

Profile of the educational programme in “Environmental Protection Technology” in specialty “Environmental Protection Technology”

1 – General information	
Full name of higher educational institution	O. M. Beketov National University of Urban Economy in Kharkiv
Higher education degree and the title of qualification in the original language	Bachelor in Environmental Protection Technology Бакалавр з технологій захисту навколишнього середовища
Official title of the educational programme	Environmental Protection Technology
Type of diploma and the scope of the educational programme	Bachelors’ Degree, singular, 240 ECTS credits, terms of study – 3 years and 10 months
Accreditation certificate	Ministry of Education and Science of Ukraine, Accreditation Certificate УД № 21008295, valid till 01.07.2028
Cycle/level	The first (bachelors’) degree NQF of Ukraine – the 6th level FQ-EHEA – the 1st cycle EQF-LLL – the 6th level
Admission requirements	High school degree Common terms of entrance issued by the national higher education authority
Language (s) of teaching	Ukrainian
Duration of the educational programme	5 years
Internet address of permanent placement of the educational programme description	http://ecology.kname.edu.ua/
2 – Object of the educational programme	
Training the specialists capable to solve practical problems and complex specialized tasks in choosing and implementation of environmental protection technologies for securing sustainable development of cities, communities and regions.	
3 – Description of the educational programme	
Subject area	<i>Object:</i> technological processes and environmental components. <i>Learning objectives:</i> formation of general and professional competences necessary for solving environmental problems <i>Theoretical content of the subject area:</i> Fundamental theories and methodology of natural sciences and engineering, principles of eco-centrism and environmental imperative, interdisciplinary concepts of

	<p>sustainable development, complexity and a systems approach, life cycle analysis at assessing the state of the environment; basic terms and principles of environmental design and functioning; the essence and parameters of technological processes; principles of innovation and improvement of existing environmental protection technologies; rules of applying actual legislation and norms.</p> <p><i>Methods, techniques and technologies:</i> methods of modelling systems and processes of technogenic and ecological safety, theoretical and laboratory research, qualitative and quantitative chemical, physical, physicochemical, biological, microbiological methods, and methods of designing environmental protection systems and technologies.</p> <p><i>Equipment and tools:</i> modern technological and laboratory equipment, computers and software.</p>
Orientation of the educational programme	Applied Professional Education
The key focus of the educational programme and specialization	<p>The degree programme is a general (basic) higher education one in the environmental protection technologies.</p> <p><i>Key words:</i> environmental protection, rational use of nature resources, technological and environmental safety, environmental engineering, urban environment.</p>
Features of the programme	<p>The programme aims at training the specialists capable of choosing, developing and implementing proper environmental protection technologies, with a particular interest to functioning and development of urban-industrial agglomerations.</p> <p>The programme is based on the extensive use of outcomes of national and international research projects focusing on monitoring various components of urban ecosystems and technologies for their protection, in which the Department of Urban Environmental Engineering & Management has been taking part.</p>
4 – Graduate employability and further academic education	
Employability	<p>Alumni graduated as Bachelors in Environmental Protection Technology are able to perform the following jobs according to the State Job Classifier (ДК 003:2010):</p> <p>3119 – Technicians in the fields of physical sciences and engineering;</p> <p>3211 – Laboratory assistants in life sciences:</p> <ul style="list-style-type: none"> - Environmental technician; <p>3212 –junior fellows in agronomy, forestry, water resources management and nature reserve management:</p> <ul style="list-style-type: none"> - Water resource use officer; - Environmental protection officer; <p>3439 – Other technicians in the field of management:</p> <ul style="list-style-type: none"> - Technology and environment procurement officer; <p>3449 - State controllers:</p> <ul style="list-style-type: none"> - State inspector; - State inspector on civil defence and technology safety
Further academic education	<p>Earning the Masters’ Degree</p> <p>Other postgraduate education</p>
5 – Instruction and assessment	
Instruction and learning	Student-centred learning, independent learning, learning by doing, distant learning

Assessment	Written exams, differentiated tests, reports from practical training, presentations on individual assignments, public defence of bachelor's thesis.
6 – Programme competences	
Integral competence	To be able to solve complex specialized problems and to solve practical problems of technical and technological nature in the field of ecology, environmental protection, balanced nature management, in the learning process, involving the application of theoretical foundations and methods of environmental protection technologies, and characterized by complexity and uncertainty of conditions.
General competences (GC) defined by the standard of higher education of the specialty	<p>GC01. To be able to abstract thinking, analysis and synthesis.</p> <p>GC02. Knowledge and critical understanding of the subject area and professional activity.</p> <p>GC03. To be able to communicate in a foreign language.</p> <p>GC04. Skills in the use of information and communication technologies.</p> <p>GC05. To be able to make informed decisions.</p> <p>GC06. . To be able to develop and manage projects.</p> <p>GC07. The desire to preserve the environment and ensure the sustainable development of society.</p> <p>GC08. To be able to exercise one's rights and responsibilities as a member of society, to realize the values of civil (free democratic) society and the need for its sustainable development, rule of law, human and civil rights and freedoms in Ukraine.</p> <p>GC09. To be able to preserve and multiply moral, cultural, scientific values and achievements of society based on understanding the history and patterns of development of the subject area, place in the general system of knowledge about nature and society and in the development of society, techniques and technologies, to use different types and forms of physical activity for active recreation and healthy living.</p>
Professional competences of the specialty (PC) defined by the standard of higher education of the specialty	<p>PC01. To be able to prevent environmental pollution and crisis phenomena and processes.</p> <p>PC02. To be able to substantiate, select, calculate, design, modify, prepare for work and use modern machinery and equipment for protection and rational use of air and water environments, land resources, waste management.</p> <p>PC03. To be able to conduct observations and instrumental and laboratory control of the environment, the impact of external factors, with sampling of natural components.</p> <p>PC04. To be able to control pollution of the air basin, water bodies, soil cover and geological environment.</p> <p>PC05. To be able to develop methods and technologies for waste management and recycling.</p> <p>PC06. To be able to design systems and technologies for environmental protection and ensure their functioning.</p> <p>PC07. To be able to control (placement and disposal) waste.</p> <p>PC08. To be able to ensure environmental safety.</p> <p>PC09. To be able to assess the impact of industrial and other economic activities on the environment.</p>

7 – Programme learning outcomes

Programme learning outcomes defined by the standard of higher education of the specialty

PR01 To comprehend modern theories, approaches, principles of environmental policy, fundamentals of Biology, Chemistry, Physics, Math, Biotechnology, as well as special and applied engineering disciplines for modelling and solving specific environmental tasks in manufacturing.

PR02 To be able to process foreign sources in order to obtain information necessary for solving environmental protection tasks.

PR03 To be able to use information technologies and communication networks in environmental protection activity.

PR04 To be able to justify environmental technologies, based on understanding the mechanisms of human impact on the environment and the processes that occur in it.

PR05 To be able to develop environmental protection projects and manage their implementation.

PR06 To justify and utilise both natural and artificial systems and processes in environmental protection technologies following the environmental imperative and the concept of sustainable development.

PR07 To implement scientifically sound technical, technological and organizational measures to prevent environmental pollution..

PR08 To be able to demonstrate skills in selection, planning, designing and calculating performance parameters of certain equipment, facilities and technologies of environmental protection, by applying the knowledge on physical and chemical properties of environmental pollutants, parameters of technological processes and environmental quality norms.

PR09 To be able to carry out observations, instrumental and laboratory control of environmental quality, ensure internal control on environmental protection equipment at industries on the base of acquired knowledge on modern measurement techniques and modern measuring equipment and apparatuses together with the use of relevant technical guidelines and norms.

PR010 To be able to apply knowledge on control and assessment of pollution and industrial emissions, to analyse their dynamics and changes in relation to environmental conditions and technologies of cleaning the components of the environment.

PR011 To be able to apply knowledge on selection and justifying technologies of waste collection, sorting, storing, transportation, removal, sanitation, utilisation, and prevention, to assess their impacts on the quality of the environment, living conditions and human safety.

PR012 To be able to select engineering measures to protect the environment, search for innovative technical, technological and organisational solutions aiming at implementation into production prospective environmental protection developments and modern equipment, to analyse pathways of improvement of existing environmental protection and restoration technologies for securing environmental safety.

PR013 To be able to apply basic patterns of safe, resource-efficient, and environment-friendly technologies to environmental management, via environmental management and auditing systems according to international standards, as well.

PR014 To be able to justify the degree of conformity of actual or

	<p>forecasted environmental conditions to the objectives of environmental protection and restoration.</p> <p>PR015 To be able to implement environmental protection technologies for solving complex environmental problems of cities, communities and regions.</p> <p>PR016 To comprehend peculiarities of functioning of urban-industrial agglomerations and to integrate these into environmental protection activity.</p>
8 – Resource support for programme implementation	
Staffing	<p>All teaching staff members possess qualifications and skills sufficient and relevant to the courses they teach under the Degree Programme.</p> <p>The degree programme is supported by qualified staff of the graduate Department of the Urban Environmental Engineering & Management including Full Professors, D.Sc, Associate Professors, Ph.D holders.</p> <p>All learning courses are taught by experienced teachers who are regularly improving their skills by participating in research projects, scientific conferences and seminars, trainings and internships at leading universities and research institutions both in Ukraine and abroad.</p>
Material and technical support	<p>Material and technical support of the degree programme satisfies the licensing requirements and provides for effective training of learners.</p> <p>The curriculum is supported with multimedia-equipped classrooms, computer classes, study laboratories (the Analytical Chemistry Laboratory, Felix Stolberg Memorial Laboratory of Urban Environmental and Energy Safety with two sections - the Environmental Monitoring and the Building Heat and Energy Efficiency ones). The laboratory equipment includes both stationary and portable devices. Curriculum is supported by audio-visual means of teaching and learning including lecture presentations, posters, diagrams, tables, layouts, samples, specimens, and collections, as well as by relevant technical and technological equipment.</p>
Information, educational and methodological support	<p>All educational components are provided with teaching materials posted in the relevant courses on the Moodle distance learning platform (lecture notes, guidelines for practical and independent work of students, hand-outs, internship programs, etc.) and in the NUUEK's electronic repository.</p> <p>Learners have free access to modern professional literature and periodicals stored in the collection of the Scientific Library of the O.M. Beketov NUUEK; the Scopus and Web of Science databases; <i>SpringerLink</i>, <i>ScienceDirect</i> resources from the Elsevier Publishing House, in particular on the ScienceDirect platform - up to almost 40,000 electronic periodicals and a collection of more than 2,000 recently published electronic monographs-</p> <p>The university has an official website where all important information is distributed, Students and teachers have access to the corporate system and the World Wide Web.</p>
9 – Academic mobility	
National credit mobility	<p>Students can participate in the national credit mobility programmes at universities providing for bachelors' degree programme in Environmental Protection Technology according to the O.M. Beketov NUUEK's Regulations on academic mobility of undergraduate, graduate and post-graduate students, research and teaching staff</p>

International credit mobility	Students have a possibility to participate in international academic mobility programmes under current international academic mobility agreements at the University of Architecture, Construction and Geodetics (Bulgaria), Technical University of Varna (Bulgaria), Lublin Polytechnics (Poland), Warsaw University of Technology (Poland), Higher School of Occupational Safety in Katowice (Poland), Technical University in Košice (Slovak Republic)
Training of foreign applicants for higher education	According to the Rules of Admission to the O.M. Beketov NUUEK.