

Profile of the educational program

General information	
The official name of the educational program	Water Supply and Sewerage
Specialty	192 Building and Civil Engineering
Branch of knowledge	19 Architecture and construction
Higher education degree and title in the original language	Master's, Master's Degree in Building and Civil Engineering
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 Certificate of Accreditation Series No. 2190239 Valid until July 1, 2023
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 for practical, scientific, research and innovation activities in a field of construction and civil engineering, water supply and sewerage, able to solve complex specialized problems characterized by uncertainty of conditions and requirements.	
Characteristics of the educational program	
Subject area	<p>Objects of study and activity: scientific bases, technologies, objects and constructions, processes of designing, creation, operation, storage and reconstruction of construction objects and engineering systems.</p> <p>The purpose of training: formation of higher education students with a set of knowledge, skills and abilities necessary to solve complex engineering and / or research problems and problems in a field of construction and civil engineering.</p> <p>Theoretical content of the subject area: concepts, principles, methods and techniques of creation and maintenance of construction objects and engineering systems.</p> <p>Methods, techniques and technologies: experimental methods of research of materials and processes, methods of physical and mathematical modelling, designing methods, technologies of objects and engineering systems construction.</p>

	Instruments and equipment: experimental measuring equipment, hardware and software required for field, laboratory and remote sensing in construction and civil engineering.
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 construction and civil engineering, design, operation and modernization of water supply systems, drainage, water treatment processes and wastewater treatment. <i>Keywords:</i> water supply, drainage, water purification, water treatment, resource saving
Features of the program	The program provides for acquisition by graduates of competencies that are necessary for designing, operation and modernization of water supply, sewerage, water treatment. 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 the production of electricity, gas and water 1494 Managers of ecological systems 2142.2 Construction engineers 2149.2 Engineers (other branches of engineering)
Further training	Opportunity to continue education at the third educational and scientific level of higher education and to acquire 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 research and / or innovation problems in a field of construction and civil engineering.
General competencies (GC)	GC01. Ability to abstract thinking, analysis and synthesis. GC02. Ability to conduct research at appropriate level. GC03. Ability to adapt and act in a new situation. GC04. Ability to make informed decisions. GC05. Ability to evaluate and ensure the quality of work performed. GC06. The desire to preserve environment.

<p>Special (professional) competencies (PC)</p>	<p>PC01. Ability to integrate specialized conceptual knowledge in a field of construction and civil engineering, combined with compliance with current regulations in a field of architecture and construction, to solve complex engineering problems in accordance with a specialization.</p> <p>PC02. Ability to develop and implement projects in a field of construction and civil engineering.</p> <p>PC03. Ability to ensure safety in management of complex processes in a field of construction and civil engineering.</p> <p>PC04. Ability to conduct surveys, tests, diagnostics and calculations in solving problems in a field of construction and civil engineering.</p> <p>PC05. Ability to build and research models of situations, objects and processes of construction and civil engineering.</p> <p>PC06. Ability to use existing computer programs in construction in solving complex engineering problems in the field of construction and civil engineering.</p> <p>PC07. Ability to convey their own knowledge, conclusions and arguments clearly and unambiguously to specialists and non-specialists in a construction industry.</p> <p>PC08. Ability to integrate knowledge from other fields to solve complex problems in broad or multidisciplinary contexts.</p> <p>PC09. Ability to understand theoretical and applied bases and scope of modern methods and technologies of natural and wastewater treatment, to determine water quality indicators.</p> <p>PC10. Ability to introduce modern advanced technologies and research results during designing of technological schemes for natural and wastewater treatment.</p>
<p>Program learning outcomes</p>	
<p>Programmatic learning outcomes (PLO)</p>	<p>PLO01. To design buildings and structures (according to specialization), including use of computer-aided design systems, in order to ensure their reliability and durability, rational design and technical decisions, feasibility studies, taking into account characteristics of a construction object, definition optimal mode of its operation and implementation of resource and energy saving measures.</p> <p>PLO02. To apply specialized conceptual knowledge, including modern scientific achievements, as well as a critical understanding of modern problems in a field of construction and civil engineering to solve complex problems of professional activity.</p> <p>PLO03. To conduct technical examination of construction projects and civil engineering (according to specialization), monitoring compliance of projects and technical documentation, design tasks, specifications and other applicable regulations in a field of architecture and construction.</p> <p>PLO04. To perform operation, maintenance and quality control of construction and civil engineering facilities.</p> <p>PLO05. To communicate fluently in state and foreign languages orally and in writing to discuss professional issues and results in architecture and construction.</p> <p>PLO06. To apply modern mathematical methods for analysis of statistical data, calculation and optimization of design parameters and technological processes of construction of buildings and structures.</p> <p>PLO07. To develop measures for labor and environmental protection in research and production activities.</p> <p>PLO08. To track the latest achievements in the chosen specialization, use them to create innovations.</p>

	<p>PLO09. To select modern materials, technologies and methods of construction production process, taking into account architectural and planning, structural part of the project and base of the construction organization.</p> <p>PLO10. To collect necessary information using scientific and technical literature, databases and other sources, analyze and evaluate it.</p> <p>PLO11. To adhere to norms of academic integrity, know basic legal norms for protection of intellectual property, commercialization of research, inventive and design activities.</p> <p>PLO12. Ability to solve problems of construction and civil engineering in new or unfamiliar environments with incomplete or limited information, considering aspects of social and ethical responsibility.</p> <p>PLO13. To know advanced modern methods and technologies of natural and wastewater treatment, their theoretical and applied bases and features of practical implementation, research and analyze water quality.</p> <p>PLO14. To assess a feasibility and justify a possibility of using options for technical solutions for natural and wastewater treatment, including on basis of research.</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