



**KHARKIV NATIONAL AUTOMOBILE AND HIGHWAY UNIVERSITY**



## **Department of Chemistry and Chemical Technology**

The Department of Chemistry and Chemical Technology of Kharkiv National Automobile and Highway University is a modern academic and research hub that combines deep-rooted traditions of fundamental chemical education with innovative approaches to solving applied engineering challenges.

The department offers Bachelor's degree training in the specialty **G1 "Chemical Technologies and Engineering"**, within the educational and professional program **"Chemical Technologies in Construction"**.

The educational process is carried out by highly qualified faculty members, including Doctors of Science, Professors, Candidates of Technical and Chemical Sciences, and Associate Professors. The department actively develops scientific research in the fields of advanced materials, waste recycling technologies, eco-friendly reagent synthesis, nanotechnologies, and energy-efficient chemical processes.

Students take an active part in academic clubs, student research competitions, subject olympiads, and international projects. Starting in 2025, the department will organize an Annual International Student Research Competition titled "Restoration of Ukraine's Transport Infrastructure: Global Experience", with Section 6: "The Chemical Component of Transport Infrastructure Recovery: Synthesis and Application of New Technologies and Materials."

The department also participates in inter-university academic mobility programs, expanding opportunities for international collaboration.

Close partnerships with enterprises in the chemical industry allow students to complete internships, carry out diploma projects based on real production tasks, and receive guaranteed employment after graduation.

The department's priorities include sustainable development, environmental safety, and the integration of science and engineering to create the chemical technologies of the future.

For more information on staff profiles and publications, visit the Teaching Staff of the Department webpage.

To receive additional information and communicate on potential cooperation, please contact the following email:

- Department Email: [chemistry@khadi.kharkov.ua](mailto:chemistry@khadi.kharkov.ua)
- Head of Department Tetiana Nenastina: [nenastina@ukr.net](mailto:nenastina@ukr.net)

## RESEARCH AND TEACHING STAFF

Full name of the employee, position, academic degree and academic rank	Courses taught by the employee	Research area	ORCID ID	SCOPUS ID
1	2	3	4	5
<b>NENASTINA TETIANA</b> , Head of the Department, Professor, Doctor of Thematic Sciences	<ul style="list-style-type: none"> <li>- Chemistry;</li> <li>- Processes and Apparatus of Chemical Technologies;</li> <li>- Physical and Colloidal Chemistry;</li> <li>- Corrosion.</li> </ul>	<ul style="list-style-type: none"> <li>- Electrochemical Synthesis of Alloys and Composites;</li> <li>- Photocatalytic Properties of Nanostructured Coatings;</li> <li>- Mathematical Modeling of Electrodeposition Processes;</li> <li>- Development of Environmentally Friendly Technologies.</li> </ul>	<a href="https://orcid.org/0000-0001-6108-4023">https://orcid.org/0000-0001-6108-4023</a>	<a href="https://www.scopus.com/authid/detail.uri?authorId=25225518300">https://www.scopus.com/authid/detail.uri?authorId=25225518300</a>
<b>KHOBOTOVA ELINA</b> , Professor, Doctor of Chemical Sciences	<ul style="list-style-type: none"> <li>- Human ecology;</li> <li>- Radioecology and Fundamentals of Ecological Toxicology;</li> <li>- General and Inorganic Chemistry,</li> <li>- Resource saving in production and safety of materials based on mineral binders.</li> </ul>	<ul style="list-style-type: none"> <li>- Technically useful properties of industrial waste with the aim of creating low-waste technologies and waste utilization in the construction industry;</li> <li>- Radiochemical and toxicological studies of industrial waste as components of technogenically modified radiation background.</li> </ul>	<a href="https://orcid.org/0000-0001-6377-5186">https://orcid.org/0000-0001-6377-5186</a>	<a href="https://www.scopus.com/authid/detail.uri?authorId=6602901694">https://www.scopus.com/authid/detail.uri?authorId=6602901694</a>

1	2	3	4	5
<b>EGOROVA LILYA</b> , Associate Professor, PhD in Chemistry	<ul style="list-style-type: none"> <li>- Chemistry;</li> <li>- General Chemical Technology;</li> <li>- Organic Chemistry.</li> </ul>	<ul style="list-style-type: none"> <li>- Anodic dissolution of copper alloys;</li> <li>- Selective dissolution of beryllium bronze in different electrolytes;</li> <li>- Research of spent etching solutions and development of methods for their regeneration.</li> </ul>	<a href="https://orcid.org/0000-0003-3491-6335">https://orcid.org/0000-0003-3491-6335</a>	<a href="https://www.scopus.com/authid/detail.uri?authorId=56096079800">https://www.scopus.com/authid/detail.uri?authorId=56096079800</a>
<b>DATSENKO VITA</b> , Associate Professor , PhD in Chemistry	<ul style="list-style-type: none"> <li>- Chemistry;</li> <li>- Analytical Chemistry;</li> <li>- Chemistry with Fundamentals of Biogeochemistry;</li> <li>- Computer Technologies in Engineering Chemistry.</li> </ul>	<ul style="list-style-type: none"> <li>- Technically useful properties of waste from galvanic production;</li> <li>- Synthesis of copper-zinc ferrite materials and study of their effectiveness for purifying water from organic compounds.</li> </ul>	<a href="https://orcid.org/0000-0001-8331-8863">https://orcid.org/0000-0001-8331-8863</a>	<a href="https://www.scopus.com/authid/detail.uri?authorId=7005278577">https://www.scopus.com/authid/detail.uri?authorId=7005278577</a>

*The specialty "Chemical Technologies and Engineering" within the specified educational and professional program* provides an opportunity to prepare highly qualified bachelors in chemical technologies in construction, with a formed complex of knowledge, skills and abilities, general and special competencies for application in professional activities in the field of chemical technologies and engineering in the field of construction. A similar result was achieved by optimizing the training curriculum, which includes such professionally oriented disciplines as "Chemical processes in the production of building materials", "Technology of structural materials and materials science", "Fundamentals of designing production of inorganic and organic binders and composite materials", "Resource saving in production and safety of materials based on mineral binders".

Future specialists are able to apply theories and methods of sciences related to chemical technologies, which are characterized by interdisciplinarity, are able to solve specialized tasks and practical problems related to the use of chemicals in construction and the development, production and research of materials and products based on them, as well as relevant technological processes in construction. The preparation of bachelor's degree graduates is based on an active secondary school and is focused on developing the competencies of work in road traffic, which creates the minds for further training.

*Specialists* trained within the framework of the specified educational program are in demand in production, science and education. They can work as engineers and technologists at enterprises of the chemical industry and production of building materials, in chemical laboratories, research institutions, as teachers in schools and colleges. When continuing their education in master's and postgraduate programs, teaching activities in higher educational institutions are possible.

---

***Draft Working Program for Cooperation between the Department of Chemistry and Chemical Technology of Kharkiv National Automobile and Highway University (KhNAHU, Ukraine) and a Partner Department of Material Engineering and Chemistry at the Czech Technical University in Prague (CTU, Czech Republic)***

Given the shared academic and research interests in chemical technologies, sustainable materials, and environmental safety, we propose the following directions for collaboration as part of a **Working Cooperation Program**, with the following goals:

- To establish a strategic partnership and build capacity in higher education and applied research focused on chemical technologies in construction, sustainable materials, and environmental protection.
  - To promote academic exchange of students and faculty aimed at strengthening competencies in:
    - development of eco-friendly construction materials,
    - circular economy and waste valorization,
    - green chemistry,
    - nanotechnology in construction chemistry,
    - environmental monitoring and safety,
    - and sustainable industrial chemistry practices.
  - To develop joint research projects and scientific publications in overlapping fields of interest.
-

### **Joint Research Activities**

Both departments will cooperate in the following research directions:

- Development of advanced eco-friendly building materials based on industrial by-products and nanocomposites.
  - Chemical recycling technologies and material recovery from industrial and construction waste.
  - Chemical safety and environmental impact assessment of materials used in transport infrastructure.
  - Simulation and digital modeling of chemical processes in the production of construction compounds.
  - Energy-efficient and low-emission chemical technologies in the construction sector.
  - Green synthesis of functional materials for civil and transport engineering needs.
- 

### **Educational Cooperation**

Both institutions will collaborate on the following educational initiatives:

- Alignment of curricula to support joint programs and mutual credit recognition.
  - Implementation of guest lectures and joint seminars by faculty members to share best practices and expertise.
  - Development of joint workshops and laboratory projects.
  - Creation of a joint practical and digital course.
  - Application for joint participation in Erasmus+ mobility programs (KA1) and Capacity-Building Partnerships (KA2).
- 

### **Student and Staff Mobility Program**

- Student mobility in both physical and virtual formats with access to lab work, group projects, and short-term internships.
  - Faculty mobility through short-term teaching and research visits, supported by bilateral agreements or Erasmus+ grants.
-

### **Funding Opportunities**

- Joint development of grant proposals for international mobility, research collaboration, and educational innovation (e.g., Erasmus+ KA1, KA2, Horizon Europe, Visegrad Fund).
- Exploration of joint pilot projects in sustainability, digital transformation in chemical education.

This collaboration between the Department of Chemistry and Chemical Technology at KhNAHU and a partner ***Department of Material Engineering and Chemistry*** at CTU Prague will foster academic excellence, strengthen European cooperation, and promote the integration of sustainable practices and digital innovation in the field of chemical and environmental engineering.