Profile of the Educational Program

1 − General information	
Full name of the institution of higher education	O.M. Beketov National University of Urban Economy in Kharkiv
The official name of the educational program	Chemical Technology and Engineering
Specialization	161 Chemical Technology and Engineering
Area of expertise	16 Chemical and Bioengineering
Degree of higher education and title of qualification in the original language	Bachelor in Chemical Technology and Engineering
Type of diploma and scope of the educational program	Bachelor's Diploma, single, 240 ECTS credits, term of study 3 year 10 months
Accreditation availability	Not accredited (introduced in 2020)
Cycle / level	First (bachelor's) level NQF of Ukraine − level 6 FQ-EHEA − First cycle EQF-LLL –6 level
Requirements for the level of education of the entrant	Availability of complete general secondary education
Language (s) of teaching	Ukrainian
Duration of the educational program	5 years
2 − Purpose of the educational program	
	Training of specialists capable of working in the field of chemical technology, able to solve specialized problems and practical problems in the field of chemical technology or in the education process, which involves the application of certain theories and methods of science and is characterized by complexity and uncertainty. The program is designed in accordance with the mission and strategy of the university, which is to train highly qualified personnel for regional development and urban management.
3 − Characteristics of the educational program	
Subject area	**Objects of study and activity**–technological processes and devices of modern chemical industries. **The purpose of training** −training of specialists capable of solving complex specialized problems and practical problems of chemical technologies and engineering, characterized by complexity and uncertainty of conditions. **Theoretical content of the subject area**–concepts, categories, concepts, principles of chemical technologies, processes and devices of chemical production. **Methods, techniques and technologies:**physical and chemical methods, modeling and design of chemical processes and devices, organizational

	and technological support. **Tools, devices** −devices and instruments for the analysis of raw materials, intermediate and target products, control and measuring equipment, specialized technological equipment, specialized software.
Orientation of the educational program	Educational and professional
Main focus of the educational program and specialization	General education in the field of chemistry and chemical technology, specialty 161 Chemical technology and engineering *Keywords:* chemistry, general chemical technology, chemical and bioengineering, processes and apparatus of chemical production, physicochemical research methods, composite materials, paints, ceramics and glass materials, nanocomposites, fillers, pigments, additives, oligomers, coatings, design of composite, ceramic and glass materials.
Features of the program	no
4 − Suitability of graduates to employment and further education	
Suitability for employment	Employment at enterprises, state institutions and private companies, research institutions of chemical, construction, pharmaceutical, machine-building industries. Graduate Career Opportunities (according to the Classifier of Occupations DK 003: 2010): 3119 technologist; 3119 trainee researcher; 3111 technician-technologist; 3116 electrochemical protection technicians; 3116 technicians (chemical technologies); 3116 technician laboratory assistant (chemical production).
Further education	Have the right to continue their education at the second level of higher education. Obtaining additional qualifications in the system of postgraduate education.
5 − Teaching and assessment	
Teaching and learning	Teaching and learning includes lectures and practical classes, self-study, individual consultations with teachers, practice and qualification work of a bachelor in the use of modern educational pedagogical technologies, student-centered education.
Assessment	Oral and written survey, current and final control of knowledge, test tasks, graphic works, term papers and projects, reports on practices, written examinations, differential tests, defense of qualification work (bachelor's degree).
6 − Program competencies	
Integral competence	The ability to solve complex specialized problems and practical problems of chemical technology and engineering involves the application of theories and methods of chemical technology and engineering and is characterized by the complexity and uncertainty of conditions.
General Competences (GC) , defined by the standard of higher education specialty	GC 1. Ability to abstract thinking, analysis and synthesis. GC 2. Ability to apply knowledge in practical situations. GC 3. Knowledge and understanding of the subject area and understanding of professional activity. GC 4. Ability to communicate in the state language both orally and in

	writing. GC 5. Ability to communicate in a foreign language. GC 6. The desire to preserve the environment. GC 7. Ability to exercise their rights and responsibilities as a member of society, to realize the values of civil (free democratic) society and the need for its sustainable development, the rule of law, human and civil rights and freedoms in Ukraine. GC 8. Ability to preserve and increase moral, cultural, scientific values and achievements of society on the basis of understanding the history and patterns of development of the industry, its place in the general system of knowledge about nature and society and in the development of society.
Professional competencies of the specialty (PC)	PC 1. Ability to use the provisions and methods of fundamental sciences to solve professional problems. PC 2. Ability to use methods of observation, description, identification, classification of objects of chemical technology and industrial products. PC 3. Ability to design chemical processes taking into account technical, legal and environmental restrictions. PC 4. Ability to use modern materials, technologies and apparatus designs in chemical engineering. PC 5. Ability to choose and use appropriate equipment, tools and methods for the control and management of technological processes of chemical production. PC 6. Ability to use computer technology and information technology to solve complex problems and practical problems in the field of chemical engineering. PC 7. Ability to take into account the commercial and economic context in the design of chemical plants. PC 8. Ability to draw up technical documentation in accordance with current requirements.
7 – Program learning outcomes	
Program learning outcomes(PLO), defined by the standard of higher education specialty	PLO 1. Know mathematics, physics and chemistry at the level necessary to achieve the results of the educational program. PLO 2. Correctly use in professional activity the terminology and basic concepts of chemistry, chemical technologies, processes and equipment for the production of chemicals and materials based on them. PLO 3. Know and understand the mechanisms and kinetics of chemical processes, effectively use them in the design and improvement of technological processes and devices in the chemical industry. PLO 4. Carry out a qualitative and quantitative analysis of substances of inorganic and organic origin, using the appropriate methods of general and inorganic, organic, analytical, physical and colloidal chemistry. PLO 5. Develop and implement projects related to technologies and equipment for chemical production, taking into account the goals, resources, existing constraints, social and economic aspects and risks. PLO 6. Understand the basic properties of structural materials, principles and limitations of their use in chemical engineering. PLO 7. Select and use the appropriate equipment, tools and methods for solving complex problems of chemical engineering, control and management of technological processes of chemical production. PLO 8. Use modern computer technology, specialized software and information technology to solve complex problems and practical problems in the field of chemical engineering, in particular, for the calculation of equipment and chemical production processes.

	PLO 9. Ensure the safety of personnel and the environment during professional activities in the field of chemical engineering. PRN 10. Discuss the results of professional activities with specialists and non-specialists, argue their own position. PLO 11. Communicate freely on professional issues orally and in writing in the state and foreign languages. PLO 12. Understand the principles of law and the legal basis of professional activity. PLO 13. Understanding of chemical engineering as a component of modern science and technology, its place in the development of engineering, the Ukrainian state and global culture.
8 − Resources for program implementation	
Staff assistance	The qualitative level of professional training of bachelors is ensured by the qualified scientific and pedagogical staff of the department, which includes doctors and candidates of sciences, professors, associate professors, member of the European Federation of Chemical Engineering CFE-UA. All teachers of the department have a strong practical experience in the field of chemical technology.
Materiel and technical support	The educational process is fully provided with the auditorium fund, administrative and auxiliary facilities. Classes in the curriculum for bachelors are held in 9 classrooms, 4 of which are equipped with stationary multimedia equipment, in the laboratory of varnishes, paints and paints PVC-Lab for research according to European standards, 3 laboratories of the regional center of ceramics "CENTRE CERAMIC LABORATORY" 2 specialized computer laboratories. The educational process in all disciplines is provided with visual aids (presentations to lecture material, posters, diagrams, tables, models, samples, collections, etc.), the necessary technical and technological equipment.
Methodological support	All educational components of the educational program Design are provided with the following educational and methodological materials: textbooks; tutorials; lecture notes; methodical instructions and recommendations; individual tasks; collections of situational tasks (cases); Examples of solving typical tasks or completing typical tasks computer presentations; illustrative materials; resource directories and more. All teaching materials are available to students in the reading rooms of the Scientific Library http://library.kname.edu.ua/index.php/en/, including in the Information Room equipped with computers with Internet access and the University's local network, in the digital repository http://eprints.kname.edu.ua, on the portal of the Distance Learning Centerhttp://cdo.kname.edu.ua/
9 − Academic mobility	
National Credit Mobility	In accordance with the Regulations on Academic Mobility of Students, Graduate Students, Doctoral Students, Scientific-Pedagogical and Scientific Workers of O.M. Beketov NUUE
International Credit Mobility	1) Middle East Technical University, Ankara, Turkey (METU) 2) Aristotle University, Thessaloniki, Greece 3) University of Nova Gorica, Slovenia 4) Estonian University of Natural Sciences, Tartu, Estonia 5) Lodz Technical University, Lodz, Poland

Training of foreign higher education applicants	In accordance with the Rules for admission to training before O.M. Beketov NUUE