The list of academic disciplines of the university component

6B07 - Engineering, manufacturing and construction industries
(Code and classification of the field of education)

6B073 - Architecture and construction
(Code and classification of the direction of training)

0730
(Code in the International Standard Classification of Education)

B074 - Urban planning, construction works and civil engineering
(Code and classification of the educational program group)

6B07302 - Civil Engineering
(Code and name of the educational program)

bachelor
(Level of preparation)

set of 2024

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Developed
By the Academic Committee of the EP
The head of the AC D.Kozhakhmetova
EP Manager I.Zhumadilov

Reviewed
At the meeting of the Quality Assurance Commission of the Faculty of Engineering and Technology
Protocol №3 "15" of January 2024
At the meeting of the Commission on Academic Quality of the Higher School of Artificial Intelligence and Civil Engineering
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Chairman of the Commission on Academic Quality A.Adylkanova

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Bases of economics, law and ecological knowledge

Discipline cycle	General educational disciplines
Course	1
Credits count	5
Knowledge control form	Examination

Short description of discipline
The integrated discipline includes the main issues and principles in the field of fundamentals of law and anti- corruption culture, economics, entrepreneurship and leadership, ecology and life safety. Features of the use of regulatory legal acts, the ability to use the business, ethical, social, economic, entrepreneurial and environmental standards of society. Specifics of environmental-legal, economic, entrepreneurial relations, leadership qualities and principles of combating corruption.

Purpose of studying of the discipline
It consists in studying the basic patterns of the functioning of living organisms, the biosphere as a whole and the mechanisms of their sustainable development under the conditions of anthropogenic impact and emergency situations; in understanding the concept of corruption, the legitimacy of the fight against it, the content of the state penal policy; in the formation of students` basic fundamental stable knowledge on the basics of economic theory, in instilling the skills and abilities of economic thinking; in introducing students to the theory and practice of entrepreneurship, to the basics of creating their own business; in the formation of theoretical knowledge and practical skills for the development and improvement of leadership qualities.

Learning Outcomes
ON 1 Demonstrate socio- cultural, economic, legal, environmental knowledge, communication skills, apply information technologies taking into account current trends in the development of society.

Learning outcomes by discipline
1) Analyzes the issues of safety and preservation of the natural environment as the most important priorities of life;
2) Shows knowledge of the basics of environmental management and sustainable development, assesses the impact of man- made systems on the environment;
3) Shows knowledge of the main regulatory legal acts of the Republic of Kazakhstan, their understanding and application;
4) Demonstrates knowledge of the laws of the development of economic processes, clearly formulates his own position, finds and clearly sets out arguments in its defense;
5) Is able to characterize the types of entrepreneurial activity and the entrepreneurial environment, draw up a business plan, create an entrepreneurial structure and organize its activities;
6) Knows the fundamental provisions about the role of leadership in managing large and small social groups.

Prerequisites
School course

Postrequisites
Design and estimate work

Introduction to construction

Discipline cycle	Basic disciplines
Course	1
Credits count	3
Knowledge control form	Examination

Short description of discipline
The discipline «Introduction to Construction» is one of the leading specialties of disciplines that form a shallowing idea of the chosen profession, professional knowledge and skills of an engineer. The study of the discipline is based on knowledge of the history of the domestic and foreign construction industry. Introduction of students into the course of their specialties with a brief description of the technology of construction of buildings and structures, structural systems.

Purpose of studying of the discipline
Introduction of students in the course of their specialties with a brief description of the technology of construction of buildings and structures, structural systems

Learning Outcomes
ON 3 Distinguish the types and properties of building materials and structures used.

Learning outcomes by discipline
The expected results of the training in the discipline "Introduction to Construction" include an understanding of the basic principles and processes of the construction industry, familiarity with the main types of building materials, technologies and equipment, as well as the development of initial skills in designing and analyzing construction projects. Students will gain a general understanding of safety rules, organization of construction works and management of construction projects, which will allow them to better navigate their professional activities and prepare them for a more in-depth study of specialized disciplines.
1 understand the essence and social significance of your future profession
2 make decisions in standard and non-standard situations and be responsible for them
3 organize your own activities, choose typical methods and ways of performing professional tasks

Prerequisites
School course

Postrequisites
Construction materials

Mathematics

Discipline cycle	Basic disciplines
Course	1
Credits count	5

Knowledge control form	Examination

Short description of discipline
The purpose of this course is to provide students with fundamental training in mathematics. The course is aimed at forming a sufficiently high culture of mathematical thinking among students and developing the ability to creatively approach problem solving. In addition to studying the fundamental foundations of higher mathematics (elements of analytical geometry, linear algebra, mathematical analysis, differential equations), the course assumes consideration of various applications of mathematics to solving production problems from the field of professional specialization.

Purpose of studying of the discipline
Creation of the basis for the development of logical thinking and mathematical culture. Formation of basic knowledge and acquisition of basic skills of using mathematical apparatus for solving theoretical and applied problems, as well as the necessary level of mathematical training for mastering other applied disciplines studied within a specific profile; skills of working with special mathematical literature

Learning Outcomes
ON 2 He is able to use natural science and mathematical knowledge for orientation in the modern information space.

Learning outcomes by discipline
1) Applies modern mathematical methods to solve applied problems
2) Creates algorithms for solving professional problems by mathematical methods
3) Plans activities aimed at solving research tasks
4) Selects methods of mathematical analysis and modeling, theoretical and experimental research of applied problems
5) Uses mathematical symbolism to express quantitative and qualitative relations of objects
6) Applies methods of visual graphical representation of research result

Prerequisites
School course

Postrequisites
Basic and profile disciplines of the EP

Physics

Discipline cycle	Basic disciplines
Course	1
Credits count	3
Knowledge control form	Examination

Short description of discipline
In process of studying this discipline, students get acquainted with the basic laws, concepts of all sections of physics. Physics is an area of experimental science, performing laboratory work and tasks, students are convinced of unity of the theory and practice of experiments. Students have the opportunity to gain knowledge on the subject in any area of their specialty.

Purpose of studying of the discipline
Formation of ideas about the role of experimental and theoretical methods of cognition of the surrounding world, development of skills for independent solving of physical problems, motivation to study modern scientific literature.

Learning Outcomes
ON 2 He is able to use natural science and mathematical knowledge for orientation in the modern information space.

Learning outcomes by discipline
1) Assesses the degree of reliability of the results obtained using experimental research methods;
2) Uses various physical concepts, laws, theories in practice;
3) Applies knowledge of the basic laws of physics in solving professional problems.
The expected results of studying in the discipline "Physics" include the formation of students basic knowledge of physical laws and principles that describe the behavior and interaction of objects and fields in the world around them. Students study the basic concepts of mechanics, thermodynamics, electromagnetism, optics and atomic physics, developing skills in analysis and solving physical problems. Knowledge of physics will allow students to better understand and apply scientific methods in technical and engineering tasks required in their professional field.

Prerequisites
School course

Postrequisites
Engineering mechanics

Educational practice

Discipline cycle	Basic disciplines
Course	1
Credits count	2
Knowledge control form	Total mark on practice

Short description of discipline
The objectives of the training practice is to obtain the primary professional skills of working professions, understanding the nature and purpose of construction projects, the technological basis of construction production of buildings and structures. Basic knowledge is based on the study of professional disciplines of curriculum of relevant courses

Purpose of studying of the discipline
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Learning Outcomes
ON 3 Distinguish the types and properties of building materials and structures used.

Learning outcomes by discipline
The expected results of training in the discipline "Educational practice" include the acquisition of practical skills and the application of

theoretical knowledge in the real conditions of the construction process. Students will learn how to work with project documentation, use professional tools and equipment, and comply with safety requirements at construction sites. The practice is aimed at developing skills in the organization of construction work, quality control and teamwork, which lays the foundation for the successful development of a future profession and preparation for professional activity.
Distinguishes the types and properties of building materials and structures used

Prerequisites
Introduction to construction

Postrequisites
Industrial practice I

Academic writing and the basics of scientific research

Discipline cycle	Basic disciplines
Course	2
Credits count	3
Knowledge control form	Examination

Short description of discipline
The discipline "Academic Writing and methods of scientific research" is a course designed to develop students` academic writing skills and familiarize them with the basic research methods necessary for successful study in higher education and preparation for scientific activity.
A brief description of the content of the discipline:
Introduction to Academic Writing: In this part of the course, students are introduced to the basics of academic writing, including the structure of scientific articles, reviews, annotations, and rules for citation and bibliography design.
Scientific Research: Here students study the methods of scientific research, including the formulation of a research question, research planning, data collection and analysis, and interpretation of results.
Academic argumentation: This section of the course focuses on the development of argumentation skills in scientific papers, including the use of logical connections, data analysis and the reinforcement of conclusions with scientific evidence.
Ethics and Academic Integrity: Students learn to adhere to ethical standards in scientific activities, including citation rules and plagiarism prevention.
Design and presentation of scientific research: In the last part of the course, the question of how to properly design and present the results of scientific research in oral and written form is considered.

Purpose of studying of the discipline
The purpose of studying the discipline "Academic writing and methods of scientific research" is to form students` skills of high-quality and effective scientific writing. This discipline is designed to develop students` ability to express their research ideas and conclusions in writing, following academic standards. In addition, the goal is to teach methods of scientific research, which will allow students to successfully conduct research and create high-quality scientific papers.

Learning Outcomes
ON 1 Demonstrate socio- cultural, economic, legal, environmental knowledge, communication skills, apply information technologies taking into account current trends in the development of society.

Learning outcomes by discipline
The expected results of training in the discipline "Academic writing and methods of scientific research" consist in the formation of students skills for effective writing of scientific papers, including articles, term papers and diploma projects. Students will master the principles of text organization, correct citation and link design, as well as learn how to analyze literature and formulate research questions. The course promotes the development of critical thinking, logic and argumentation, which will allow students to present their ideas and conclusions more confidently in an academic environment. In addition, students will be familiar with the methods of scientific research, including quantitative and qualitative approaches, which will ensure their readiness for independent research activities.
The results of training in the discipline "Academic writing and methods of scientific research" include:
Mastering the skills of scientific writing: Students reach a level that allows them to compose scientific texts qualitatively and systematically, including essays, abstracts and scientific articles. They learn the rules of structuring texts, design of bibliographic lists and academic citation.
Ability to conduct research: Students learn to develop research plans, collect, analyze and interpret data, as well as present them in the form of scientific reports and papers. They master the methods of scientific research and critical thinking.
Compliance with scientific ethics and standards: Learning outcomes include understanding and compliance with ethical standards of scientific activity, including citation rules, avoidance of plagiarism and respect for copyright.
Such results allow students to successfully participate in scientific research, as well as to qualitatively design and publish their scientific works, which is an important element of their professional and scientific training.

Prerequisites
School course

Postrequisites
Final examination

The architecture

Discipline cycle	Basic disciplines
Course	2
Credits count	5
Knowledge control form	Examination and term work/Project

Short description of discipline
The discipline "Architecture" is included in the cycle of basic disciplines.
The course "Architecture", designed for students of engineering and construction universities and faculties according to the Educational Program 6B07302 "Construction", studies the subject of future creative activity of civil engineers - design and construction of civil and industrial buildings and structures. The acquired knowledge and skills are consolidated by completing the course work. The study of this course ends with an exam.

Purpose of studying of the discipline
The purpose of teaching the discipline "Architecture" is to provide students with knowledge about the principles of designing buildings and structures, about the basics of architectural and construction design of residential and public buildings.
Learning Outcomes
ON 3 Distinguish the types and properties of building materials and structures used.
ON 5 Design and calculate building structures .
Learning outcomes by discipline
The expected results of studying in the discipline "Architecture" include students understanding of the basics of designing buildings and structures, as well as studying the principles of aesthetics and functionality of architectural objects. Students will get acquainted with historical and modern styles, features of architectural structures and materials used in construction. Having mastered the basics of composition, spatial thinking and architectural drawing, students will be able to apply theoretical knowledge to create their own architectural concepts and design solutions, which is key for future professional activity in the construction industry.
1 present the skills of working with regulatory materials in design and construction
2 apply theoretical and practical knowledge in solving urban planning tasks
3 model the project of residential, public, industrial buildings and structures
Prerequisites
Introduction to construction
Postrequisites
Architecture of industrial buildings

Engineering mechanics

Discipline cycle	Basic disciplines
Course	2
Credits count	5
Knowledge control form	Examination

Short description of discipline
Engineering mechanics is currently a complex discipline that includes theoretical mechanics, material resistance, and structural mechanics. Large structures, high-rise buildings, airplanes, as well as various machines widely used in the national economy are manufactured according to pre-prepared projects. The project fully reflects various data, such as materials and dimensions of a complex structure and its individual elements, properties of forces acting on them.
Purpose of studying of the discipline
The purpose of teaching the discipline «Engineering mechanics» is to provide students with theoretical knowledge about the conditions of equilibrium of material bodies under the influence of force systems, the study of stress-strain state of typical structural elements and perform calculations for strength, stiffness and stability
Learning Outcomes
ON 5 Design and calculate building structures .
Learning outcomes by discipline
The expected results of training in the discipline "Engineering Mechanics" include the acquisition of knowledge and skills for the analysis and calculation of various mechanical systems, which is critical for understanding the stability and reliability of building structures. Students will study the principles of statics, dynamics and resistance of materials, learn how to calculate loads, deformations and stresses in structural elements, which will allow them to develop sustainable and safe construction projects. This knowledge will provide the basis for further study of more specialized engineering disciplines and practical application in design.
1 simulate and investigate complex physical and mechanical processes
2 design mechanical and thermal systems, including thermodynamic and thermal processes in power plants, man-made and natural processes
3 develop new mechanisms and devices, including autonomous mechanisms and robots
Prerequisites
Physics
Postrequisites
Construction structures

World of Abai

Discipline cycle	Basic disciplines
Course	2
Credits count	3
Knowledge control form	Examination

Short description of discipline
The discipline is aimed at studying historical facts, the philosophical and artistic foundations of the works of Abay Kunanbaev, Shakarim Kudaiberdiev, which form worldview and aesthetic values, the student`s ability to express his opinion, practical skills and perception of such human qualities as morality, honesty, artistic character. The genius of the writers of Kazakh literature and the role of M. Auezov in the study and popularization of Abai`s heritage, the significance of his works for history, literature and science are determined.
Purpose of studying of the discipline
Formation of the meaning of philosophical and ideological being, understanding of the problems raised in the works of Abai Kunanbayuly, Shakarim Kudaiberdiuly, Mukhtar Auezov and application of the acquired knowledge in the practice of everyday life.
Learning Outcomes
ON 1 Demonstrate socio-cultural, economic, legal, environmental knowledge, communication skills, apply information technologies taking into account current trends in the development of society.
Learning outcomes by discipline
The expected results of the training in the discipline "Abai s World" are a deep understanding of the literary heritage of Abai Kunanbayev and its significance for the Kazakh culture and language. Students will study the key works of Abai, his philosophical views and ideas

about morality, education and love of the motherland. As a result, they will be able to analyze and interpret texts, realize the influence of Abai on the formation of national identity and the modern Kazakh language. The course also promotes the development of critical thinking and value perception of cultural heritage, forming respect for the traditions and achievements of the Kazakh people.
1) Analyzes the philosophical and artistic foundations of works, historical facts related to the creative heritage of Abai Kunanbayev, Shakarim Kudaiberdiyev, Mukhtar Auezov
2) Uses in practice the humanistic ideas of Abai`s philosophical and artistic works
3) Assesses the place and significance of Abai`s works in the history of literature and science

Prerequisites
School course

Postrequisites
Philosophy

Construction materials

Discipline cycle	Basic disciplines
Course	2
Credits count	5
Knowledge control form	Examination

Short description of discipline
The discipline «Construction material» is included in the cycle of basic disciplines. «Construction material» is a discipline that studies the relationship between the composition, structure and properties of materials, the patterns of their changes under physico- chemical, physical, mechanical, and other influences. When training specialists in the field of «Civil engineering», the discipline «Construction material» occupies a special place. Building materials have a decisive impact on the technical and economic efficiency, operation of buildings, structures.

Purpose of studying of the discipline
The purpose of teaching the discipline «Construction materials» is the preparation of highly qualified bachelors who know the technology of building materials and products and their range for their rational use in construction

Learning Outcomes
ON 3 Distinguish the types and properties of building materials and structures used.

Learning outcomes by discipline
1 determine the type and quality of building materials and products by external signs and markings
2 to make a choice of building materials structural elements
3 determine the properties and quality indicators of the main structural materials and products

Prerequisites
Introduction to construction

Postrequisites
Architecture of industrial buildings

Architecture of industrial buildings

Discipline cycle	Basic disciplines
Course	2
Credits count	5
Knowledge control form	Examination

Short description of discipline
The discipline "Architecture of industrial buildings" covers the design and planning of buildings designed for industrial processes. During the training, the basic principles of architectural design, functional and technological requirements, as well as modern materials and structures used in the construction of industrial facilities are considered. Students also study aspects of ergonomics, safety and sustainability of industrial buildings.

Purpose of studying of the discipline
The purpose of studying the discipline "Architecture of industrial buildings" is to form students deep knowledge and skills in designing functional, safe and aesthetically attractive industrial facilities. The discipline is also aimed at developing the ability to apply modern architectural solutions and technologies that take into account specific production processes and building requirements.

Learning Outcomes
ON 5 Design and calculate building structures .

Learning outcomes by discipline
The expected learning outcomes of the discipline "Architecture of industrial buildings" include the ability of students to develop architectural designs of industrial facilities taking into account functional, technological and environmental requirements. Students should master the skills of analyzing and evaluating architectural solutions, as well as the use of modern construction technologies and materials. In addition, they will learn to take norms and standards into account in the design, which will allow them to create safe and efficient buildings for various industrial needs.
The results of training in the discipline "Architecture of industrial buildings" include the formation of students in-depth knowledge about the principles of design and construction of industrial facilities. Students must demonstrate the skills to develop architectural solutions that take into account both functional and aesthetic aspects. It is also expected that they will master the methods of evaluating architectural projects for compliance with modern standards and norms, which will ensure high quality and safety of buildings under construction.

Prerequisites
The architecture

Postrequisites
Technology of construction of buildings and structures

Industrial practice I

Discipline cycle	Basic disciplines
Course	2
Credits count	5
Knowledge control form	Total mark on practice

Short description of discipline
Industrial practice I consists in that by direct participation of the student in activity of the production or research organization, to fix the received theoretical knowledge and to get professional abilities and skills, and also to join the social environment of the enterprise (organization).

Purpose of studying of the discipline
The purpose of the practice is to familiarize students with the organization of construction production. During the internship, the student should study the production conditions in which modern construction takes place, expand his technical horizons, gain experience in applying the theoretical knowledge obtained to solve practical problems.

Learning Outcomes
ON 5 Design and calculate building structures .

Learning outcomes by discipline
The expected results of training in the discipline "Industrial practice 1" are aimed at developing students practical skills and professional skills in the real conditions of the construction industry. During the internship, students will have the opportunity to apply the theoretical knowledge gained in the educational process in practice, including the study of construction technologies, the organization of the production process and interaction with professional specialists. They will be able to master the main stages of construction production, conduct observations and analyze methods of work, as well as participate in design and management tasks. As a result of the internship, students will not only strengthen their professional competencies, but also develop teamwork and effective communication skills in an industrial environment.
Designs and calculates building structures

Prerequisites
Educational practice

Postrequisites
Industrial practice II

Construction structures

Discipline cycle	Basic disciplines
Course	2
Credits count	5
Knowledge control form	Examination

Short description of discipline
The purpose of teaching the discipline "Building Structures" is to provide students with knowledge about the work of building structures made of reinforced concrete, stone, metal and plastics under various types of stress conditions, as well as methods of their calculation and design. Building structures are load– bearing systems, the strength, stability and deformability of which is determined by a calculation confirming their ability to resist acting loads and impacts.

Purpose of studying of the discipline
The purpose of teaching the discipline «Construction structures» is to provide students with knowledge about the work of building structures made of reinforced concrete, stone, metal, wood and plastics in various types of stress, as well as methods of their calculation and design

Learning Outcomes
ON 5 Design and calculate building structures .

Learning outcomes by discipline
The expected results of training in the discipline "Building structures" include the formation of students in-depth knowledge about various types of building structures, their elements, materials and design principles. Students will master the basic methods of calculating the strength and stability of structures, learn how to analyze loads and deformations that occur during operation. Also an important aspect of the training is the study of modern technologies and materials used in construction, which will allow students to apply innovative solutions in design. As a result of the training, students will be able to develop design documentation, assess the economic feasibility of solutions and ensure that building structures comply with established standards and norms, which will become the basis of their professional activities in the field of construction.
1 Designs and calculates building structures
2 Methodology for calculating building structures by limit states
3 Methodology of material selection for structural elements and their connections

Prerequisites
Engineering mechanics

Postrequisites
Stone and reinforced concrete structures

Stone and reinforced concrete structures

Discipline cycle	Profiling discipline
Course	3
Credits count	5
Knowledge control form	Examination

Short description of discipline
The purpose of the discipline is the formation of professional knowledge in the field of design, calculation and operation of prefabricated and monolithic reinforced concrete structures. Tasks of mastering the discipline:
- to introduce materials, types of sections of bent, compressed, stretched elements and teach them to choose a rational option from

them, justifying their choice;
- teach to determine the calculated combinations of loads.

Purpose of studying of the discipline

The purpose of mastering the discipline: the formation of professional knowledge in the field of calculation and design of reinforced concrete and stone structures.

Learning Outcomes

ON 5 Design and calculate building structures .

Learning outcomes by discipline

The expected results of training in the discipline "Stone and reinforced concrete structures" include the formation of students understanding of the principles of design, calculation and operation of stone and reinforced concrete structures. Students should master the skills of analyzing the strength characteristics and stability of such structures in various operating conditions. It is also important to develop their ability to apply modern materials and technologies in construction, which contributes to improving the quality and durability of facilities. Upon completion of the course, students should be ready for practical activities in the field of design and construction, as well as for solving problems related to the inspection and repair of structures.
Designs and calculates building structures
Basic physical-mechanical, technical and construction properties of various concrete, reinforcement and stone
Modern methods and procedure for calculating basic building structures made of concrete, reinforced concrete, stone

Prerequisites

Construction structures

Postrequisites

Metal structures

Technology of production construction

Discipline cycle	Profiling discipline
Course	3
Credits count	5
Knowledge control form	Examination and term work/Project

Short description of discipline

According to the discipline, the theoretical foundations of the implementation of individual production processes are studied. Before mastering the methods and regulations, the provisions on construction products, elements of construction processes of the organization of labor of construction workers are studied. The purpose of studying the discipline is the formation of knowledgeand skills in the field of organization of all processes and works necessary to obtain construction products in the form of buildings and structures.

Purpose of studying of the discipline

The purpose of studying the discipline "Technology and organization of construction production" is to form knowledge and skills in the field of technological design of construction processes, organization of transportation of construction goods, organization of execution of all processes and works necessary to obtain construction products in the form of finished buildings and structures.

Learning Outcomes

ON 9 Plan the organization and technology of construction production of buildings and structures.

Learning outcomes by discipline

"Құрылыс өндірісінің технологиясы" пәні бойынша оқытудың күтілетін нәтижелері студенттердің құрылыс жобаларын жоспарлауды, ұйымдастыруды және басқаруды қоса алғанда, Құрылыс өндірісінің негіздері мен процестерін түсінуін дамытуды қамтиды. Студенттер құрылыс жұмыстарының тиімділігі мен сапасын арттыруға ықпал ететін заманауи технологиялар мен әдістерді қолдану дағдыларын меңгеруі тиіс. Оқыту барысында олар өндірістік процестерді талдауды, ресурстарды және жұмыс уақытын оңтайландыруды үйренеді. Курс аяқталғаннан кейін студенттер құрылыс процесінің инновациялары мен модернизациясына байланысты міндеттерді шешуді қоса алғанда, құрылыс өндірісі технологиясы саласындағы практикалық қызметке дайын болады.
Plans the organization and technology of construction production of buildings and structures
The main provisions and tasks of construction production; types of features of construction processes and works
Acquisition of knowledge of the theoretical foundations of organization and planning in construction production

Prerequisites

Construction materials

Postrequisites

Technology of construction of buildings and structures

Industrial practice II

Discipline cycle	Basic disciplines
Course	3
Credits count	5
Knowledge control form	Total mark on practice

Short description of discipline

Industrial practice II is a type of training sessions directly focused on professional and practical training of students. It serves as a basis for the development of methods of organization, planning and management in the construction of buildings and structures, the organization of reconstruction and operation of buildings and structures.

Purpose of studying of the discipline

The purpose of the practical training is to consolidate theoretical knowledge in the studied disciplines, to familiarize students with the nature and features of their future activities on the basis of developing professional skills and gaining professional experience both within a single organization and in economic sectors.

Learning Outcomes

ON 6 Analyze geo research and design foundations.

Learning outcomes by discipline

Analyzes the geo research and design foundation

Prerequisites

Industrial practice I

Postrequisites

Production practice III

Technology of construction of buildings and structures

Discipline cycle	Profiling discipline
Course	3
Credits count	5
Knowledge control form	Examination and term work/Project

Short description of discipline

The purpose of studying the discipline is to form students` basic principles of technological design of construction works.
The purpose of mastering the discipline is the formation of the student`s competencies in the field of construction of multi-storey buildings and structures, the development by students of the theoretical foundations and regulations for the construction of buildings and structures of various structural systems of prefabricated, monolithic and prefabricated - monolithic structures.

Purpose of studying of the discipline

The purpose of mastering the discipline "Technology of construction of buildings and structures" is the formation of the student`s competencies in the field of construction of high-rise and large-span buildings and structures, the development by students of the theoretical foundations and regulations of methods for the construction of buildings and structures of various structural systems from prefabricated, monolithic and prefabricated-monolithic structures.

Learning Outcomes

ON 9 Plan the organization and technology of construction production of buildings and structures.

Learning outcomes by discipline

Plans the organization and technology of construction production of buildings and structures
Formation of knowledge of the theoretical foundations of the construction of the main types of buildings
Formation of knowledge of basic technical means for the construction of buildings and skills of rational choice of technical means

Prerequisites

Technology of production construction

Postrequisites

Final examination

Projecting and construction of energy efficient buildings

Discipline cycle	Profiling discipline
Course	4
Credits count	6
Knowledge control form	Examination and term work/Project

Short description of discipline

The discipline "Design and construction of energy-efficient buildings" forms the bachelor`s principles of designing buildings with low energy consumption and energy efficiency, students gain knowledge of renewable energy sources, energy conservation in the production of building materials, rational consumption of energy resources. The use of natural resources in energy-efficient construction by calculating the main factors, fuel and energy, in order to ensure the professional training of future specialists in the design area and reduce heat loss in civilian buildings.

Purpose of studying of the discipline

Use of Natural Resources in energy-efficient construction by calculating fuel and energy, basic factors in order to ensure professional training of future specialists in the design area and reduce heat loss in civil buildings.

Learning Outcomes

ON 5 Design and calculate building structures .
ON 7 Design energy efficient and information modeling of buildings.

Learning outcomes by discipline

The discipline "Design and construction of energy-efficient buildings" covers the methods and principles of creating environmentally sustainable and energy-saving structures. Students study ways to reduce heat loss, the use of modern insulation materials and the integration of renewable energy sources, which can increase comfort and reduce operating costs.
- designs buildings with low energy consumption and energy efficiency
- considers issues of renewable energy sources, energy conservation in the production of building materials,
- applies rational consumption of energy resources in the design

Prerequisites

Technology of construction of buildings and structures

Postrequisites

Final examination

Technology reconstruction of buildings

Discipline cycle	Profiling discipline
Course	4
Credits count	6
Knowledge control form	Examination and term work/Project

Short description of discipline

The discipline studies the basic provisions of the technology of reconstruction of buildings and structures. As well as design technologies for the reconstruction of buildings and structures, Organization of construction in the context of the reconstruction of

existing enterprises. Reconstruction of foundations and foundations. Dismantling of buildings, installation and dismantling of building structures. Reinforcement technology of building structures. Mastering modern methods of pre-project research, evaluation of existing ones.

Purpose of studying of the discipline

The purpose (goals) of mastering the discipline: - formation of knowledge about the reconstruction of construction objects using modern materials and technologies. Tasks: - mastering modern methods of pre-project research, evaluating existing ones. buildings and design of measures to strengthen and restore the structures of buildings and structures.

Learning Outcomes

ON 10 Develop technology for testing and reconstruction of buildings.

Learning outcomes by discipline

The technology of building reconstruction within the framework of the discipline "Technical operation of buildings" covers the processes of updating and modernizing existing structures to increase their functionality and extend their service life. Students study methods for diagnosing the condition of structures, designing repair and restoration works, as well as the use of modern materials and technologies that improve the operational characteristics of buildings

- Shows basic knowledge of building design and reconstruction

- demonstrates methods of installation and dismantling of building structures,

- applies knowledge to strengthen the structures of existing buildings

Prerequisites

Technology of construction of buildings and structures

Postrequisites

Final examination