Passport of the educational program

Code and classification of the field of education	6B07 Engineering manufacturing and construction industries
Code and classification of the direction of training	6B073 Architecture and construction
Number and name of the educational program	6B07326 Industrial and civil construction
The purpose of the program	Training of highly qualified, competitive specialists in the field of construction production with a high level of knowledge, skills, professional skills of design and possession of modern methods of effective organization and production of construction works, with the necessary professional and personal competencies sufficient for successful activity at the enterprises of the construction complex in accordance with the requirements of the regional, Republican and international labor markets.
Distinctive features of the educational program	Internship in large construction companies of the city such as LLP "Firm Asia", "Құрылыс» According to this educational program, the discipline "Information Technologies in construction" was introduced, which allows students to master the principles, algorithms and methods of using Microsoft Project Professional software in the management of construction projects
Availability of accreditation	No
Learning outcomes	Apply knowledge and understanding of mathematical methods of calculations, calculations, basic concepts of analytical geometry at a professional level; demonstrate knowledge and skills of using fundamental physical laws and theories, as well as methods of physical research; solving typical problems and using analogues between phenomena of different nature; apply the basic provisions of statics and basic methods of principles of calculation of structural elements for strength and rigidity, as well as recommendations for rational design of engineering structures. Apply the basic laws of statics and equilibrium conditions obtained for absolutely rigid bodies. Perform calculations for strength, rigidity and stability of structural elements for the simplest types of deformations. Demonstrate knowledge of the documentation accepted in professional communication; understanding of oral speech within professional topics. Choose the necessary information from foreign sources; Apply knowledge of the nomenclature and basic operational and technical properties of building materials, as well as the basics of production technology and testing of the main characteristics of building materials, organize the production of effective building materials using advanced technologies; draw up technological and technical documentation in accordance with the current regulatory framework based on the use of the basic provisions of metrology, standardization and certification in production activities; apply documentation of quality systems; apply the requirements of regulatory documents to the main types of products (services) and processes. Plan the design of master plans of industrial enterprises. fundamentals of the design of building structures. Design low-rise residential buildings; develop diagrams and drawings based on the AutoCAD computer

	graphics program; make geodetic measurements related to the solution of typical construction tasks, detailed breakdown of structures, control of geometric shapes of the structure being erected, executive surveys of the results of individual stages of construction and installation work. Apply basic geodetic instruments in specific production conditions. Determine the type of stress state of structural elements. To choose the most economical constructive solution, to perform calculations and design of the main load-bearing elements; to choose methods and methods of strengthening construction structures; to select the most effective reinforcement, to justify its calculation according to the requirements of the current building codes and rules. Establish the composition of work operations, construction processes and works; determine the scope of work, draw up and accept certificates for the work performed and monitor their quality; design process maps for general construction works; develop work projects; determine water consumption; calculate water supply and sanitation networks; select engineering systems for the designed building; calculate engineering networks and select equipment. Distinguish the distinctive features of the most common structural and technological systems of buildings and structures; basic solutions of load-bearing; enclosing structures; load-bearing; architectural details; choose and design engineering systems for the designed building, calculate structural elements of engineering systems and choose the necessary equipment; master the basics of designing, installing and operating water supply, sewerage, heat and gas supply, heating, ventilation and air conditioning systems; select engineering equipment for internal water supply, sewerage, heating, ventilation, hot water supply, use modern technologies in the design of engineering systems of buildings and structures Apply modern information technologies used to calculate buildings and structures, as well as construction structures and their elements; evaluate the advantages and disadvantages of certain programs, loads and impacts on the model under consideration of the calculated object; classify the basic principles of building automated design systems (CAD) for construction design; choose the types of CAD software for construction design; CAD classification for construction design. Understand the essence of economic phenomena and processes occurring at the enterprise, their interrelation and interdependence; systematize and model economic phenomena and processes, determine the impact of various factors on them; evaluate the economic results achieved by enterprises, identify reserves for improving production efficiency; calculate the estimated cost of construction; make local and object estimates; measure volumes; accept completed work; monitor their quality; To carry out heat engineering calculations of enclosing structures of buildings, i.e. to determine the resistance to heat transfer, the coefficients of heat transfer, to correctly select the massiveness of external fences and their thickness, to calculate heat loss in the premises: calculate the surface of heating devices, select their type; perform hydraulic calculation of heating, ventilation and gas supply systems (SOViGS) of buildings; select the equipment of SOViGS. Distinguish between types of briefings; regulatory documents on labor protection; types of control over compliance with legislative regulations

	on labor protection; choose the device of fences, lighting, temporary roads, communications; apply the rules of storage of materials and labor protection requirements for installation and finishing work, rules for the safe operation of construction machines, mechanisms, power tools, hoists and cradles; fundamentals of fire safety; accidents at work and their investigation; to assess the existing foundations during the reconstruction of buildings and structures in which their reliability, durability and eco-nomicity are ensured; to choose methods for improving the construction properties of soils; to assess the engineering and geological conditions of construction; to assess the types of rocks by age (geochronology), composition (petrography), subsidence, dampness, etc. Predict various exogenous and gravitational processes; Evaluate and compare the design features of structures being built in areas with different geological impacts. Determine the main loads and impacts on structures; evaluate the principles of using different types of foundations depending on loads and natural conditions; establish the composition of work operations and construction processes during the repair of buildings and structures, reasonably choose the method of performing the construction process and the necessary technical means; determine the labor intensity, machine intensity of construction processes and the required number of workers, machines, mechanisms, materials of semi-finished products and products; determine the scope of work, accept the work performed and monitor their quality To identify the causes, mechanism, patterns of distribution and main characteristics of earthquakes, as well as their consequences for the main structural systems and solutions of underground and ground parts of buildings; principles of seismic hazard assessment, general and detailed seismic zoning, seismic micro-zoning to solve problems of earthquake-resistant construction; to choose a methodology for determining seismic loads; structural solutions of earthquake-resistant buildings; ways to strengthen building structures; ways to restore buildings affected by earthquakes; design technological maps for general construction works; determine the composition of processes and operations of construction works; determine the labor intensity of construction processes and works. Determine operational requirements for the object of operation, parameters characterizing the technical condition of buildings and structures; develop a project for the reconstruction of buildings and structures; determine the composition of work on the reconstruction of buildings and structures; determine the complexity and duration of reconstruction of buildings and structures; draw up executive documentation. Systematize, generalize legal and economic information for use in professional, including entrepreneurial activities. Analyze, summarize economic information and systematize safety standards for use in professional activities.
Awarded Degree	Bachelor of Engineering and Technology in OP 6B07326 Industrial and Civil Engineering
List of qualifications and positions	Architect Construction Supervision Engineer Engineer for design and estimate work Technical Supervision Engineer Design Engineer

	Design Engineer Plot Master 3D printing designer in construction Foreman
Professional Area	Construction, mechanical engineering, chemical, mining, oil, gas, metallurgical industry.