russia and abroad.”



PARADIGM OF SAFETY AND SECURITY

Radiation measurement technologies: Training and Practice Centre

Information security: best practices of training

School for Safety Representatives: tools for interaction

4

EMERGENCY PREPAREDNESS AND RESPONSE

About 170 employees of nuclear power and related sectors gathered at the St. Petersburg Branch of Rosatom Technical Academy in order to exchange experience and discuss best practices of personnel preparedness for emergency response and safety assurance at nuclear facilities. The Forum was attended by managers and specialists from 12 friendly countries.



SERGEY RAIKOV
Director of the Nuclear and Radiation Safety, Licensing and Permitting Department of ROSATOM

"Emergency preparedness and response play a crucial role in the safety assurance system of nuclear industry because consequences of any nuclear or radiation emergency situation become a problem of regional or worldwide importance. Each of our enterprises has nuclear hazardous sections, which are supervised by emergency services. We need them for timely response and prevention of damage caused by nuclear impact at a hazardous facility."



SERGEY NATKHA
Head of the Emergency Preparedness and Civil Protection Centre at the St. Petersburg Branch of Rosatom Technical Academy

"For the past 6 years, efforts to improve the emergency preparedness and response system have been aimed at improving technical facilities and practical skills of emergency rescue teams. It is necessary to develop these skills while one is still getting their education. Rosatom Technical Academy, the IAEA, JSC Rosatom Emergency Response Centre, and Peter the Great St. Petersburg Polytechnic University jointly implement a Master's programme for competence buildup of highly qualified national staff in the field of emergency preparedness and response."



Within the framework of the Forum, presentations on nuclear safety assurance, crisis situations management, and training of specialists in the emergency preparedness and response system were made by representatives of different industries, public health, educational institutions, EMERCOM and other services.

The subject for discussion at the round tables attended by the industry's youth and veterans was the contribution of nuclear scientists to creation of the country's nuclear industry and safe development of nuclear technologies.

Within the framework of the Forum, its participants visited the exhibition of JSC Rosatom Emergency Response Centre and attended a special tactical exercise on disaster relief.



TRAINING AND PRACTICE CENTRE

RADIATION MEASUREMENT TECHNOLOGIES



The Training and Practice Centre for Radiation Measurement Technologies established at Rosatom Technical Academy conducts training courses both for specialists of radiation hazardous facilities and for specialized non-nuclear enterprises and organizations.



The domestic Research and Production Enterprise "Doza" developed modern radiometric, dosimetric and spectrometric equipment of the Centre. The equipment helps trainees to successfully master and improve techniques and methods of radiation monitoring and dosimetry, and to apply the acquired skills to meet the requirements for radiation safety and protection when performing radiation hazardous works.

The employees of Rosatom State Corporation who transport nuclear materials and radioactive substances became the first trainees taking practical training on the Centre's measuring equipment. The Training

and Practice Centre for Radiation Measurement Technologies trains not only representatives of the nuclear industry, but also specialists from the related industries, including nuclear medicine.



A new training course "Environmental Radiation Monitoring" was developed in accordance with the plan of implementation of the programme for development of the sectoral radiation monitoring system of Rosatom State Corporation, the course being important for ensuring the environmental safety of radiation-hazardous facilities.

In 2023, specialists and managers of the Production Association "Mayak", the Siberian Chemical Combine, the Instrument-Making Plant, FSUE Atomflot, nuclear power plants of Rosenergoatom Concern and of other organizations were trained under the Programme. Specialists from Rosatom Technical Academy, the Research and Production Association "Typhoon" and the Scientific and Technical Centre "Amplituda" delivered lectures. The practical training was held in the laboratory of radiation dosimetric measurements of Rosatom Technical Academy and at the RPA "Typhoon".



Innovative educational components of the Training and Practice Centre for Radiation Measurement Technologies include participation of leading specialists of developers-manufacturers of radiation-measuring equipment in the creation of training methods, conduct of review seminars and trainings, and organization of technical tours of production sites for the trainees.

The Research and Production Enterprise "Doza" was attended by specialists and experts from the Rosatom State Corporation Group under the training programme "Radiation Safety in Handling Ionizing Radiation Sources" developed by Rosatom Technical Academy.

During the technical tour, the trainees visited the radio assembly shop, QA and assembly area of the automated radiation monitoring system "Phoenix" for nuclear icebreakers, and learned about the technical features of radiation and dosimetry monitoring devices and equipment.



Oksana Aleksandrova, Head of Training and Practice Centre for Radiation Measurement Technologies, Lead Expert of Rosatom Technical Academy:

"Recently, in accordance with the IAEA's requirements, a significantly increased share of practical classes and trainings in various forms of mastering the professional skills on full-scale and physical devices has become the mainstream of the training cycles for specialists. In the course of technical tours, trainees get acquainted with the equipment of nuclear facilities and the development of radiometric instrumentation."



An additional development of theoretical knowledge and practical skills in terms of radiation safety is one of the key objectives of the programme “Legislative and Regulatory Framework for Radiation Safety and Monitoring”

The course was developed by the Training and Methodological Centre “Nuclear and Radiation Safety” together with the Training and Methodological Centre “Physical Protection and Anti-Terrorism Security” of Rosatom Technical Academy. The experts and participants of the VIII Industry Championship Atom-Skills-2023 were trained under the Programme. Under close-to-real conditions, the trainees practised the comprehensive requirements for physical protection and radiation safety when detecting an ionizing radiation source and transporting radioactive materials.



The Training and Practice Centre for Radiation Measurement Technologies promotes innovation and allows Rosatom to occupy new niches in the market, increasing the competitiveness of the nuclear industry and the entire Russian industry as a whole.

XIX-TH INDUSTRYWIDE CONFERENCE



LEV NIKOLAEV
Head of the Information Security Department of the Global Nuclear Safety and Security Institute

“Nowadays, Rosatom Technical Academy enables vendors and the industry’s specialists to communicate and find solutions to arising problems. Almost all the Conference’s participants are our former or future trainees. It is important for us to get to know their opinion on what we have to pay attention to and what new training programmes are necessary. For this year’s conference, we have invited several training centres with which we want to establish cooperation in training in the field of information security and information technologies.”

INFORMATION SECURITY

New types of information threats, industry-specific experience of introducing new domestically produced tools and systems for information security, shortage of qualified personnel, as well as prospects for the use of artificial intelligence in order to ensure information security were discussed by the participants of the industrywide conference “ROSATOM. Information Security 2023”.

The event hosted in Rosatom Technical Academy brought together more than 300 Russian specialists in information security, nuclear industry employees, and leading Russian developers. It was organised by the Global Nuclear Safety and Security Institute of Rosatom Technical Academy and the Information Security Department of ROSATOM.

The conference included exercises organized for its participants at the cyber training range, which is one of the training tools for specialists.



DEVELOPING LEADERSHIP FOR SAFETY

XII-th International School on Safety Culture “Developing Leadership for Safety” hosted in St. Petersburg brought together more than 170 participants. They included nuclear industry professionals and managers, scientists, employees of leading Russian industrial enterprises, and experts from international organisations. The participants discussed the safety culture at enterprises, a role of leader manager, personnel qualification, human factor reliability, stress prevention, etc.



SERGEY ADAMCHIK
Inspector General of ROSATOM

“When you work in the nuclear industry, it is important to remember that around us threats are many, but the safety is only one. Safety is something that is regulated, calculated, and justified, and culture refers to behaviour and education of a person. ROSATOM considers safety culture both as the integral part of production activities of its organisations and as conscious behaviour of its employees. Safety culture is given the highest priority, and qualification of our personnel shall be of the highest level.”



IAEA’s approach to leadership, management and safety culture was described by Caroline Pike, Head of the IAEA Department of Nuclear Safety and Security. G. Ken-

neth Koves, expert in safety culture and leadership development, introduced School’s participants to the causes and factors of errors and safety violations at workplace.



VLADIMIR ASPIDOV
First Vice Rector for Principal Activities of Rosatom Technical Academy

“A key role in the development and maintenance of safety culture belongs to managers. It is through their leadership and behaviour that main ideas of safety culture are put into practice and personnel get involved. Nowadays, the nuclear power industry is rapidly developing; more and more countries are embarking on the path of nuclear technologies development. In this development, the leadership helps to maintain the necessary level of safety culture.”



ELENA CHERNETSKAYA
Director of the Centre for Safety Culture and Human Factor Reliability of Rosatom Technical Academy

“This year, we put emphasis on the practice-oriented idea of the School so that its participants not only listen to presentations but actively take part in discussions, brainstorming sessions, and safety master classes. Thus, they personally become sources of knowledge in this vital area.”





SCHOOL FOR SAFETY REPRESENTATIVES: TOOLS FOR INTERACTION



In 2023, safety culture and occupational safety representatives gathered twice. In summer, Rosatom Technical Academy brought together advocates of safe work from across the industry under the slogan “We are creating a safe future!”. At the end of autumn, the School for Safety Culture and Occupational Safety Representatives was held, and afterwards, the Meeting of Safety Culture and Occupational Safety Representatives of the Power Engineering Division took place.

85 representatives of Engineering, Power Engineering, Mechanical Engineering, and Nuclear Weapons Divisions, of the fuel company JSC TVEL, JSC Science and Innovations, Rosatom Smart Utilities, Rosatom Automated Control Systems, Atomflot, TENEX, and EuroChem discussed the role of a leader in ensuring the safety culture at enterprises, studied legislative aspects of the risk-based approach in the field of occupational safety, practical use of personal protective equipment, and ways to provide first aid to the injured.



SERGEY ADAMCHIK
Inspector General of ROSATOM

“Today we often use the collocation “safety culture”, although these two words are not combined so easily. Safety is something that is regulated, calculated, and justified, and culture refers to education of a person who observes the code of behaviour accepted in the society. At work, there are also certain rules one has to observe. For this purpose, it is necessary to cultivate the right attitude to the job one is doing.”



DMITRY MALTSEV
Engineer of the Nuclear Safety and Reliability Department of Beloyarsk NPP

“I have been dealing with safety culture for 8 years. To stop this means a throwback. It is important for us that there are fewer occupational injuries at Rosatom enterprises, and our priority is to reduce their number to zero. Such events as the School for Safety Representatives allow to look at certain safety issues from a different angle. Here, communicating with our colleagues, we analyse occupational injuries, share positive practices of organisation of safety representatives' work, and study new materials in order to use all the accumulated experience in our organisations later.”



1100
occupational safety representatives
and about **850**
safety culture representatives work at Russian NPPs





Every year, up to **200** specialists from the industry's enterprises are trained in the Training and Methodological Centre "Occupational Health and Safety" of Rosatom Technical Academy.



ELENA ZAITSEVA
Head of the Section of Working Conditions and Occupational Safety Control of the Department of Occupational Safety and Personnel Protection, Rosenergoatom

"The Power Engineering Division has a big close-knit team of safety representatives working to ensure safety and occupational safety. We regard the safety representatives as people who bring the ideology to personnel. During our visits to NPPs, we always allocate time for meetings with the safety representatives in order to learn about their problems and find out how we can help to solve them."



INNA LAPSHINA
Head of the Section of Occupational Health and Safety of the Nuclear Power and Atomic Industry Workers' Union

"The School consolidates all the efforts so that the safety culture representatives know those documents and regulations that the occupational safety representatives are guided by and so that the latter, in their turn, acquire those skills that the safety culture representatives have. The most important thing is that you establish mutually beneficial communication. At work, you shall form a single whole and focus your efforts on the end result - which is reduction in injuries."

The trainees of the Division's School of Safety Representatives tried to look for the ways of interaction of employees and managers with safety representatives. A master class on first aid to the injured and the quizzes were held for the participants. Group work resulted into the drafts of road maps on the improvement of safety culture, occupational safety, or elimination of violations at workplace. According to the experts, the best draft was presented by a combined team of safety representatives from Novovoronezh NPP, Kalinin NPP, and branches of JSC Atomenergoremont.



IGOR ZONOV
General Inspector of Rosenergoatom

"Bureaucracy is the main obstacle to the safety. Formalism, indifference, and poor communication are the second one. Nowadays, the safety representatives are expected to interact with managers and employees in-person and show personal involvement in specific programmes on safety improvement. The programme on maintenance and development of the safety culture for 2024 - 2025 has a section dedicated to work of the safety culture representatives and their communication with the occupational safety representatives."



2018 –Critical Knowledge Preservation System was introduced at NPPs,

2019 – Preservation of critical knowledge was automated,

2020 – The results of the Critical Knowledge Preservation System were incorporated into the mentoring programme,

2021 – Provisions on financial incentives for bearers of critical knowledge were specified,

2022 – The documents that regulate the work on preservation of critical knowledge were revised in the light of NPP operating experience,

2023 – Management of the Critical Knowledge Preservation System was incorporated into the process of personnel management; on-line courses on preservation of knowledge are being developed.

PRESERVATION OF CRITICAL KNOWLEDGE: MILESTONES OF DEVELOPMENT



Topical issues on the preservation of critical knowledge were discussed by the participants of the meeting-seminar organised by Rosenergoatom and Rosatom Technical Academy.



During the Seminar, Alexei Lebedenko, Chief Expert of the Centre for Safety Culture and Human Factor Reliability of Rosatom Technical Academy, conducted a series of master classes dedicated to business communication, mentoring, work methods, and proposals for further activities in the field of the preservation of critical knowledge.



GRIGORY KHAKHULIN
Head of the Personnel Training Department of Rosenergoatom

“Loss of critical knowledge will affect the reliable and efficient operation of NPPs at all stages of their life cycle, complicate or make impossible the production process or achievement of strategic goals.”



VICTORIA SHEVELEVA
Project Manager of the Personnel Training Department of Rosenergoatom

“Systematic work on the preservation of critical knowledge allowed us to identify 225 NPP employees who are the critical knowledge bearers. 86 of them already became mentors, and 9 employees are involved in training as freelance instructors. 71 documents that contain critical knowledge of the personnel were developed.”





YURI SELEZNEV
*Rector of Rosatom
Technical Academy*

"The first psychophysiological laboratory was established at Smolensk NPP 40 years ago. For these years, Rosenergoatom has accumulated vast experience that can be extended to all the divisions of the industry. Psychological support of employees in these hard times and creation of safe environment is an important mission for the industry's psychology specialists."



Representatives of ROSATOM's Nuclear Weapons Division, Mechanical Engineering Division, and Fuel Division learned about the results of Rosenergoatom psychological service activities during the annual meeting-seminar of heads of psychophysiological laboratories.



LARISA ANDRYUSHINA
*Chief Expert of the
Personnel Training
Department of
Rosenergoatom*

"The goal of psychological service is to ensure personnel reliability for NPP safety assurance. We have four main areas of activity: psychophysiological examination, psychological support of personnel, safety culture and socio-psychological research, psychological support in personnel training. The NPP employees, Rosenergoatom Central Office, Rosatom Technical Academy want to make sure that psychological services evolve in the same direction."



THE CENTRE FOR SAFETY CULTURE AND HUMAN FACTOR RELIABILITY OF ROSATOM TECHNICAL ACADEMY HAS BEEN PROVIDING SCIENTIFIC AND METHODOLOGICAL SUPPORT TO THE PPLs OF ROSENERGOATOM SINCE 2010



SERGEY USENKO
*Director of the Training
Support Information
Systems Centre of
Rosatom Technical
Academy*

"Digitalisation of such an important field as the psychological examination of NPP personnel is impossible without close cooperation between all the participants of the process: methodologists of the Centre for Safety Culture and Human Factor Reliability, specialists of NPP PPLs and the Training Support Information Systems Centre. There are always a lot of issues related to the introduction of digital solutions. People are passionate about their work, and we, for our part, are trying to facilitate their work, computerise routine tasks, make them more transparent and effective."



ELENA CHERNETSKAYA
*Director of the Centre
for Safety Culture
and Human Factor
Reliability of Rosatom
Technical Academy*

"Our annual meetings just before summer have become a good tradition. We are glad that the Moscow Branch of Rosatom Technical Academy has brought together representatives of different divisions. Our community is growing, which allows the industry to solve new tasks. Psychological services and their activities are becoming more and more relevant in these hard times. Together we can ensure personnel reliability for NPP safety assurance."



VI-TH INDUSTRYWIDE SCIENTIFIC AND PRACTICAL CONFERENCE

PSYCHOPHYSIOLOGICAL SUPPORT OF PERSONNEL PROFESSIONAL RELIABILITY



VI-th Industrywide Scientific and Practical Conference "Psychophysiological Support of Personnel's Professional Reliability of Nuclear Industry Enterprises" brought together in Sochi professionals from seven ROSATOM's divisions, as well as representatives of WANO, EuroChem, SIBUR, Russian Railways, the Defence Ministry and EMERCOM of

Russia. Its participants were welcomed by Mariia Kalinina, Director of Rosatom socially important projects, and Yulia Shoigu, Director of the Center for Emergency Psychological Aid of the Russian EMERCOM.

During the Conference, specialists of the Centre for Safety Culture and Human Factor Reliability of Rosatom Technical Academy conducted the master class "Individual Psychological and Psychophysiological Support of Participants of Special Military Operation" and a training session dedicated to some positive effects of moderate stress. The Conference's participants discussed, in the format of scientific debate, the role of human factor in safety assurance and psychological preconditions for unsafe behaviour of employees. Based on the results of the event, the book of abstracts on personnel professional reliability was prepared.



ANATOLY ZHURAVLEV
Academician, Scientific Director of the Institute of Psychology of the Russian Academy of Sciences

"The long-standing cooperation of the Russian Academy of Sciences with Rosenergoatom and Rosatom Technical Academy is a vivid example of convergence of science and practice. The Conference discussed the key problems of organisational psychology in the nuclear industry, and the results of these discussions are the basis for organisation and improvement of work of psychological services of ROSATOM's organisations. It allows to contribute to the improvement of personnel professional reliability and, in general, to the safe work of nuclear industry and other potentially hazardous industries."



SAFETY CULTURE:

In 2023, the methodology for conducting safety culture assessment developed on the basis of the IAEA's recommendations became widespread in ROSATOM's divisions and proved its effectiveness in 43 industry's organisations.

INDEPENDENT ASSESSMENT



Conducting the independent safety culture assessment in organisations of the Engineering Division, in 2023, specialists of the Centre for Safety Culture and Human Factor Reliability learned about the design features of Paks-2 NPP in Hungary, visited the Belarusian NPP and sites of NPPs under construction in Bangladesh, Egypt, and Türkiye. During their visit to the site of Kursk NPP-2, the experts visited 34 organisations (branches of JSC Atomenergoproekt, JSC NIKIMT-Atomstroy, JSC ASE Engineering Company, LLC Trust Rosssetsenergomontazh, etc.).

In accordance with the road map on the development of safety culture in the Engineering Division, expert psychologists of Rosatom Technical Academy developed the approach to organising peer reviews, conducted a workshop on this topic, and provided methodological support to the specialists of the Kursk branch of PJSC Energospetsmontazh during the pilot safety culture assessment at the enterprise.



Working on development of the safety culture in the Power Engineering Division, specialists from Rosatom Technical Academy provided methodological support in organising and conducting the self-assessment of safety culture in 9 branches of JSC Atomenergoremont, and in analysing its results.



OCCUPATIONAL SAFETY

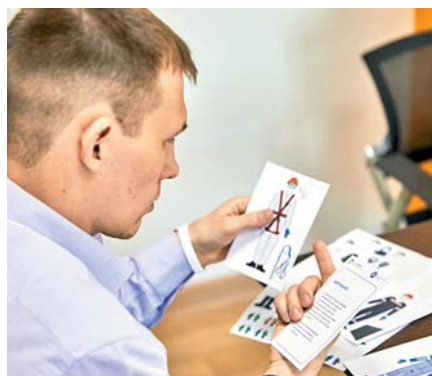


DMITRY GASTEN
HR and Social
Policy Director,
Rosenergoatom

"The more the employees are involved in the occupational safety, the more people will prioritise safety in the workplace. Safe operation of a nuclear energy producer is the first item in the statutory activities of Rosenergoatom. It is also necessary to integrate this ideology in the daily routine."

In between the competitions, the contestants attended lectures, participated in master classes and thematic games

"Know! Use! Work safely!" – is the slogan under which the Moscow Branch of Rosatom Technical Academy hosted the final stage of Rosenergoatom's occupational safety contest. This event was held for the 17th time and, according to the tradition, was timed to commemorate the World Day for Safety and Health at Work. 25 participants who were successful in the qualifying rounds at their enterprises came to compete for the title of the best.



NIKOLAY SOROKIN
Inspector General of
Rosenergoatom

"We have adopted seven golden rules of the concept "Vision Zero". They are aimed at the safety assurance and creation of healthy work environment. Our contestants are to convey to the employees that occupational safety rules are written 'with blood' and shall be observed strictly."



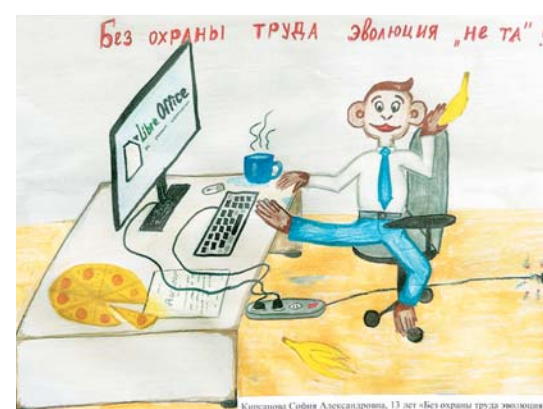
Adhering to the incontestable fundamentals of safety culture, Rosatom Technical Academy helps its employees to familiarise their children with ROSATOM's values in a fun way.

For the third consecutive year, young artists present their vision of a healthy and safe work environment within the framework of a drawing contest organised by the Centre for Safety Culture and Human Factor Reliability with the support of the HR Management Service of Rosatom Technical Academy.



ELISEY KOCHETKOV,
6 years old

"I've drawn a picture of people entering an elevator and following all the safety rules. Adults are always the first to enter the elevator, and kids shall follow them. And vice versa, when going out of the elevator, kids are the first, and adults shall follow them. I enjoy this topic. When I grow up, I will be an elevator designer."



In 2023, 48 children of employees of all Rosatom Technical Academy branches took part in the contest. All the kids who participated in it received memorable gifts, and people's choice awards were given to Elisey Kochetkov and Sofiia Kirsanova.



SEMINARS



IX-th Meeting-Seminar «Export Control at ROSATOM: Challenges, Ways of Development» brought together 130 nuclear industry professionals at Rosatom Technical Academy. For three days, the participants of the Seminar studied the changes in the export control laws, shared their views and decision-making practices in the present-day realities of international relations.



Topical issues of technical regulation in the nuclear industry were discussed by specialists of testing laboratories, certification authorities, and supplier enterprises at a strategic session. The main task of the event was to create such mechanisms that could help the industry to develop production, construction, and operation amid the new challenges of the time following all the regulatory requirements.



DENIS PAVLOV
Director of the Technical Regulation Department of ROSATOM

“It is very important that the requirements of the regulatory authority are clear and as feasible for the industry as possible and that we are confident that our actions guarantee the necessary level of safety. In the format of a session, we are working through all the pressing issues, clarifying complex topics, which allows to understand what’s going on at our enterprises and give recommendations.”



VLADIMIR ASPIDOV
First Vice-Rector for Principal Activities of Rosatom Technical Academy

“The Department for Accounting and Financial and Economic Analysis brings together the community of industry’s accountants, providing these specialists with the opportunity of professional growth. Many participants of this Workshop-School have been our colleagues and trainees for many years. The format of the school allows not only to get acquainted with theoretical knowledge, but also to discuss its practical uses, exchange opinions and experience, and make new friends.”



PYOTR ABROSKIN
Head of the Department for Accounting and Financial and Economic Analysis of Rosatom Technical Academy

“New federal standards entering into force, continuous computerisation and automation of accounting, transition to electronic document management and tax monitoring bring industry’s accounting to a qualitatively new level. This field is becoming a full-fledged information integrator of finance management. Our task is to prepare accountants of ROSATOM’s organisations proactively for work under new conditions.”

Chief accountants of ROSATOM’s organisations gathered in Rosatom Technical Academy for the traditional Workshop-School for the 25th time. This event was timed to the 35th anniversary of the specialised Department for Accounting and Financial and Economic Analysis. The School’s participants studied the latest changes in the Russian legislation in the field of accounting, taxation, control and audit and others issues. The speakers at the event included heads of departments of federal ministries and renowned professionals.





Specialists of ROSATOM's archives gathered at the Second Scientific and Practical Seminar "Topical Issues of Archival Affairs in the Nuclear Industry". During the Seminar, its participants paid particular

attention to digitalisation of archiving, organisation of archives service activities in the field of new business areas, as well as archiving in the context of import substitution.



ALEXANDER SMOLSKY
Advisor to the Rector of Rosatom Technical Academy

"A society cannot exist without preserving its memory. For its part, memory is passed through preservation of information. Information and documents stored and running today in the ROSATOM's system are important, interesting, unique, and useful for general archiving. I hope that nuclear industry's archivists will be beneficial to all of science."



UNDER THE PRINCIPLES OF SOCIAL PARTNERSHIP

The Academy is open as a platform for the like-minded people

A journey into profession: a tour programme for schoolchildren

Youth initiatives: no one but us



"Family Traditions of the Dynasties in the City of Firsts", the project of Rosatom Technical Academy, that won the grant competition "Orthodox Initiative - 2023" of the Fund "Collaboration", was a significant event of the year.

In the course of the Project, 68 thousand people learnt about the life stories of 530 Obninsk's citizens

aged 1 - 80 years. The representatives of dynasties of physicists who devoted their lives to the national task of birth and development of the peaceful atom told their stories about family traditions, so did those who made that important work creative and comfortable: teachers, doctors, entrepreneurs, builders, artists, journalists, priests and others.

Social projects, urban development, cooperation with the municipal and regional authorities, enterprises and organizations are of importance for Rosatom Technical Academy. In 2023, about two thousand people visited the Academy within the framework of various municipal, regional, federal and international events.



Kliment, Metropolitan of Kaluga and Borovsk:

"Today we are awarding the participants of the Project, which is aimed at supporting the families keeping their traditions. There always were labour dynasties in the Ancient Rus: children valued their parents' occupations, adopted their experience and knowledge significant for the country. Those who cherish family traditions today make Russia stronger."



Lyubov Glebova, Parliamentarian of the Russian Federation:

"There's a good phrase in the movie: "...and they fought their way to the top." You can hardly find a more precise assessment of the results of family upbringing. People themselves and their active position is the basis of our statehood. There is no other public policy behind big words and concepts."



Within the framework of the Project, the tours "Lean Consciousness" and "Ecology of the Soul" were conducted for Obninsk's schoolchildren. Five thousand people watched the movie "Family Traditions of Dynasties in the City of Firsts" directed by Artem Smirnov. The movie was inspired by the essays of the Competition's participants. The representatives of 21 dynasties took part in the awarding ceremony held as a Russian tea party at Rosatom Technical Academy.

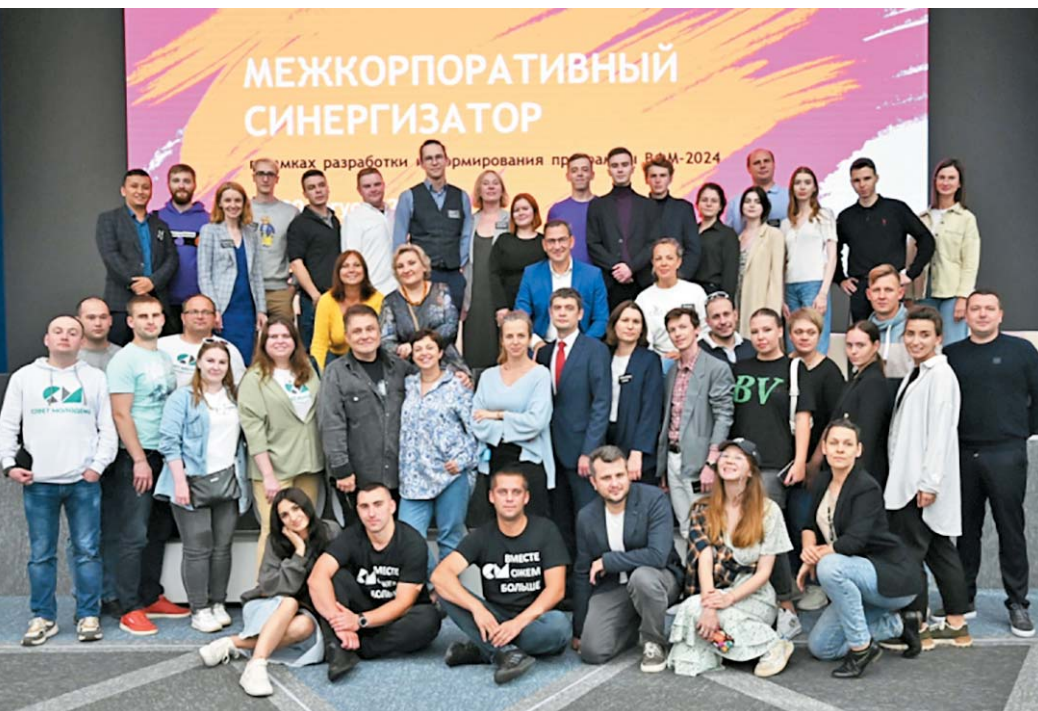


Pavel Zhuravlev, Vice-Rector of Rosatom Technical Academy:

"Obninsk is a unique city. People obeyed the voice of their heart and came to Obninsk to implement the nuclear project. The city is only 57 years old, but the ties, the culture, the scientific background are very tangible here. We believe it could be interesting to reveal the secret of sustainability of these dynasties, to understand how they brought up their children, passed on family values and love for their profession from generation to generation."

«Профессиональная династия»





Olga Golyshenkova, Chairwoman of the Coordination Council under the Civic Chamber of the Russian Federation for Network Communities, President of the International Association of Corporate Education (IACE):

"Each of the projects demonstrates that people of different nationalities, views and cultural values can get together and create something beautiful. They also demonstrate that all participants have equal opportunities, that we are all building a new, just society, and thus we say to the world that Russia is a country of opportunities not only for its citizens, but for all people on earth."



Sergey Mayorov, TV presenter, Member of the Academy of Russian Television:

"The value of "Forsazh" and this event is that many projects are created by the young specialists "here and now". It proves that our country has the potential of its inner capabilities."

A strategy session on integration of the projects developed at the "Forsazh - 2023" Forum into the programme of the World Youth Festival in Sochi was held at Rosatom Technical Academy as part of cooperation with the Coordination Council under the Civic Chamber of the Russian Federation for Network Communities.

For two days, the participants finalized the short-listed projects of the Forum, generated ideas and concepts in order to tell the foreign guests of the Festival and themselves about the things that made Russia stronger.



At the "Forsazh" Forum, the team of Rosatom Technical Academy proposed ideas for the programme of the World Youth Festival in Sochi



Rosatom Technical Academy became one of the sites of the regional internship for the trainees of the professional programme "Master of Public Administration for Leaders".

The internship participants - representatives of the public sector, business and social spheres from different regions of the country, finalists of the competition "Leaders of Russia"- discussed the possibilities of career development in the Kaluga region with the working youth of the Science City.

During the meeting, young specialists from the Leypunsky Institute for Physics and Power Engineering, Karpov Scientific Research Institute of Physics and Chemistry (NIFKhI), Rosatom Technical Academy, and Obninsk City Administration shared their experience-based cases.



Over one hundred leaders of youth and volunteer organizations of nuclear plants, subsidiaries, and universities participated in the 5-th Youth Gathering of the Power Engineering Division at Rosatom Tech.

The participants discussed the issues of improvement of production performance, development of safety culture, acceleration of working processes, and increase in the attractiveness of NPP as an employer, as well as involvement of the qualified personnel, and changing the quality of life in nuclear cities. As a result, the young specialists gave proposals to the heads of the Division's organizations of different levels.



Alexander Shutikov, General Director of Rosenergoatom JSC:

"In achieving our strategic goals, we prioritize our human resources by staking on the young people. Today, over 30 percent of employees working in our Division are young specialists, which is 20,000 people. However, in order to complete the tasks set, we need to plan the recruiting of additional 10 thousand young specialists by 2030 as well as to help them adapt themselves to work at NPPs".



TECHNOLOGICAL SOVEREIGNTY REQUIRES STAFFING SOVEREIGNTY FIRST



Tatyana Leonova,
Head of Obninsk
Administration

"A region that trains personnel from all over the country and the rest of the world is always a point of growth. Not only the ministries of education and economic policy of the region, but also its institutions and enterprises should create a demand for training of specialists. We have great institutions and a huge practical basis. We need to represent ourselves as a region of a high quality engineering training."

The employees, veterans and young specialists of leading scientific enterprises and educational institutions of Obninsk discussed with the authorities a possible contribution of the region to the strategic development of the country. The panel discussion was held at Rosatom Technical Academy as part of the ceremonial meeting of scientists of the Kaluga Region dedicated to the celebration of the Day of Russian Science.

Mikhail Chudakov, Head of the IAEA Department of Nuclear Energy, Stepan Kalmykov, Vice-President of the Russian Academy of Sciences, Dmitry Razumovsky, Deputy Governor of the Kaluga Region, Alexander Anikeev, Minister for Education and Science of the Kaluga Region, and other officials welcomed the scientists.

During the discussion, the young scientists demonstrated their abilities and willingness to take part in solving important issues of the country. A strategic session "Development of Obninsk as a City with a High Scientific and Technological Potential" was organized for them as part of the event.



Over 45 leading specialists, young scientists, students and postgraduates spoke at the scientific and technical conference "Modern Problems of Chemical Physics, Theoretical Chemistry and Experimental Research Methods of Materials for Modern Nuclear Power Engineering" at the St. Petersburg Branch of Rosatom Technical Academy.

The event aimed at career guidance was organized by the St. Petersburg State Institute of Technology in cooperation with the Nuclear Physics Institute named after B.P. Konstantinov and Rosatom Technical Academy. The primary objective of the organizers was to reveal the scientific and technical potential of the young participants, and to introduce them to new research, current trends and technologies.

The conference included round tables and sections on radiation technologies, radiation materials science, mathematical modelling, computational experiments, materials for modern power engineering, and quantum chemistry and physics.





For more than a year now, the educational lecture society “Gutenberg’s Smoking Room” has brought together the citizens of Obninsk keen on science at Rosatom Technical Academy.

About 170 participants attended that event. Lectures were given by Ilya Velegzhaninov, Senior Researcher of the Institute of Biology, Komi Science Centre, Ilya Kirov, Head of the laboratory of the All-Russian Research Institute of Agricultural Biotechnology, and Ivan Oladyshkin, Specialist of the Institute of Applied Physics of the Russian Academy of Sciences. The participants learned about artificial intelligence and its connection with biology, the role of gene mutation in evolution and plant breeding, as well as new facts about water.



**Vladislav Smolsky,
Development Director
of Rosatom Technical
Academy:**

“The task of Rosatom Technical Academy is not only to train nuclear specialists, but also to popularize science in the City of Firsts. It is great that so many people come to the lecture together with their families. Even though the participants are of different generations, “Gutenberg’s Smoking Room” is of equal interest for everyone”.



The traditional intellectual tournament “What? Where? When?» to win Rosatom Tech Cup was held already for the 7-th time.

The intellectual battles brought together the experts from 10 cities. The “Nu i Nu” team from Kaluga won the tournament. The participants from Astrakhan – the team “#kachkivgorode” – won the second place, the Obninsk team “Dich” won the third place. The winners of the Special Cup “Best Industry Team” were the “Neutron Network” team from the city of Sarov and the “17 987 548 km” team from Nizhny Novgorod.



Грета незрелистые	Юнин Алексей Сергеевич	Нововоронеж	3	6	6	15	19	131
42	Ефремов Вячеслав Анатольевич	Дзержинск	3	5	6	14	20 - 22	124
анТАРес	Ильин Александр Александрович	Обнинск	2	5	6	13	23	111
Ульбаемса и маэми!!	Мосин Виктор Николаевич	Обнинск	2	5	5	12	24	104
Торжество разума	Долженко Павел Олегович	Обнинск	0	6	3	9	26	96
Я хочу от тебя идей	Татарникова Татьяна Юрьевна	Москва	4	4	3	11	25	86
Шестерка имени Кондратьева	Левин Максим Павлович	Обнинск	5	1	1	7	27 - 28	68
Скромняги!	Смолин Максим Сергеевич	Обнинск	1	3	3	7	27 - 28	56



NST CLUB: A DREAM TRIGGERS THE DEVELOPMENT

After another year of work of the English Nuclear Science and Technology Club, the results of the fifth, sixth and seventh seasons of exciting discussions among the young specialists were summed up at Rosatom Technical Academy.



Yuri Seleznev, Rector of Rosatom Technical Academy:

“The implementation of a dream project that coincides with the industry’s area of interest should be given a try. The new projects will be contributing to changes of the image of the Academy, the image of the instructor, and the instructor’s career. Nowadays, the human resource capacity is an urgent concern.”



Elena Kazakova, Head of the Language Support Division, Co-Chairwoman of the NST CLUB:

“We learned a lot about the language and profession while being in the club. As a result, we have banked a lot of interesting projects to this date. Some of them will probably be implemented; the others will boost the personal growth.”



At the club sessions, the participants spoke about famous scientists and significant events of the nuclear era, discussed the educational challenges in the realities of this century and presented their dream projects.

Yury Kazansky, Doctor of Science in Physics and Mathematics, First Rector of the National Research Nuclear University MEPhI, Honored Worker of Science and Technology of the Russian Federation, and Mikhail Baryshnikov, Head of Department of Innovative Products at TENEX, shared their experience and memories with the participants.



During **7** seasons, the NST CLUB organized **260** sessions in Obninsk and St. Petersburg Branch, with **385** reports being presented.

The employees of Rosatom Technical Academy received Certificates of Completion of the Course “Learning English and Improving the Command of Language.” The specialists of Language Support Division developed and conducted the course.



Pavel Maslov, Leading Expert of the Independent Certification and Methodological Centre of Rosatom Technical Academy, a participant of the course:

“One of the main activities of Rosatom Technical Academy is training of the foreign NPP personnel. The command of English is a necessary skill for successful communication with our trainees. That was the reason why I took this two-year course. We studied general and technical English. The end-of-course assessment was devoted to the specifics of scope of our activity.”

A JOURNEY INTO PROFESSION



Obninsk's schoolchildren – the participants of the “AtomStory” quest dedicated to the 125th anniversary of E.P. Slavsky, Minister of Medium Machine Building

ROSATOM WILL TRAIN AND SUPPORT

In 2023, over a thousand schoolchildren and university students took part in the tours under career guidance programmes of Rosatom Technical Academy.

As part of exciting tours into the world of modern nuclear technologies, schoolchildren are introduced to a model of a hypothetical nuclear facility and learn about the importance of a reliable system of physical protection of nuclear materials and facilities. The full-scale and full-scope simulators provide an opportunity to feel working as a nuclear plant operator and to know about the “life” of the power unit. The 3D-complex

“CAVE” allows you to see how a nuclear power plant works from the inside.

Schoolchildren of general and specialized classes from Obninsk, Novovoronezh, Pavlovsk, Maloyaroslavets together with students and representatives of ROSATOM's flagship universities attended the Academy.

Young instructors of the Academy introduced schoolchildren to the application of nuclear power in agriculture, industry, and medicine, shared their career paths, told about nuclear specialities, their studies in ROSATOM's flagship universities, and possible trajectories of professional development.



Oleg Mironov, a new-generation instructor of Rosatom Technical Academy:

“At the very beginning of the tour, I usually ask who of the schoolchildren plans to be examined in Physics, and it is only one or two who does. However, when the lecture and the simulator session are over, the number of those willing to dig into the subject increases. Mentoring is one of the significant components of our work. We are bringing the next generation into the industry by transferring critical knowledge to them, just like our mentors did.”



Over 130 schoolchildren of the city took part in the intellectual tour of the Novovoronezh Branch of the Academy



Children of the Novovoronezh Branch's employees learned about their parents' nuclear profession as part of the Family Day



Anna Vatutina, a student of the National Research Nuclear University MEPhI:

“Seeing once is better than learning twice. Everything we saw at Rosatom Technical Academy impressed us with its significance and importance for the nuclear industry. The Academy provides for large classrooms equipped with modern technical aids to train the personnel at the highest level, and to deliver information to the trainees in a clear and demonstrative way. Rosatom will definitely train and support anyone who strives.”



Maxim Petrushin, Personnel Training Engineer, gave the schoolchildren a clear and simple explanation of the nuclear power, where the energy comes from, its application and advantages

SET GREAT GOALS FOR YOURSELF

Youth initiatives are another opportunity for young employees of the industry to develop their potential and make oneself known. At Rosatom Technical Academy, young specialists can implement their ideas in the scientific, technical and social areas, get involved in the sustainable development, and participate in cultural and sport events. We are interviewing Mikhail Fedorov, Head of Direction for Cooperation with Professional Communities and Chairman of the Youth Council of the Academy, about the involvement of young people in the life of the organization, city and country.



- Mikhail, you had a rapid career progress in the field of youth policy in 2023. You joined the Council of Young Scientists and Professionals at the Obninsk's Administration, and the Council of the Local Branch of the Russian Children and Youth Movement "Movement of Firsts", headed the Committee on Science, Education, Culture and Tourism of the Youth Parliament of the Legislative Assembly of the Kaluga Region, held a title "Man of the Year" in the nomination "Youth Initiative", and were awarded a diploma of the competition "New Creators". What inspires you?

- Public and social work attracted me even in my student days. I was one of the student activists, the head of our group. At that time, a dialogue with the youth was not yet a priority for the state. Today, our government and large Russian companies pay special attention to young specialists; this involves and inspires, and has given the second wind. It is important to me to deal with the tasks, which are significant to the society. It is inspiring. Being a part of an organization that trains personnel for Rosatom's foreign projects is a responsible and ambitious mission. If you do not do your job well, your country's reputation will suffer.

- And yet, according to the statistics, today 50 per cent of young Russians have material well-being as a priority, and they seek to earn money in Moscow. They have no time for youth projects.

- For a young professional in particular, this approach can be a dead end. If you work only to earn money, it won't take you long to fall into



Young specialists of Rosatom Technical Academy at the Russian Energy Week International Forum

burnout and depression. Moreover, it is very important for a young specialist to create a foundation for perspective growth in the future." Having completed a year-long internship at the International Atomic Energy Agency in Vienna, I aimed to return to Obninsk because it is a more pleasant, smaller, more familiar city for me, and I keenly felt the importance of my work. Besides, the communication with lots of outstanding scientists and figures from other fields, who live in our city, allows gaining experience and expand professional opportunities.

The cooperation with youth communities is also forward-looking. It is not about material reward, but about learning new things: dealing



Participation in the public hearings of the Strategy of Social and Economic Development of the City of Obninsk for 2025-2040



40 young specialists joined 9-th Youth Parliament of the Legislative Assembly of the Kaluga Region

with agreements, funds, and documents, launching and implementing projects, planning budget, and communicating with people. It is an opportunity to realize what the organization is and what it deals with, broaden the horizons and expertise, as well as to develop oneself.

Rosatom Technical Academy has a record of numerous cases demonstrating the increase of results of production activities when cooperating with young people. For example, developing a wind power project, Egor Sagachev, Personnel Training Engineer, applied for the Business Laboratory project and was highly evaluated by the experts. And today, Rosatom Technical Academy is a member of the Russian Association of Wind Power Industry and actively cooperates with NovaWind JSC.



A visit of participants of the regional internship within the framework of the professional programme "Master of Public Administration"

- Which youth project do you think is the most significant for Rosatom Technical Academy?

- The Academy's management has always adhered to the strategy - everything that happens is meaningful. It is impossible to single out a particular project, because different activities add up to a single chain, make up a whole story. At the Forum "MIR: Molodezh. Innovatsii. Razvitie" ("WORLD. Youth. Innovations. Development"), which took place at Rosatom Technical Academy in 2022, a model of the city of the future was presented. To bring this idea to life, it is necessary that all enterprises keep up, and the City and Region Administration support us. Therefore, the youth activities, which we organized after the Forum, were aimed at teaming up, for example, at creation of the city's youth community and establishment of a horizontal interaction between enterprises.

In 2023, the participants of the Forum established Council of Young Scientists and Specialists at the Obninsk Administration that included 20 representatives of the city's enterprises. The Council develops different projects: a scientific and technical calendar of the First Science City as well as "Scientific microphone" - an informal discussion club, a unique venue for all those who are interested in scientific research and want to gain new knowledge, and spend time in a friendly atmosphere. Within the framework of the event, every employee of the city's enterprises can tell about their work. We participate together with the City Administration, the Educational Cluster of the Kaluga Region, and the Municipalities Development Fund in the career guidance programme "Scientific Journeys."

We are involved in the elaboration of the development strategy of Obninsk up to 2040. We take part as speakers in the city's youth projects and took part in the creation of a mural on the building of the future Obninsk Youth Centre.

- Being a head of the Committee on Science, Education, Culture and Tourism of the Youth Parliament, you participate in legislative activity. What projects are you in now?

- Now, we are developing five legislative initiatives, for example, an initiative on an amendment to legislation on bonus payments for school students participating in the All-Russian Olympiads. There are no such payments now. We are also reviewing bonus payments to young scientists under the various awards, which were established in the early 2000s. Today, considering the inflation, a bonus payment of 6-8 thousand roubles does not inspire. For the Committee, in order to encourage a young specialist to participate in competitions, the size of the bonus payment is to be increased up to 35 thousand roubles.

- Can you give some advice to the young people on how not to get lost in the flow of tasks and projects, not to give up, and to be able to make oneself known?

- Set great goals for yourself and do not be afraid to achieve them, following the motto "No one but us". If you are able to solve a problem, do not think that someone else can



The team of Rosatom Technical Academy at the regional lasertag tournament for working youth

handle it better. Strive to be better. If you face some other people who also want to solve the problem, let them be not your competitors but your partners who you discuss your ideas with. This will give a better result. Be sincere and responsible. Do not forget about your project, keep working on it, even if only in the evenings. Enjoy the process. I am sure that your ideas will resonate with both the community, and the management.



Representatives of the Youth Council of Rosatom Technical Academy at a meeting with the City Council of Rosatom Juniors



SPARTAKIAD – 2023: FESTIVAL OF SPORTS AND TEAMING UP



**Kirill Tyutyunnik, Legal
Advisor of Rosatom
Technical Academy:**

“Have a look at the field. There, on the basketball court, you can see representatives of Saint Petersburg, Novovoronezh, and Obninsk; and they all play one ball. That is what we are here for. We often talk on the phone about some work-related issues with colleagues from other Branches. Now I know whom I am calling. I appreciate a lot the management’s efforts to organize such a great and major event.”

It was the second time when Novovoronezh hosted the Summer Spartakiad of Rosatom Technical Academy. The sports festival was devoted to the 120th anniversary of Academician Igor Kurchatov. Sixty participants from all four Branches competed in eight sport events:

The sportsmen met on the football field, volleyball court, track-and-field; they played streetball and tried their hand at crossfit and darts. In the evening, the participants enjoined their leisure time together: they had cyber sports tournaments on PlayStation and billiards competitions.



Trainees from Bangladesh cheering on their instructors playing hockey



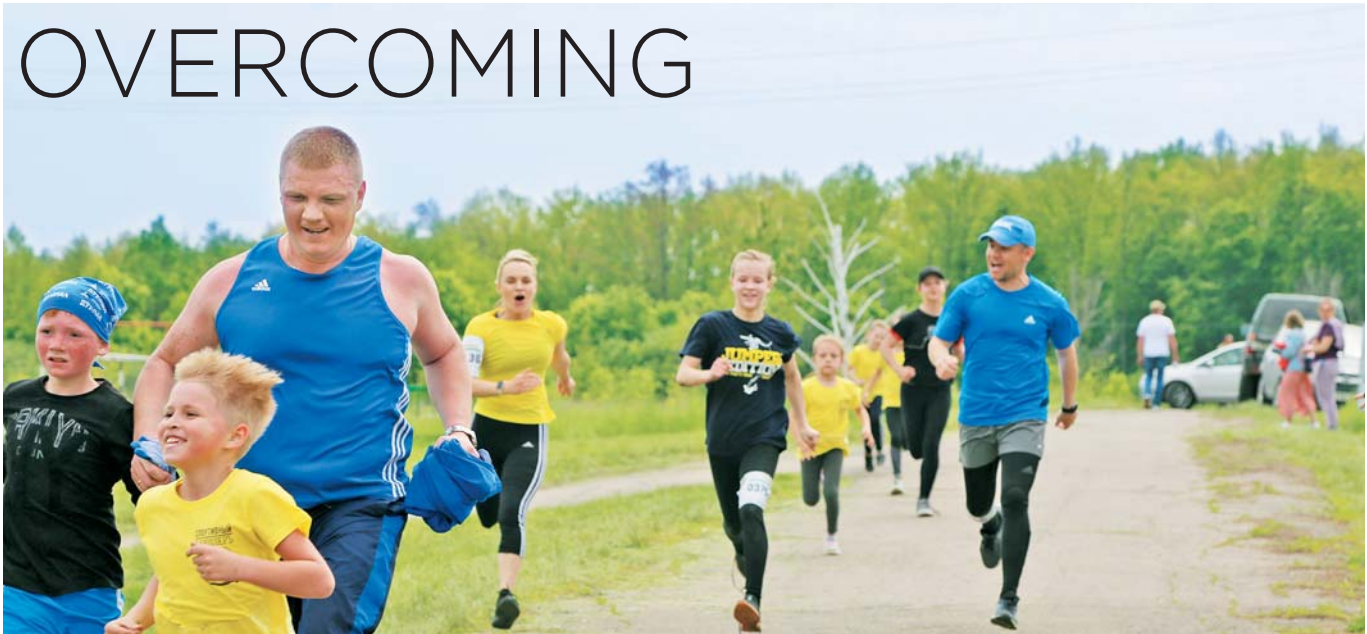
The goals of the big sports forum remains unchanged: involvement in sports, enhancement of corporate culture, communicative adaptation of specialists from different Branches of the Academy.



Rosatom Technical Academy won the first All-Russian Nuclear Industry Cup in ice hockey, which was held in 2023 as part of the Winter Spartakiad for the industry workers



OVERCOMING



Employees of the Novovoronezh Branch of Rosatom Technical Academy tried their strength in the race “Overcoming” – a 7-kilometre cross-country race with 30 obstacles along the course. Over 40 teams from different cities of Russia took part in the competition. A bright and dynamic family event brought the team together. The Novovoronezh employees proved once again that they could work as a team and strengthen their character.



Artem, Anna and Yegor Evdokimov were awarded medals in the family race



The team of Rosatom Technical Academy won the third place in the Obninsk City Youth Gathering dedicated to the Year of Teachers and Mentors. The large-scale event gathered thousands of participants on a glade in the Zhukov district of Kaluga region. The programme included 52 types of competitions: creative, intellectual, sports and tourist competitions.





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TOTAL AREA
OF PREMISES



ABOUT
470,000
INDUSTRY
TRAINEES HAVE
BEEN TRAINED
SINCE 1967



543
TRAINING
PROGRAMMES



> 6,000
FOREIGN NPP
SPECIALISTS HAVE
BEEN TRAINED
SINCE 1972



> 1,000
SCIENTIFIC AND
TECHNICAL
EXPERTS
INVOLVED



ABOUT
4,000
NUCLEAR
INFRASTRUCTURE
SPECIALISTS
FROM PARTNER
COUNTRIES HAVE
BEEN TRAINED
SINCE 2010



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