

Profile of the educational program

General information	
The official name of the educational program	Hydrotechnical Construction, Water Engineering and Water Technologies
Specialty	194 Hydrotechnical Construction, Water Engineering and Water Technologies
Branch of knowledge	19 Architecture and Construction
Higher education degree and title in the original language	Master's, Master's Degree in Hydrotechnical Construction, Water Engineering and Water Technologies
Type of diploma and scope of educational program	Master's Degree, single, 90 ECTS credits, term of study 1 year 4 months
Accreditation availability	Ministry of Education and Science of Ukraine Accreditation Certificate Series No. 21008768 The certificate is valid until July 1, 2024.
Cycle / level	Second (master's) level NQF of Ukraine - level 8 FQ-EHEA - second cycle EQF-LLL - Level 7
Entry level education requirements	Bachelor's, specialist's degree; general rules for entry requirements
Language (s) of teaching	Ukrainian
Duration of the educational program	5 years
Internet address of permanent placement of educational program description	https://vvov.kname.edu.ua
The purpose of the educational program	
Training of highly qualified and competitive specialists in a field of hydraulic engineering, water engineering and water technologies, able to solve specialized problems in practical, scientific, research and innovation areas of professional activity.	
Characteristics of the educational program	
Subject area	<p><i>Objects of study and professional activity:</i> structure and processes of creation, functioning and research of hydraulic, water-ameliorative natural-technogenic systems and complexes.</p> <p><i>Learning objectives:</i> to acquire an ability to solve complex specialized problems and practical problems that involve research and / or innovation, and are characterized by complexity and uncertainty of conditions and requirements in a field of hydraulic engineering, water engineering and water technology or in a learning process.</p> <p><i>Theoretical content of the subject area:</i> concepts, categories, principles of hydraulic engineering, water engineering and water technologies.</p> <p><i>Methods, techniques and technologies:</i> methods of collecting, processing and interpreting information; methods of engineering calculations, field and laboratory research; technologies of construction, operation and reconstruction of objects of professional activity.</p>

	Tools and equipment: instruments, equipment, hardware and software required for field, laboratory and remote research by type of professional activity.
Orientation of the educational program	Educational and professional
The main focus of the educational program and specialization	Professional training to solve specialized problems in a field of hydraulic engineering, water engineering and water technologies, designing, management, operation and reconstruction of water management systems and facilities. <i>Key words:</i> water engineering, water technologies, hydraulic engineering construction, water purification
Features of the program	The program provides for higher education students to acquire competencies necessary for designing, management, operation and reconstruction of water management systems and facilities. The list of selective educational components is expanded and adapted in accordance with industry and labor market trends.
Suitability of graduates to employment and further education	
Suitability for employment	Graduates of the program are able to perform professional work under the codes DK 003: 2010: 1221.1 Chief specialists - heads of production units in water management 1221.2 Chiefs (other managers) and masters of production units in water management 1311 Managers of small enterprises without management in water management 1411 Managers in water management 1439 Managers in other areas of manufacturing and in production of electricity, gas and water 1494 Managers of ecological systems 2142.2 Engineers in field of civil engineering 2149.2 Engineers (other branches of engineering) 2213.1 Researchers (water management)
Further training	Opportunity to study according to program of the third (educational-scientific) level of higher education and acquisition of additional qualifications in a system of adult education
Teaching and assessment	
Teaching and learning	Student-centered learning, problem-oriented learning, lectures, practical classes, laboratory work, independent work, consultations, project work, preparation of qualifying work. Teaching methods: problem-solving, illustrations and demonstrations, partial search, research, practical.
Evaluation	Types of control: current, modular, final. Forms of control: oral and written questioning, including exams; test tasks, including computer testing in Moodle system; laboratory reports; presentations; defense of term papers and projects, reports on practices; Certification: public defense of qualification work.
Program competencies	
Integral competence (IC)	Ability to solve complex problems and problems in a field of hydraulic engineering, water engineering and water technology in professional activities or in a process of training, involving research and / or innovation, and is characterized by complexity and uncertainty of conditions and requirements.

General competencies (GC)	<p>GC1. Ability to make informed decisions.</p> <p>GC2. Ability to generate new ideas (creativity).</p> <p>GC3. Ability to communicate in foreign languages both orally and in writing.</p> <p>GC4. Ability to search, process and analyze information from various sources.</p> <p>GC5. Ability to motivate people and move towards a common goal.</p>
Special (professional) competencies (PC)	<p>PC1. Ability to apply methods of mathematics, natural and technical sciences, as well as specialized computer software to solve engineering problems of hydraulic engineering, water engineering and water technology.</p> <p>PC2. Ability to use principles, methods and organizational procedures of research and / or innovation.</p> <p>PC3. Ability to forecast needs of consumers in water resources and anthropogenic pressure on water bodies, to develop schemes for integrated use and protection of water, to organize rational use of water resources.</p> <p>PC4. Ability to model water flows and hydraulic structures, to determine hydrodynamic and other loads on structural elements of professional activities and to assess their stability.</p> <p>PC5. Ability to develop and implement projects in a field of hydraulic engineering, water engineering and water technology, including river basin management plans, as well as related interdisciplinary projects.</p> <p>PC6. Ability to manage strategic development of a team in a process of professional activity.</p> <p>PC7. Ability to justify a choice and determine rational parameters of structures and technological schemes of objects of professional activity.</p> <p>PC8. Ability to develop and implement innovative economically, energy- and resource-efficient water technologies.</p> <p>PC9. Ability to inspect a technical condition of professional activities.</p> <p>PC10. Ability to monitor and predict floods, to develop measures to minimize risks of harmful effects of water.</p> <p>PC11. Ability to analyze technological regulations of operation and selection of design solutions for water management processes of industrial enterprises.</p> <p>PC12. Ability to develop and manage measures to reduce an anthropogenic impact of water sector participants on water bodies and environment.</p>
Program learning outcomes	
Programmatic learning outcomes (PLO)	<p>PLO01. To set and solve innovative / scientific problems and problems of hydraulic engineering that needs updating and integration of knowledge, including in conditions of incomplete / insufficient information and contradictory requirements.</p> <p>PLO02. To plan and perform research, analyze their results and substantiate conclusions.</p> <p>PLO03. To build and research physical, mathematical and computer models of objects and processes of hydraulic engineering, water engineering and water technologies using appropriate methods and specialized software.</p> <p>PLO04. To develop schemes of complex use and protection of waters, plans of management of river basins, to organize rational use of water resources.</p> <p>PLO05. To identify causes and consequences of harmful effects of water, apply appropriate methods of flood protection of settlements, agricultural</p>

	<p>lands and other areas, develop and implement programs to manage risks of ecosystems flooding, natural and anthropogenic landscapes.</p> <p>PLO06. To apply hydro- and geo-information technologies, modern methods of modeling, calculation and design of objects of professional activity to solve complex problems of hydraulic engineering, water engineering and water technologies.</p> <p>PLO07. To organize collective work in planning and implementation of projects for construction of professional activities, their repair, reconstruction and liquidation, taking into account available resources and time constraints, as well as technical, economic, legal and environmental aspects.</p> <p>PLO08. To identify technologies and develop comprehensive measures for rational use, protection and reproduction of water resources, improving hydrological and environmental status of water bodies.</p> <p>PLO09. To make effective decisions in conditions of incomplete / insufficient information and conflicting requirements, analyze alternatives, build forecasts, assess risks.</p> <p>PLO10. To communicate fluently in state and foreign languages on scientific, engineering and industrial issues in a field of hydraulic engineering, water engineering and water technology, presentation of research results and projects, argumentation of their position, discussions on professional issues.</p> <p>PLO11. To organize determination of technical condition of objects of professional activity and draw appropriate conclusions based on its analysis.</p> <p>PLO12. To convey clear and unambiguous one's own conclusions on problems of hydraulic engineering, as well as knowledge and explanations that substantiate them, to specialists and non-specialists, in particular to students.</p> <p>PLO13. To research and improve technological processes during designing and maintenance of water facilities of industrial enterprises.</p> <p>PLO14. To select effective technical solutions and develop programs of measures to reduce negative effects of anthropogenic activities on water bodies and the environment, to manage its implementation.</p>
Resources for program implementation	
Staffing	All scientific and pedagogical workers have qualifications according to educational components, experience of practical and scientific and pedagogical activity, regularly improve their qualification through participation in scientific projects, conferences, internships in institutions of Ukraine and foreign countries.
Logistics	Logistics of the educational program meets the requirements and provides an opportunity for effective training of applicants. In educational process, specialized laboratories are used, equipped with multimedia installations, models, laboratory equipment for laboratory work: "Water purification technologies", "Water supply and drainage"; "Engineering hydraulics and pumps".
Information and training support	Educational components are provided with teaching materials posted in relevant courses on distance learning platform Moodle https://dl.kname.edu.ua/ . Applicants have free access to modern professional literature and periodicals, Scopus and Web of Science databases, Springer resources, ScienceDirect database from Elsevier publishing house, scientific library http://library.kname.edu.ua/index.php/uk/ , electronic repository http://eprints.kname.edu.ua .

Academic mobility	
National Credit Mobility	In accordance with the Regulations on Academic Mobility of Students, Graduate Students, Doctoral Students, Research Teachers and Researchers of O.M. Beketov NUUE
International credit mobility	Opportunity to participate in international credit mobility programs under agreements on international academic mobility of O.M. Beketov NUUE
Training of foreign higher education applicants.	In accordance with Admission Regulations to O.M. Beketov NUUE