

Education

Today, Samara State Technical University is a recognized scientific and educational center that trains specialists who make a real impact on the country's environmental agenda. A key element of the university's environmental activities is the continuous improvement of its environmental management system (EMS), which aligns with the university's strategic priorities of reducing anthropogenic impact and implementing sustainable development principles.

In 2025, following an inspection, Samara State Technical University again confirmed the compliance of its current EMS with the requirements of GOST R ISO 14001-2016 (certificate) in relation to educational activities (secondary general, secondary vocational, higher and additional vocational education), as well as research and development.

Educational activities in the field of ecology in 2025 will be implemented in 5 bachelor's degree programs and 3 master's degree programs, including:

08.03.01 — "Construction," specializing in "Water Supply and Sanitation" and "Hydraulic Engineering." Duration of study: 4 years. Graduates receive a bachelor's degree.

March 18, 2002 — "Energy- and Resource-Saving Processes in Chemical Engineering, Petrochemistry, and Biotechnology" in the "Environmental Protection and Rational Use of Natural Resources" program. Duration of study: 4 years. Graduates receive a bachelor's degree. This educational program is included in the list of priority areas for the modernization and technological development of the Russian economy and is accredited by the International Agency for Quality Assurance in Education and Career Development (AKKORK) (2021-2025) and the European Chemistry Thematic Association . Network Association (ECTN) (2021 - 2026).

March 19, 2001 — "Biotechnology," major: " Bioengineering and Industrial Ecology." Full-time course duration: 4 years. Graduates receive a bachelor's degree.

March 20, 2001 — " Technosphere Safety," specializing in "Environmental Engineering" and "Emergency Protection." Full-time course duration: 4 years. Graduates receive a bachelor's degree.

38.03.04 — "Public and Municipal Administration," major: "Public Management of Sustainable Development." The full-time program lasts four years. Graduates receive a bachelor's degree. Compared to 2024, the program's launch year, the number of students enrolled in 2025 has tripled.

April 8, 2001 — "Construction," specializing in "Water Supply for Cities and Industrial Enterprises," "Heating, Ventilation, and Air Protection Systems," "Hydraulic Engineering," "Improving Water Purification and Sludge Treatment Technologies," and "Water Removal and Wastewater Treatment." Duration of study: 2 years. Graduates receive a Master's degree.

April 18, 2002 — " Energy and Resource-Saving Processes in Chemical Engineering, Petrochemistry, and Biotechnology," Master's program "Industrial Ecology and Rational Use of Natural Resources." Duration of study: 2 years. Graduates receive a Master's degree. The program was developed within the framework of the international TEMPUS project " Advanced " M.Sc. Program in Ecology for Volga-Caspian Basin " works closely with the universities of Stuttgart, Warsaw, Parma, and Barcelona. The program is accredited by the International Agency for Quality Assurance in Higher Education and Career Development (AKKORK) (2021-2025) and the European Chemistry Thematic Association . Network Association (ECTN) (2021 - 2026).

April 20, 2001 — " Technosphere Safety," Master's programs "Monitoring Areas with High Anthropogenic Load," " Technosphere Safety in the Oil and Gas Industry," and "Environmental Engineering and Rational Use of Natural Resources." Duration of study: full-time — 2 years. Graduates receive a Master's degree.

The number of students studying in the specified bachelor's and master's degree programs in the reporting year amounted to 730 people.

In the autumn Samara Polytech University received permanent state accreditation for six higher education programs, including a specialty program in Pharmacy. The university also received licenses for new programs: a secondary vocational program in Environmental Safety of Natural Complexes, as well as a bachelor's program in Ecology and Nature Management and Innovation.

representatives of Samara Polytech University participated in the work of the international expert group of the Independent Quality Assurance Agency in Education (IQAA), the leading accreditation organization in Central Asia and a member of the European Network for Quality Assurance in Higher Education (ENQA). As part of the international program accreditation process for Karaganda Industrial University (Republic of Kazakhstan), the scientists served as external experts on the educational program "Heat Power Engineering of Industrial Enterprises and Housing and Utilities Facilities." The expert work included analyzing the program's self-assessment report for compliance with European ESG standards, conducting online interviews with university administration, faculty, students, graduates, and employer representatives, and developing recommendations for improving the program's content, teaching methods, and internal quality assurance mechanisms. Particular attention was paid during the assessment to the degree of integration of real-world industrial tasks into the educational process, interaction with industrial partners, and the use of modern digital learning tools. Participation in international accreditation confirms the recognition of the university's professional level by the international expert community and continues systematic collaboration with international partners in training personnel for the thermal power industry (including universities in Kazakhstan and Kyrgyzstan). Accreditation review is seen as a form of dialogue on the quality and development of engineering education in the post-Soviet space.

The reporting year was a time for the university not only to maintain but also to significantly strengthen its reputation as a key contributor to the economy's human resources. This success was driven by three factors: the growth of its portfolio of educational and research projects, the redesign of its curricula to meet the needs of the real sector, and its continued engagement in addressing environmental issues significant to society.

In 2025, approximately 1,000 people completed training in retraining and advanced training programs in the field of rational use of natural resources and sustainable development, including those commissioned by JSC Transneft -Druzhba, JSC Svyaztransneft, PJSC T Plus, JSC Svyaztransneft, JSC Promsintez, OOO Promperforator, PJSC UEC Kuznetsov, and individuals.

As part of its training of highly qualified personnel, Samara State Technical University implements educational programs in three scientific specialties of strategic importance for the environmental safety of the region and the country:

1.5.15 – Ecology (fundamental and applied aspects of biosystem protection, environmental monitoring, anthropogenic impact assessment);

1.6.21 – Geoecology (study of natural and man-made processes, rational use of subsoil and land resources, geoinformation systems in ecology);

2.1.4 – Water supply, sewerage, construction systems for water resource protection (engineering methods of water purification, design of drainage systems, resource-saving technologies).

These programs train researchers skilled in modern methods of fundamental and applied science—from laboratory analysis and mathematical modeling to the development of environmental projects and environmental audits. The program integrates academic knowledge with real-world industrial challenges: postgraduate students participate in research projects commissioned by industrial enterprises (petrochemicals, energy, and housing and utilities), as

well as in grant projects from the Russian Science Foundation and the Ministry of Science and Higher Education of the Russian Federation.

During the reporting period, 23 postgraduate students are studying in these programs, of which 2 are studying on a contractual basis with full reimbursement of costs, which demonstrates the demand for specialized environmental competencies from businesses and employer organizations.

The goal of early inclusion of schoolchildren in the university environment, including career guidance and involvement in scientific activities, is addressed at the Center for the Development of Modern Competencies, the N.N. Semenov House of Scientific Collaboration (DNC), at SamSTU. The center's activities are part of the "Professionalism" initiative of the "Youth and Children" national project and are aimed at implementing additional general educational and developmental programs in the natural sciences and technology:

- Chemistry: The Key to the Future through Experiments, Challenges, and Transformations
- Molecular chemistry of water
- Microbiology
- Pharmacy and cosmeceuticals
- Chemical engineering and nanotechnology in chemistry
- Fundamentals of Agrochemistry
- Fundamentals of chemical monitoring of natural and drinking water
- Eco-friendly products
- Experimental ecology
- Applied ecology
- Ecological and geographical practical course
- Green chemistry
- Energy of the Future
- Into the nanoworld with physics
- Experimental chemistry
- Architecture and urban environment
- School of the Future Engineer (basic)
- School of the Future Engineer (Advanced)
- University of the Young Technologist
- Architecture and landscape design
- Architecture and urban design
- Engineers of the Future: From Idea to Prototype
- Chemistry: The Key to the Future through Experiments, Challenges, and Transformations
- Molecular chemistry of water
- Microbiology
- Pharmacy and cosmeceuticals
- Chemical engineering and nanotechnology in chemistry
- Fundamentals of Agrochemistry
- Fundamentals of chemical monitoring of natural and drinking water

This year, the "Be in the Know 2.0" hackathon was held at the N.N. Semenov Scientific Collaboration Center at Samara Polytech University, bringing together approximately 70 students from schools and educational centers in the Samara Region. The event, organized as part of the university's partnership with regional educational institutions, aims to develop young people's competencies in information technology and media. Students from the Samara State Technical University's Architectural and Technical Lyceum won the technical award for their

development of a virtual tourism novella about Samara. Second place in the media award went to a project for souvenirs for an alpaca farm. The hackathon's educational program included lectures and workshops, including on promoting environmental projects and PR support for initiatives. The event is part of the university's career guidance program within engineering and technical classes and demonstrates the effectiveness of project-based learning in fostering students' interest in technological and creative professions. The hackathon was supported by the All-Russian public and state movement of children and youth "Movement of the First."

Samara State Technical University (SSTU) is staffed by professionals who not only possess a modern scientific foundation but also have practical experience in their respective fields. This allows us to structure our education around real-world interdisciplinary challenges, particularly relevant to sustainable development. More than 70 faculty members, including 10 doctors of science and 31 candidates of science, provide educational support in the field of ecology. Over half of the academic disciplines (110 courses) address sustainable development goals in some way. The university prepares graduates capable of systemic thinking and working at the intersection of ecology, economics, and management—in environmental agencies, businesses, and administrative bodies. Students are immersed in real-world business challenges, learning to conduct environmental audits, assess risks, and develop projects that consider the interests of all stakeholders. Over 50% of final theses are based on data from real-world production and industrial facilities, using circular economy methods, life cycle assessment, carbon footprint management, environmental management system development, and ESG reporting as tools. The practice-oriented learning model is supported by the results of the final theses defense in the "Startup as a Diploma" format: 55 successful projects, some of which are related to ecology and sustainable development:

- Application of energy-saving technologies at pipeline transportation facilities for oil and petroleum products;
- Improving the surface drainage system from city roads in accordance with traffic safety conditions;
- Optimization of the operation of sewage treatment facilities in the village of Bogatyr;
- caprolactam production waste into adipic acid.

Approximately 150 bachelor's and master's degree students graduate annually. Graduates are successfully employed as specialized specialists, department heads, government inspectors, and leading environmental experts at major enterprises, including Kuibyshev Oil Refinery, Novokuibyshev Oil Refinery, KuibyshevAzot, SIBUR PolyLab, Samaraneftegaz, Novokuibyshevsk Oil and Additives Plant, Otradnensky Gas Processing Plant, Novokuibyshevsk Petrochemical Company, Samaraneftekhimproekt, Giprovostokneft, Transneft, and Rosneft. This demonstrates their high level of professional training and their demand in the labor market. The interdisciplinary nature of the training of specialists at Samara State Technical University allows graduates to find employment in various sectors of industry: the Offices of Rosprirodnadzor and Rostekhnadzor in the Samara Region, the Ministry of Forestry, Environmental Protection and Nature Management of the Samara Region, divisions of PJSC Gazprom, OJSC Privolzhskie Magistralnye Nefteprovody, PJSC Samaraneftekhimproekt, JSC Giprovostokneft, Kuibyshev, Novokuibyshev and Syzran Oil Refineries, NGDU Buzulukneft, Sergievskneft, OOO SamaraNIPIneft, OOO NPO Ecobezopasnost, administrations of cities and districts of the Samara Region, etc.

The educational model is based not only on a competency-based approach but also on an axiological one: developing students' value systems aligned with the principles of sustainable development. This means fostering environmental awareness, responsible resource use, and the ability to evaluate decisions within a broad, time-bound, and interdisciplinary context.