

**Code and title of specialty (programme subject area):** 132 “Materials Science”

**Title of specialization:**

**Code and title of the field of study:** 13 “Mechanical Engineering”

**Qualification:** Bachelor of Materials Science

**Credits:** 240 ECTS credits

**Level of higher education:** the first (bachelor) level corresponds to the sixth qualification level of the National Qualifications Framework in Ukraine.

**Requirements to the previous education level:** a person has the right to acquire the bachelor level in case he/she has obtained general secondary education or education according to the educational programme of junior bachelor in relevant speciality. Given that the previous level has been obtained in the other country, nostrification is required.

**Qualification requirements:** higher education document is issued to a person who has successfully completed the educational programme and has been attested. Final attestation is carried out by evaluating the degree of maturity of competences. The form of attestation is graduation work defence.

**Programme learning outcomes:** to use conceptual knowledge, including knowledge of modern achievements for solving complex unforeseen problems of the industry; to use theory, principles, methods and concepts of general engineering sciences in education and professional activity; to collect and interpret information and choose methods and tools to solve professional problems; to apply innovative approaches to solve professional problems; to inform specialists and non-specialists of information, ideas, problems, solutions and own experience in the field of professional activity; to manage complex actions or projects; to form a communication strategy; to use a foreign language for professional purposes; to be responsible for professional development of individuals and / or groups; to be responsible for decision-making under unpredictable conditions; to study with a high level of autonomy.

**Design and technology professional activities:** to take part in production of materials with desired mechanical, technological and functional properties; to design high technology processes as part of the initial design and technology or research department; to develop technical specifications for construction of individual units of devices, equipment and special tools provided by technology for producing and processing of materials (thermal and thermochemical); to select and use existing standards and other metrological documentation for metallurgy facilities and composite materials; to freely use graphic documentation of objects for heat processing in mechanical engineering; to apply methods and tools of computer graphics when drafting documentation for metallurgy objects and composite materials; to take part in standardization, preparation and conduction of certification processes, equipment and materials; to prepare documents for establishing quality management system at the enterprise or organization; to carry out measures for ensuring production quality; to determine economic feasibility of innovative projects implementation; to develop measures to protect metals from corrosion; to evaluate compliance of the existing level of resource and energy consumption with modern requirements and development of measures for rational use of raw materials, materials and energy resources.

**Organizational professional activities:** to gather information for feasibility and participate in drafting new and reconstructing existing heat processing plants, industrial machinery and equipment; to organize workplaces and their technical equipment, service and diagnostics of production equipment, to monitor compliance with technological discipline and ecological safety in the production unit of processing and recycling of materials, to control quality of products; to design technical documentation (schedules, instructions, plans, estimates, requests for materials and equipment), to prepare prescribed reports according to the approved forms.

**Management professional activity:** to plan components of technological and organizational activities; to monitor components of technological and organizational activities; to improve components of technological and organizational activities; to manage production; to carry out work on quality management; to manage technological process, to provide technical and ecological safety of production within the professional activity.

**Employment opportunities:** Bachelor in speciality 132 “Material Sciences” may hold position of expert engineer of materials in companies, small enterprises, and organization of the quality control and certification of metallurgy production, enterprises of aviation industry, automobile and machinery engineering, machine-tool building, welding industry, jewelry industry, expert service of the MIA of Ukraine, Central Customs Department of Laboratory Research and Examinations work.

**Further study prospects:** Bachelor in speciality 132 “Material Sciences” may continue study for obtaining the educational qualification level of master in 13 “Mechanical Engineering”, 18 “Manufacturing and Technology”, 26 “Civil Security”.

**Department graduating a student with degree:** Department of Town Planning, Municipal Facilities and Materials Science

**Institute/Faculty:** Institute of Transport and Logistics

**Educational programme supervisor:** Associate Professor, Ph.D. in Technology  
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