

DIGISKILLS

NEWSLETTER

NO.2

The DIGISKILLS project is driving the digital transformation of water technology education across a diverse consortium of universities. By integrating modern digital tools and innovative teaching methods, the project aims to enhance the quality of higher education and equip students with the practical skills needed in the evolving water sector.

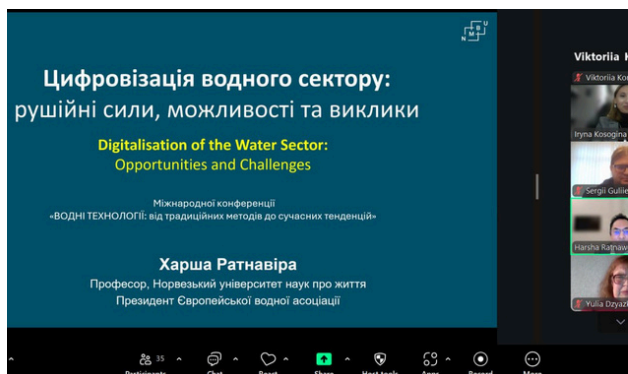
Building on best practices from EU member states, DIGISKILLS will introduce advanced equipment, simulation software, and interactive learning resources to support both in-person and independent study. These efforts are designed to modernize water technology training and boost the competencies and competitiveness of future professionals in the field.

Stay connected with us as we work together to shape a smarter, more sustainable future for water education.



**INNOVATING
WATER
TECHNOLOGY
EDUCATION
WITH DIGITAL
SOLUTIONS**

CONFERENCES & SCIENTIFIC EVENTS



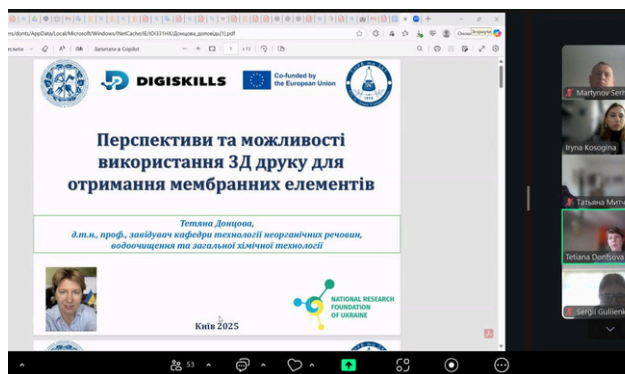
DIGITALIZATION OF THE WATER SECTOR IN THE SPOTLIGHT: HIGHLIGHTS OF THE CONFERENCE AT IGOR SIKORSKY KYIV POLYTECHNIC INSTITUTE

On October 28–30, 2025, Igor Sikorsky Kyiv Polytechnic Institute hosted the international conference “Water Technologies: From Traditional Methods to Modern Trends” (online, Kyiv, Ukraine). A special focus of the conference program was placed on the digitalization of the water sector and the role of modern digital tools in water treatment, wastewater purification, water quality monitoring, and infrastructure management, as addressed within the framework of Erasmus+ project “Strengthening digital skills in the water sector higher education – DIGISKILLS”, no 101178708.

During the conference, participants discussed how digital solutions are accelerating decision-making in the water sector – from data-driven approaches and process modelling to the implementation of artificial intelligence and digital twins. Importantly, alongside technological aspects, the educational dimension was also emphasized: without the systematic development of digital competencies among water sector professionals, modernization efforts will remain fragmented.

In this context, the keynote presentation by Professor Harsha Ratnaweera, “Digitalization of the Water Sector: Opportunities and Challenges”, was particularly illustrative, outlining both the potential and the barriers to the adoption of digital solutions.

The program also featured presentations by representatives of Igor Sikorsky Kyiv Polytechnic Institute, showcasing practical directions of the digital transformation of water technologies:



- Tetiana Dontsova presented the report “Prospects and Opportunities for Using 3D Printing in the Production of Membrane Elements”, highlighting the link between digital manufacturing, the development of membrane modules, and rapid prototyping.
- Svitlana Kyrii, in her presentation “Current Challenges of Marine Environmental Monitoring in Ukraine during Wartime”, emphasized the need for modern approaches to real-time monitoring of the aquatic environment, where digital tools and data acquisition systems become critically important under conditions of limited resources and elevated risks.
- Oleksandr Kuchynskyi presented his vision in “Perspectives of Using AI for the Digitalization of the Water Industry”, outlining the potential of artificial intelligence for data analysis, forecasting, process optimization, and enhancing the resilience of water infrastructure.

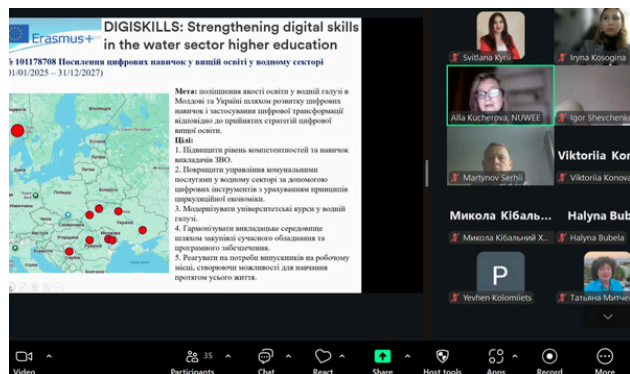


CONFERENCES & SCIENTIFIC EVENTS



The conference at Igor Sikorsky Kyiv Polytechnic Institute became another platform where the community of researchers, educators, and students comes together around practical steps toward the digitalization of the water sector. It is precisely such events that help build the cooperation network needed to ensure that the outcomes of DIGISKILLS are translated into new graduate competencies, modern curricula, and applied solutions for the water industry.

Particular attention should also be paid to the contribution of partner universities. Alla Kucherova (National University of Water and Environmental Engineering, Rivne) joined the conference and shared her experience in implementing international grant projects in the water domain, emphasizing that project-based cooperation is a key driver for accelerating the adoption of digital practices both in education and in the sector itself. In particular, the discussion highlighted results and approaches developed within several initiatives, including DIGISKILLS.



The topics and discussions addressed during the conference closely align with the objectives of the DIGISKILLS project, which aims to strengthen digital skills in higher education within the water sector, transfer best European practices of digital transformation to Ukraine and Moldova, and introduce innovative teaching methods, digital workshops, and eLearning modules. The project also includes training academic staff to apply digital solutions and upgrading the material and technical base (equipment and software) to support the digital modernization of the educational environment.

CONFERENCES & SCIENTIFIC EVENTS



NATIONAL STUDENT SCIENTIFIC CONFERENCE WITH INTERNATIONAL PARTICIPATION "Ecological and Environmental Chemistry – 2025", 23rd Edition

On November 25, 2025, the National Student Scientific Conference with International Participation "Ecological and Environmental Chemistry – 2025", 23rd edition, dedicated to the International Students' Day, was held at Moldova State University, in the USM Senate Hall. The event was organized in a hybrid format.

The conference was opened with a welcome address by Academician Gheorghe Duca, DSc, Professor, founder of the Scientific School of Ecological Chemistry. In his speech, he emphasized the importance of educating the new generation of researchers in the field of environmental protection and ecological chemistry, highlighting the essential role of young scientists in addressing contemporary environmental challenges.

The event brought together students and young researchers from the Republic of Moldova and Romania, who delivered oral presentations included in the official conference program. The presentations covered a wide range of timely topics, including water and air pollution, renewable energy, environmental education, advanced materials, and the impact of pollutants on ecosystems.

A particular focus was placed on presentations addressing the digitalization of ecological chemistry study programs, the use of online data collection, and the application of information technologies for data acquisition, systematization, and analysis. These topics align closely with the objectives of the DIGISKILLS project, funded by the European Commission, which aims to strengthen digital competencies in higher education related to the water and environmental sectors.

In total, 60 abstracts were submitted and will be published in the Electronic Book of Conference Abstracts, assigned an ISBN, contributing to the dissemination of students' and young researchers' scientific results.

Abstracts were submitted by students from the Faculty of Chemistry and Chemical Technology, Moldova State University, the Faculty of Biology and Pedology, Moldova State University, the Technical University of Moldova, the Ecology College of Chișinău, the Ecology College of Rîșcani, and Babeș-Bolyai University in Cluj-Napoca, Romania.

The conference was organized and coordinated by Angela Lis, PhD, University Lecturer, Chair of the Organizing Committee. The hybrid format, with online participation via Microsoft Teams, enabled broader access and strengthened national and international academic cooperation.



EDUCATIONAL INNOVATION

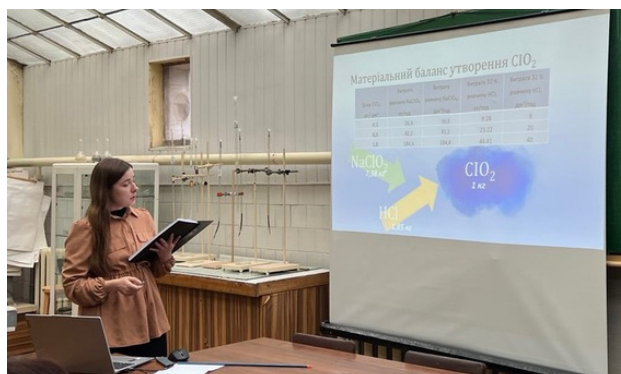


PROSPECTS AND CHALLENGES OF USING ARTIFICIAL INTELLIGENCE IN THE DIGITALIZATION OF WATER EDUCATION

The Department of Chemistry and Technology of Inorganic Substances held a seminar for teachers and students of the master's program "Chemical Technologies of Inorganic Substances and Water Treatment". The seminar was dedicated to the topic: "Problems of Applying Artificial Intelligence in the Digitalization of Water Education". The keynote speaker was Professor Zenovii Znak.

It was emphasized that digitalization plays a key role in modern water quality monitoring, water resource management, and water treatment technologies. It ensures the transition from traditional empirical methods to intelligent management based on the creation of large databases. In particular, the implementation of digital technologies and AI in water system monitoring is part of the AQUAMON research project, initiated by the European Commission. The project will be implemented in five European cities, including Lviv (Ukraine).

The discussion focused on how AI opens new opportunities and prospects in water education. For example, personalized learning based on individual learning paths will improve the quality of understanding interdisciplinary topics. Virtual laboratories and digital twins will allow for the modeling of typical water treatment processes (coagulation, flocculation, disinfection, etc.) and the analysis of various technological factors. Students can also perform scenario analysis for modernization, optimize technological modes, and combine real data with educational simulations to develop engineering analysis skills.



At the same time, significant attention was paid to the problems and limitations of using AI. These include technical constraints (insufficient data on water quality indicators, measurement errors, etc.) and validity (AI can generate formally plausible but incorrect explanations from the perspective of chemical and physical phenomena). Over-reliance on AI by students may negatively affect their analytical thinking, their understanding of calculation algorithms, and their ability to develop technological schemes for water treatment, ultimately lowering the level of engineering training.

Elements of digitalization have already been successfully used in Master's qualification works. For example, student Ilona Sasiuk used them to model the synthesis of chlorine(IV) oxide and its use for water disinfection, while student Roman Piatkovskiy applied them to develop an innovative method for cleaning process water from radioactive elements at a nuclear power plant.

The experience of using digitalization in the educational process convincingly shows that AI will become a key tool for training specialists for intelligent water systems, provided it is combined with classical engineering and laboratory training.



EDUCATIONAL INNOVATION



FROM EXPERTS TO CHANGE LEADERS: A NEW GENERATION OF WATER AND SANITATION SPECIALISTS AT TECHNICAL UNIVERSITY OF MOLDOVA

A period full of emotions and professional satisfaction was recently crowned with the defense of theses at the Faculty of Urbanism and Architecture of the Technical University of Moldova. And these are not just theses. The foundations of a more modern, cleaner and more European Moldova were built, on paper and through expertise.

This success belongs to a group of professionals from the water supply and sewage sector (WSS), who chose to raise their skills to a new level. The program was extensive: 23 specialists with higher technical education graduated from the 12-month professional qualification course, and another 26 colleagues completed the 18-month extended retraining program. Together, they demonstrated that learning has no age limit, transforming technical challenges into concrete solutions for the future of the national infrastructure, including their communities.

In this context, the thesis defense represented not only an academic assessment, but also a validation of the acquired skills and the ability to generate real solutions for the sector.

The program is not just about diplomas, but about resilience and vision. Funded by the "Security of Water Supply and Sanitation in Moldova" (SAASM) project, the course offered specialists the chance to learn from the best professors of UTM, eliminating the barrier of high financial costs thanks to the support of the World Bank.

"This program is a direct investment in the people who maintain and develop water and sanitation services. The knowledge and skills obtained at TUM will have an impact on the correct management of the WSS infrastructure, and this ultimately means better services for citizens," says Vadim CIUBOTARU, SAASM project manager.

Beyond the numbers, behind each thesis was a personal story. For many graduates, the motivation came from the desire to bring about a change in their homeland, where they were born, or in the localities where they now live. Thus, their theses turned into true projects of the soul.

Veronica SAVIN, specialist in monitoring and implementing regional projects, North Regional Development Agency, chose to design the water system for the village of Ocnîța: "The field of water and sanitation is new to me, but I wanted to understand it in order to do my job better. It was a difficult process, but I had the support of my teachers. My theme, the design of the water supply system for the village of Ocnîța, has a personal value: I have relatives there and I wanted with all my heart to contribute to its development."

Valeriu CEPELEAGA, the administrator of "Apă-Canal Cantemir", who designed the networks for the village of Stoianovca, was equally motivated: "The training program was complex and full of challenges, but extremely useful. For my final thesis, I chose to design networks in the village of Stoianovca, the only locality in the vicinity of the city of Cantemir that does not have a centralized system. I am grateful to the professors at UTM for their guidance."

The implementation of this program is the result of the agreement signed in 2023 between the Ministry of Infrastructure and Regional Development, UTM and the "Moldova Apă-Canal" Association. This initiative, part of Subcomponent 2.1 of the SAASM project, aims to strengthen institutional capacity to ensure citizens' access to vital services, at European standards.

Through these programs, the Republic of Moldova is taking concrete steps towards aligning the water and sanitation sector with European practices and requirements.

Whether they attended the 12-month or 18-month courses, these specialists are now the engine of infrastructure modernization. They demonstrate that Moldova's success begins with well-trained people, who combine professionalism with responsibility towards their communities. Congratulations to all graduates!

Link to the news in native language [here](#)

EDUCATIONAL INNOVATION

DIGITAL MODELING OF THE DNIPRO RIVER: USUST STUDENTS APPLY WEAP TO ASSESS WATER QUALITY

Students of the Department of Inorganic Substances Technology and Ecology of Ukrainian State University of Science and Technology (USUST) for the first time modeled the self-treatment processes of the Dnipro River in the WEAP software!

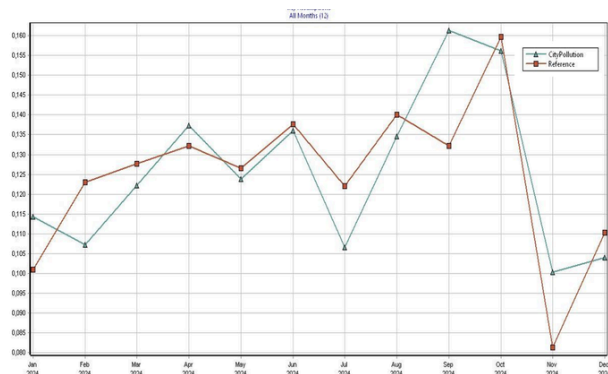
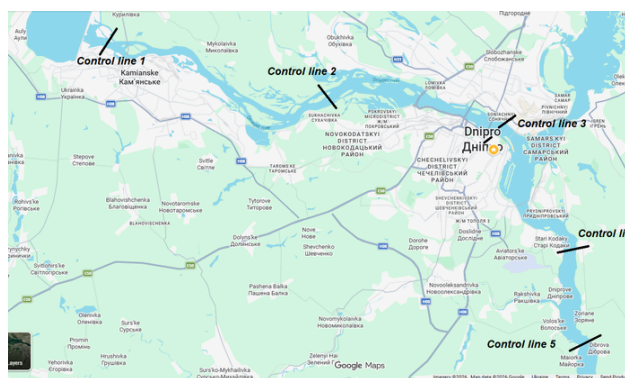
Young researchers used the Water Evaluation And Planning System (WEAP) to analyze the state of the Lower Dnipro sub-basin. The modeling was used to assess the efficiency of biochemical decomposition of organic substances and the dynamics of the main hydrochemical indicators (BOD, COD, dissolved oxygen) before and after the city of Dnipro.

The results showed that in 2024 the level of natural restoration of the aquatic environment is extremely low due to the impact of industrial and municipal wastewater, climate change and the consequences of military operations.

The researchers emphasize the need to modernize treatment facilities, restore coastal ecosystems and apply nature-based solutions to increase the river's ability to self-recover.

The results obtained emphasize the importance of integrated management of Dnipro water resources in accordance with the requirements of the EU Water Framework Directive.

The use of software products for predicting the state of water basins (such as WEAP) is a continuation of the implementation of the results of the international educational project Strengthening digital skills in the water sector higher education under the ERASMUS+ program, in which teachers and students of the USUST participate.



EDUCATIONAL INNOVATION



MODERNIZED CURRICULUM WITH THE APPLICATION OF DIGITALIZATION ELEMENTS, DEVELOPED BY THE MSU TEAM

The team from Moldova State University actively participates in the implementation of the project DIGISKILLS: Strengthening Digital Skills in Higher Education in the Water Sector, within the Erasmus+ Programme, funded by the European Union. The main objective of the project, which involves professors from universities in Norway, Croatia, Romania, Ukraine, and the Republic of Moldova, is to improve the quality of water education in Moldova and Ukraine by developing digital skills and transferring innovative technologies and best practices from EU Member States.

To enhance the capacity for water education at Moldova State University through the implementation of digital content, the MSU team analyzed the curricula of four subjects from Bachelor's and Master's degree programs. The aim was to modernize these courses by introducing contemporary digitalization elements into the subject content, teaching process, and assessment of acquired knowledge.

Within the Bachelor's program Industrial Chemical Technology, the curricula of three disciplines were analyzed and modernized:

- Water Treatment Technologies, course holder Elena Bunduchi, PhD, Associate Professor;
- Standardization and Certification in the Field of Drinking Water and Wastewater Treatment, course holder Angela Lis, PhD, University Lecturer;
- Biochemical Engineering in Wastewater Treatment, course holder Vladislav Blonschi, PhD, University Lecturer.

Within the Master's program Modern Technologies in Cosmetics, Pharmaceuticals, and Environmental Protection, the curriculum of the discipline Monitoring and Forecasts of Water Pollution was revised (course holder Viorica Gladchi, PhD, Professor).

The updated curricula incorporate a wide range of digitalization elements, including interactive teaching tools, virtual and simulated laboratories, specialized software for modeling water treatment and wastewater processes, digital learning platforms, and modern assessment tools that provide continuous feedback to students. These innovations support the development of practical and analytical skills, enhance student engagement, and align academic training with current professional and labor market requirements in the water sector.

The modernized courses will be implemented in the upcoming academic year. Through these efforts, Moldova State University contributes to the training of highly qualified specialists capable of effectively applying digital technologies in water treatment, environmental protection, and sustainable water resource management.

PROJECTS & PARTNERSHIPS



GREENCA OFFICIALLY LAUNCHED: GREENING WATER EDUCATION FOR SUSTAINABLE DEVELOPMENT IN CENTRAL ASIA (PROJECT 101235515)

The Norwegian University of Life Sciences (NMBU) is pleased to announce the launch of GreenCA – Greening water education for sustainable development in Central Asia (Project ID: 101235515), an Erasmus+ Capacity Building in Higher Education initiative funded under the call ERASMUS-EDU-2025-CBHE. The project runs from 01 January 2026 to 31 December 2028 (36 months) and is coordinated by NMBU.

GreenCA responds to the growing need for modern, practice-oriented water education that supports sustainable development, green and circular economy transitions, and stronger climate action in Central Asia. By strengthening higher education systems and cross-border collaboration, the project aims to develop a new generation of professionals equipped to address complex water and energy challenges, while contributing to the reduction of greenhouse gas emissions through improved governance, operational practices, and innovation readiness.

At its core, GreenCA will modernize water-related curricula, support the development of EU-aligned and EU-certified educational pathways, and promote the uptake of European best practices for long-term sustainability. Through capacity building, knowledge exchange, and stronger cooperation between universities and stakeholders, the project will help close identified gaps in water education, improve qualifications and recognition, and expand opportunities for academic and professional mobility between Europe and Central Asia.

Consortium partners

GreenCA is implemented by a consortium of 10 institutions, bringing together expertise from Europe and Central Asia:

EU / associated partners (Norway, Serbia, Poland):

- (Coordinator) Norwegian University of Life Sciences (NMBU)
- UNIVERZITET U NISU
- UNIWERSYTET WARMINSKO MAZURSKI W OLSZTYNIE

Central Asia partners (Kazakhstan, Kyrgyzstan, Tajikistan):

- M AUEZOV SOUTH KAZAKHSTAN STATE UNIVERSITY
- KHOJA AKHMET YASSAWI INTERNATIONAL KAZAKH-TURKISH UNIVERSITY
- MINING AND METALLURGICAL INSTITUTE OF TAJIKISTAN
- TAJIK TECHNICAL UNIVERSITY NAMED AFTER ACADEMICIAN M. OSIMI
- KYRGYZ NATIONAL UNIVERSITY NAMED AFTER JUSUP BALASAGYN
- KYRGYZ STATE TECHNICAL UNIVERSITY NAMED AFTER I. RAZZAKOV
- EXCELLENT EDUCATIONAL CENTRE

By connecting education reform with real-world water challenges, GreenCA strengthens the higher education sector's role as a driver of skills, innovation, and resilient water management—supporting both regional priorities and the European agenda for quality education, green transition, and international cooperation.

PROJECTS & PARTNERSHIPS

NUWEE: PARTICIPATION IN “WATER KNOWLEDGE EUROPE”

Representatives from the National University of Water & Environmental Engineering (Rivne, Ukraine) Martynov S., Head of the Department of Water Supply, Sewage and Drilling, Klimov S., Associate Professor of the Department of Hydraulic Engineering and Hydraulics, Kucherova A., Head of the Grant Projects Department, took part in “Water Knowledge Europe” – a specialized brokerage event of “Water Europe”, which allows participants to establish connections, exchange knowledge and experience, and receive recommendations from EU experts on the successful preparation of project consortia.

The winter event, which took place in Brussels (Kingdom of Belgium), brought together researchers, industry representatives and politicians to plan participation in future competitive proposals of “Horizon Europe” within the framework of the Work Program 2026-2027 and build partnerships that will shape the landscape of water-related research and innovation in the coming years.

In addition to the broker session, there was a rich program of side events. The Water Projects Europe sessions showcased the achievements of EU-funded projects. NUWEE team as SafeCREW project <https://safecrew.org/> partner, had the chance to connect face-to-face with colleagues from affiliated projects who involved in the ZeroPollution4Water Cluster. Dynamic discussions, creative ideas and productive brainstorming, and the opportunity to personally interact with colleagues from different projects will form the basis for future joint project ideas.





Closing Thoughts

As the DIGISKILLS project continues to progress, its impact is becoming increasingly tangible — from modernized curricula and innovative digital tools to student-led research and international academic cooperation. Across classrooms, institutions, and borders, digital skills are actively shaping a new generation of water and environmental professionals in Moldova and Ukraine.

Thank you for being part of this shared mission. Together, we are strengthening the link between education, digital innovation, and sustainable water management. Stay tuned for more updates, success stories, and opportunities to get involved!

Digital Technologies

Applying modern digital tools, equipment, and software in water technology education.

Innovative Teaching

Using simulations, visualizations, and best pedagogical practices to enhance learning experiences.

Skills & Education Modernisation

Updating curricula and infrastructure to improve student competencies and align education with industry needs.



National University of
Water and Environmental
Engineering

