NJSC SHAKARIM UNIVERSITY OF SEMEY

EDUCATIONAL PROGRAM

6B07 - Engineering, Manufacturing and Civil engineering
(Code and classifcation of the feld of education)

6B073 - Architecture and Civil engineering
(Code and classifcation of the direction of training)

0730
(Code in the International Standard Classifcation of Education)

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

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

Bachelor
(Level of preparation)

Semey

Educational program

6B07 - Engineering, Manufacturing and Civil engineering
(Code and classification of the field of education)

6B073 - Architecture and Civil engineering
(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
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6B07302 - Civil engineering
(Code and name of the educational program)

bachelor
(Level of preparation)

Semey 2023

PREFACE

Developed

The educational program 6B07302 - Civil engineering in the direction of preparation 6B073 - Architecture and Civil engineering on the basis of the State Compulsory Standards of Higher and Postgraduate Education approved by the Order of the Ministry of Science and Higher Education of the Republic of Kazakhstan dated July 20, 2022 No 2 (as amended by the order) was developed by the Academic Committee dated 20.02.2023 No 66).

Members of the Academic Committee	Full name	Academic degree, academic title, position	Signature
Head of the Academic Committee	Gulnur Nurymkhan	Dean of the Faculty of Engineering and Technology, Ph.D., Associate Professor	
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Member of the AC	Adilkhan Dyusembayev	Chief Engineer, "Partner Energo Ltd" LLP	
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Reviewing

Full name of the reviewer	Position, place of work	Signature
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Reviewed

at the meeting of the Quality Assurance Commission of the Faculty of Engineering and Technology
Recommended for approval by the Academic Council of the University
Protocol № 4.6 "10" April 2023
Chairman of the Commission on Quality Assurance Abdilova G.

Approved at the meeting of the Academic Council of the University Protocol No. 8 "25" April 2023.

Approved

at the meeting of the Academic Council of the University
Protocol № 1 "01" of September 2023
Chairman of the Academic Council of the University Orynbekov D.R.

Content

1.Introduction

1.1.General data

The educational program "6B07302 Civil engineering", implemented by the Shakarim University of Semey by the Department of Geodesy and Civil engineering, was developed taking into account the needs of the regional labor market.

The educational program "6B07302 Civil engineering" is intended for the preparation of bachelors of engineering and technology in the direction of training 6B073 "Architecture and Construction", who carry out professional activities in the fields of industrial and civil construction, design of buildings and structures.

According to the Statistics Agency of the Republic of Kazakhstan, there are not enough engineers of technical specialties at enterprises, the popular professions of Kazakhstan change annually, but the demand for engineers and designers has been growing for several years. The latter are employed in construction companies and cooperate with designers and architects.

To date, all graduates of the educational program "6B07302 Civil engineering" who graduated from Shakarim University are employed and occupy places from design engineers to needlework positions. The average salary of a specialist is 150 000 - 310 000 tenge.

The educational program provides for the education of a student with special educational needs in the conditions of a higher educational institution, as well as his socialization and integration into society.

1.2.Completion criteria

The main criterion for the completion of the educational process in the preparation of bachelors is the acquisition of at least 205 credits of theoretical training, as well as at least 27 credits of practice, not 8 credits for the preparation of diplomas. Total 240 credits.

1.3.Typical study duration: Typical training period: 4 years

2.PASSPORT OF THE EDUCATIONAL PROGRAM

2.1.EP purpose	Preparation of bachelors with professional competence in the field of construction and design of buildings and structures for various purposes, inspection and reconstruction of existing buildings. EP 6B07302 Civil engineering aims to achieve in the course of training and education of such a level of readiness of the graduate to an independent life, which fully meets the social expectations of society regarding its ability to productive professional activity in modern society The application of this programme aims to achieve the following – development of bachelors ability to self-improvement and self-development, needs and skills; – to ensure the adaptation of higher education in the direction of training 6B073 «Architecture and construction» and research to the changing needs of society and the achievements of scientific thought; – to ensure recognition of the level of training in other countries – to provide higher mobility of graduates in the changing conditions of the labor market
2.2.Map of the training profile within the educational program	
Code and classification of the field of education	6B07 - Engineering, Manufacturing and Civil engineering
Code and classification of the direction of training	6B073 - Architecture and Civil engineering
Code in the International Standard Classification of Education	0730
Code and classification of the educational program group	B074 - Urban planning, construction works and civil engineering
Code and name of the educational program	6B07302 - Civil engineering
2.3.Qualification characteristics of the graduate	
Degree awarded / qualification	Bachelor of Engineering and Technology in the educational program
Name of the profession / list of positions of a specialist	Site master, engineer, design engineer, quality engineer, Construction supervision engineer, OaSH engineer, Repair engineer, Process engineer, construction laboratory engineer, Workshop head(head), Head of production laboratory, Head of Personnel Department, Head of Capital Construction Department, Head of Safety and Labor Protection Department, Head of Production Department, Head of Technical department, Head of repair shop, shift supervisor, work producer(foreman), Warehouse manager
OQF qualification level (industry qualification framework)	6 level of qualification in IQF and NQF
Area of professional activity	The sphere of professional activity of the graduate of the educational program is the construction, design and calculation of buildings and structures of industrial and civil construction, control in the field of construction production
Object of professional activity	The objects of professional activity of graduates of the educational program are construction and installation departments and organizations, factories

	for the production of construction products, utilities, enterprises for the operation and repair of construction machinery and equipment, joint-stock associations for construction
Types of professional activity	Graduates of the educational program "6B07302 Civil engineering" can perform the following types of professional activities: Production and management activities: - manage teams that carry out construction and installation work on the construction, operation and reconstruction of buildings, structures, engineering systems and equipment; on the operation and repair of construction machinery, mechanical, electrical equipment and automation equipment; Design and engineering activities: - perform design work on the construction and reconstruction of buildings and structures, engineering systems, mechanical and electrical equipment and means of mechanization; Organizational and technological activities: - organize the work of construction, municipal organizations and enterprises; Scientific and pedagogical activity: - to participate in the implementation of research works and conduct scientific and pedagogical activities in general education organizations.
Graduate Model	The graduate model of the educational program "Construction" of Shakarim Semey University represents a qualified specialist in the field of construction, who has a wide range of knowledge and skills. The characteristics and qualities that a graduate should possess are given: 1. Technical knowledge: The graduate has mastered the basics of construction theory and practice, including knowledge of building materials, structures, technologies and standards. 2. Design and planning: The graduate is able to participate in the design and planning of construction projects, including the creation of drawings, estimates and technical documentation. 3. Project Management: The graduate has the skills to manage construction projects, including planning, budgeting and execution control. 4. Safety and sustainability: The graduate knows the principles of ensuring safety on the construction site and pays attention to aspects of the stability of building structures to various impacts. 5. The use of modern technologies: The graduate has the skills to work with modern technological tools and programs that help in the design and management of construction sites. 6. Compliance with norms and standards: The graduate is familiar with the legislation and standards in the field of construction and construction safety. 7. Communication skills: The graduate is able to communicate effectively with colleagues, clients and other participants in the construction process. 8. Ethics and professionalism: The graduate adheres to high professional and ethical standards, taking into

	account the interests of the customer and society. Such a graduate is able to work successfully in various areas of the construction industry, including design, construction, project management, as well as in government agencies and consulting firms. The graduate is ready to solve complex problems in the field of construction and contribute to the development of this important industry.

3.Modules and content of the educational program

Module 1. Fundamentals of social and humanitarian knowledge

Foreign language

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	32505 (3022874)
Course	1
Term	1
Credits count	5
Practical and seminar classes	45hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The content of the discipline «Foreign language» assumes the formation of students` intercultural and communicative competencies at B1 level. The discipline is aimed at mastering the knowledge, skills and abilities that allow using a foreign language in interpersonal communication and professional activity. All types of speech activity are taught, such as reading, writing, listening and production of texts of level complexity with a certain degree of grammatical and lexical correctness.

Purpose of studying of the discipline

Formation of intercultural and communicative competence of students in the process of foreign language education at a sufficient level (A2, pan-European competence) and the level of basic sufficiency (B1, pan-European competence). Depending on the level of training, the student at the time of completion of the course reaches the B1 level of the pan-European competence if the language level of the student at the start is higher than the A2 level of the pan-European competence.

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.

Prerequisites

School course

Postrequisites

Foreign language

Kazakh language

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	32416 (3022870)
Course	1
Term	1
Credits count	5
Practical and seminar classes	45hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The discipline is aimed at deepening the acquired knowledge of students in the framework of the school curriculum, as well as the use of language and speech means based on a full understanding of vocabulary and grammatical system of knowledge; the formation of socio-humanitarian worldview of students within the framework of the national idea of spiritual revival; free expression of mobile thought as a means of speech communication and in the process of communication; awareness of the national culture of the people, the ability to distinguish features of national cognition.

Purpose of studying of the discipline

Forms through phraseological units the recognition of national culture, its meaning as a linguistic unit related to spiritual culture; skills of identifying facts of national and cultural significance in the formation of Kazakh phraseology.

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.

Prerequisites

School course

Postrequisites

Kazakh language

Bases of economics, law and ecological knowledge

Discipline cycle	General educational disciplines

Discipline component	University component
SubjectID	33166 (3022955)
Course	1
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
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.
ON 2 He is able to use natural science and mathematical knowledge for orientation in the modern information space.

Prerequisites

School course

Postrequisites

Bases of economics, law and ecological knowledge

Russian language

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	32566 (3022872)
Course	1
Term	1
Credits count	5
Practical and seminar classes	45hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The discipline is intended for the development of the language personality of the student, who is able to carry out cognitive and communicative activities in Russian in the areas of interpersonal, social, professional, intercultural communication; for teaching students practical mastery of the Russian language in various areas of communication and various situations, mastering the specifics of functional semantic types and genres of functional styles of speech, enriching the vocabulary with special vocabulary, forming and improving the skills of monologue and dialogic speech.

Purpose of studying of the discipline

The purpose of the program is to form the socio-humanitarian worldview of students in the context of the national idea of spiritual modernization, involving the development on the basis of national consciousness and cultural code of the qualities of internationalism, tolerant attitude to world cultures and languages as translators of world-class knowledge, advanced modern technologies, the use and transfer of which can ensure the modernization of the country and personal career growth of future specialists.

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.

Prerequisites

School course

Postrequisites

Russian language

Physical Culture

Discipline cycle	General educational disciplines
Discipline component	Compulsory component

SubjectID	30977 (3022865)
Course	1
Term	1
Credits count	2
Practical and seminar classes	60hours
Total	60hours
Knowledge control form	Differentiated attestation

Short description of discipline
It provides for the joint cooperation of a teacher and a student in the process of physical education throughout the training in the context of the requirements for the level of mastering the discipline, preparing students for participation in mass sports competitions; forms motivational and value attitudes towards physical culture and the need for systematic physical exercises and sports; gives basic knowledge about the use of physical culture and sports in the development of vital physical qualities.

Purpose of studying of the discipline
The purpose of the program is the formation of social and personal competencies of students and the ability to purposefully use the means and methods of physical culture, ensuring the preservation, strengthening of health to prepare for professional activities; to the persistent transfer of physical exertion, neuropsychic stress and adverse factors in future work.

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.

Prerequisites
School course

Postrequisites
Physical Culture

Kazakh language

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	32692 (3022871)
Course	1
Term	2
Credits count	5
Practical and seminar classes	45hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
The discipline is aimed at expanding language literacy, free communication with the environment and mental and ideological skills of the student, understanding the role of language in the process of mastering world- class knowledge through the formation of a future specialist`s worldview based on national consciousness and cultural code, improving the knowledge of the state language by future specialists, increasing the scope of use of the Kazakh language by specialists.

Purpose of studying of the discipline
Ensuring high- quality mastery of the Kazakh language as a means of social, intercultural, professional communication through the formation of communicative competencies at all levels of language use.

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.

Prerequisites
Kazakh language

Postrequisites
Basic and profile disciplines of the EP

Foreign language

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	33169 (3022875)
Course	1
Term	2
Credits count	5
Practical and seminar classes	45hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The content of the discipline «Foreign language» assumes the formation of students`linguo- cultural, socio- cultural, cognitive and communicative competencies at B2 level. The discipline is aimed at deep and extended study of productive and receptive language material. As a result, the student must be able to understand all types of speech activity in accordance with the requirements of B2 level and master the subject content of the discipline and speech.

Purpose of studying of the discipline

Formation of linguo- culturological, socio- cultural, cognitive and communicative competence of students in the process of foreign language education at the B2 level, pan-European competence. Depending on the level of training, the student at the time of completing the course reaches the level B2 of the pan-European competence, if the language level of the student at the start is higher than the level B1 of the pan-European competence.

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.

Prerequisites

School course

Postrequisites

Foreign language

History of Kazakhstan

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	33171 (3022944)
Course	1
Term	2
Credits count	5
Lections	30hours
Practical and seminar classes	15hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Qualification examination

Short description of discipline

The main stages of the history of Kazakhstan are studied with: nomadic statehood, Turkic civilization, the era of colonialism, the Soviet period, independence. The driving forces, trends, patterns of historical development are analyzed; problems: ethnogenesis of the Kazakh people, the formation of statehood, national liberation movements, demographic development. The skills of analyzing historical events and facts, working with historical literature are being formed.

Purpose of studying of the discipline

The purpose of the discipline is to provide objective knowledge about the main stages of the development of the history of Kazakhstan from ancient times to the present.

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.

Prerequisites

School course

Postrequisites

History of Kazakhstan

The module of socio-political knowledge (sociology, political science, cultural studies, psychology)

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	33172 (3022947)
Course	1
Term	2
Credits count	8
Lections	30hours
Practical and seminar classes	45hours
Independent work of a student under the guidance of a teacher	55hours
Independent work of the student	110hours
Total	240hours
Knowledge control form	Examination

Short description of discipline

The module of socio-political knowledge involves the study of four scientific disciplines – sociology, political science, cultural studies, psychology, each of which has its own subject, terminology and research methods. Interactions between these scientific disciplines are carried out on the basis of the principles of information complementarity; integrativity; methodological integrity of research approaches

of these disciplines; generality of the methodology of learning, result-oriented; unified system representation of the typology of learning outcomes as formed abilities.

Purpose of studying of the discipline

Formation of social and humanitarian worldview of students in the context of solving the problems of modernization of public consciousness, defined by the state program "Looking into the Future: Modernization of Public Consciousness".

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.

Prerequisites

School course

Postrequisites

Philosophy Bases of economics, law and ecological knowledge

Russian language

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	33168 (3022873)
Course	1
Term	2
Credits count	5
Practical and seminar classes	45hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The discipline is intended for the development of the language personality of the student, who is able to carry out cognitive and communicative activities in Russian in the areas of interpersonal, social, professional, intercultural communication; to teach the scientific style of speech as a language of specialty, the creation of secondary texts, the formation of skills for the production of oral and written speech in accordance with the communicative goal and the professional sphere of communication, instilling the skills of speech etiquette, business rhetoric.

Purpose of studying of the discipline

The purpose of the program is to form the socio-humanitarian worldview of students in the context of the national idea of spiritual modernization, involving the development on the basis of national consciousness and cultural code of the qualities of internationalism, tolerant attitude to world cultures and languages as translators of world-class knowledge, advanced modern technologies, the use and transfer of which can ensure the modernization of the country and personal career growth of future specialists.

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.

Prerequisites

Russian language

Postrequisites

Basic and profile disciplines of the EP

Physical Culture

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	33167 (3022866)
Course	1
Term	2
Credits count	2
Practical and seminar classes	60hours
Total	60hours
Knowledge control form	Differentiated attestation

Short description of discipline

It provides for the joint cooperation of a teacher and a student in the process of physical education throughout the training in the context of the requirements for the level of mastering the discipline, the ability to exercise control and self-control in the process of classes, gaining knowledge on health promotion, hardening and increasing the body`s resistance to the effects of adverse factors of labor activity, mastering methods of selection of physical exercises and sports.

Purpose of studying of the discipline

The purpose of the program is the formation of social and personal competencies of students and the ability to purposefully use the means and methods of physical culture, ensuring the preservation, strengthening of health to prepare for professional activities; to the persistent transfer of physical exertion, neuropsychic stress and adverse factors in future work.

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.

Prerequisites

School course

Postrequisites

Physical Culture

Physical Culture

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	33174 (3022867)
Course	2
Term	1
Credits count	2
Practical and seminar classes	60hours
Total	60hours
Knowledge control form	Differentiated attestation

Short description of discipline

Provides for the joint cooperation of the teacher and the student in the process of physical education throughout the training in the context of the requirements for the level of mastering the discipline; increasing the level of physical fitness and developing physical qualities; mastering the technique of sports; education of discipline, collectivism, comradely mutual assistance; education of mental stability, development and improvement of basic motor qualities - endurance, strength, speed, dexterity, flexibility.

Purpose of studying of the discipline

The purpose of the program is the formation of social and personal competencies of students and the ability to purposefully use the means and methods of physical culture, ensuring the preservation, strengthening of health to prepare for professional activities; to the persistent transfer of physical exertion, neuropsychic stress and adverse factors in future work.

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.

Prerequisites

School course

Postrequisites

Physical Culture

World of Abai

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	33180 (3022940)
Course	2
Term	1
Credits count	3
Lections	15hours
Practical and seminar classes	15hours
Independent work of a student under the guidance of a teacher	20hours
Independent work of the student	40hours
Total	90hours
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.

Prerequisites

School course

Postrequisites

Philosophy

Information and communication technology

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	33183 (3022948)
Course	2
Term	2

Credits count	5
Lections	15hours
Practical and seminar classes	15hours
Laboratory works	15hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
The discipline is aimed at mastering the conceptual foundations of the architecture of computer systems, operating systems and networks by students; formation of the ability to critically understand the role and signifcance of modern information and communication technologies in the era of digital globalization, new "digital" thinking, knowledge about the concepts of developing network and web applications, skills in using modern information and communication technologies in various felds of professional activity, scientifc and practical work, for self-educational and other purposes.

Purpose of studying of the discipline
Formation of the ability to critically evaluate and analyze processes, methods of searching, storing and processing information, methods of collecting and transmitting information through digital technologies

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.

Prerequisites
School course

Postrequisites
Basic and profile disciplines of the EP

Physical Culture

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	33182 (3022868)
Course	2
Term	2
Credits count	2
Practical and seminar classes	60hours
Total	60hours
Knowledge control form	Differentiated attestation

Short description of discipline
Provides for the joint cooperation of the teacher and the student in the process of physical education throughout the training in the context of the requirements for the level of mastering the discipline; acquisition of versatile abilities and skills for the development of physical abilities, socio- cultural experience and socio- cultural values of physical culture and sports; development of communication skills, thinking, self-development, the formation of experience in the implementation of sports and recreational and training programs.

Purpose of studying of the discipline
The purpose of the program is the formation of social and personal competencies of students and the ability to purposefully use the means and methods of physical culture, ensuring the preservation, strengthening of health to prepare for professional activities; to the persistent transfer of physical exertion, neuropsychic stress and adverse factors in future work.

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.

Prerequisites
School course

Postrequisites
Physical Culture

Philosophy

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	33195 (3022864)
Course	3
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
The discipline is aimed at developing students` openness of consciousness, understanding their own national code and self-consciousness, spiritual modernization, competitiveness, realism and pragmatism, independent critical thinking, the cult of knowledge and education, a holistic view of philosophy as a special form of understanding the world, mastering key worldview concepts, as well as the development and strengthening of the values of tolerance, intercultural dialogue and a culture of peace.
Purpose of studying of the discipline
Formation in students of a holistic view of philosophy as a special form of knowledge of the world, its main sections, problems and methods of studying them in the context of future professional activities.
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.
Prerequisites
School course
Postrequisites
Final examination

Module 2. Natural science disciplines

Mathematics

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	32313 (3022941)
Course	1
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
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 1 Demonstrate socio- cultural, economic, legal, environmental knowledge, communication skills, apply information technologies taking into account current trends in the development of society.
Prerequisites
School course
Postrequisites
Mathematics

Physics

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	32740 (3022927)
Course	1
Term	1
Credits count	3
Lections	15hours
Practical and seminar classes	15hours
Laboratory works	0hours
Independent work of a student under the guidance of a teacher	20hours
Independent work of the student	40hours
Total	90hours
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 1 Demonstrate socio- cultural, economic, legal, environmental knowledge, communication skills, apply information technologies taking into account current trends in the development of society.

Prerequisites

School course

Postrequisites

Physics

Module 3. Fundamentals of architectural and construction activity

Introduction to construction

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	31085 (3022877)
Course	1
Term	1
Credits count	3
Lections	15hours
Practical and seminar classes	15hours
Independent work of a student under the guidance of a teacher	20hours
Independent work of the student	40hours
Total	90hours
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.

Prerequisites

School course

Postrequisites

The architecture Design and estimate work

Construction drawing

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	33170 (3022929)
Course	1
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The discipline is the best means of developing constructive geometric thinking and spatial imagination in future engineers, studying ways of constructing various geometric spatial objects, ways of obtaining their drawings at the level of graphic models and the ability to solve problems on these drawings, without which no engineering creativity is unthinkable. Due to the general tendency to visualize any information, the role of geometric and graphic components in the educational sphere is increasing.

Purpose of studying of the discipline

Give basic knowledge, abilities and skills in performing and reading drawings, to give information about construction plans and designs, learn to read blueprints, ensuring the conditions for the preparation of competitive and highly skilled young professional, in demand on the labour market.

Learning Outcomes

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

ON 5 Design and calculate building structures .

Prerequisites

School course

Postrequisites

The architecture Autocad in pojecting

The architecture

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	33176 (3022879)
Course	2
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
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 .

Prerequisites

Construction drawing

Postrequisites

Technology of construction of buildings and structures Design and estimate work

Construction materials

Discipline cycle	Basic disciplines
Discipline component	Compulsory component
SubjectID	32434 (3022878)
Course	2
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	15hours
Laboratory works	15hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
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.

Prerequisites

Introduction to construction

Postrequisites

Technological bases of production of building materials, products and structures

Module 4. Engineering systems and machines in civil engineering

Water supply and sewerage

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33185 (3022881)
Course	2
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The content of the discipline is aimed at achieving the main objectives of water supply and sewerage. The purpose of the discipline is to form students with the necessary knowledge of the fundamentals of the properties of liquids, the laws of hydrostatics, hydrodynamics, to ensure the supply of water to consumers, as well as the removal of domestic wastewater, the correct solution of engineering problems of water supply and sanitation of residential buildings.

Purpose of studying of the discipline

The purpose of the discipline "Water supply and sanitation" is to form students with the necessary knowledge of the basics of the properties of liquids, the laws of hydrostatics, hydrodynamics, to ensure the supply of water to consumers, as well as the removal of domestic and surface wastewater, the correct solution of engineering problems of water supply and sanitation of residential buildings.

Learning Outcomes

ON 4 Calculate engineering systems and machines in civil engineering.

Prerequisites

Introduction to construction

Postrequisites

Technology of production construction Design and estimate work

Engineering systems of buildings and structure

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33184 (3022880)
Course	2
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The discipline is aimed at studying the history of the development of heating and ventilation technology, as well as thermal and air modes of buildings. Design and operation of heating systems. The discipline is aimed at the acquisition by future specialists of theoretical knowledge and practical skills in the field of water supply, sewerage, gas supply, heat supply of settlements, internal construction of water supply, sewerage, gas pipeline, ventilation, heat supply of residential buildings.

Purpose of studying of the discipline

The discipline "Engineering systems of buildings and structures" aims to acquire future specialists the basics of theoretical knowledge and practical skills in the field of water supply, sewerage, gas supply, heat supply of populated areas, the internal structure of water supply, sewerage, gas pipeline, ventilation, heat supply of residential buildings.

Learning Outcomes

ON 4 Calculate engineering systems and machines in civil engineering.

Prerequisites

Introduction to construction The architecture

Postrequisites

Technology of construction of buildings and structures Design and estimate work

Heating and ventilation systems

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33186 (3022882)
Course	2

Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The discipline is aimed at studying the hygienic and physical foundations of heating and ventilation, hydraulic calculation of the heating system. Aerodynamic calculations of air balance and ventilation systems, air treatment. The discipline aims to ensure thermal comfort – the study of the optimal temperature regime favorable for the life and activity of people in the cold season, the state of the air environment, humidity, pressure, composition and purity of air in public and industrial buildings

Purpose of studying of the discipline

The discipline "Heating and ventilation systems" aims to provide thermal comfort – an optimal temperature environment favorable for people`s life and activity in the cold season, the study of the state of the air environment – humidity, temperature, mobility, pressure, composition and purity of air in residential, public and industrial buildings.

Learning Outcomes

ON 4 Calculate engineering systems and machines in civil engineering.

Prerequisites

Introduction to construction

Postrequisites

Technology of construction of buildings and structures Design and estimate work

Hydraulics and hydraulic machines

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33197 (3022884)
Course	3
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The discipline studies hydrostatics, the basics of kinematics, the basic equations of motion of gases and liquids, the mode of motion.
The purpose of studying the discipline is the formation of students` systematic engineering knowledge on the laws of hydrostatics and hydrodynamics of liquids and gases, the definition of the basic properties of liquids and gases used in aviation technology, the principles of operation of hydrodynamic machines and mechanisms operated on civil aviation aircraft.

Purpose of studying of the discipline

The purpose of studying the discipline "Hydraulics and hydraulic machines" is to form students ` systematic engineering knowledge on the laws of hydrostatics and fluid and gas hydrodynamics, to determine the basic properties of liquids and gases used in aviation technology, the principles of operation of hydrodynamic machines and mechanisms used on civil aviation aircraft.

Learning Outcomes

ON 4 Calculate engineering systems and machines in civil engineering.

Prerequisites

Introduction to construction

Postrequisites

Technology of production construction

The Sanitary equipment of buildings

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33198 (3022885)
Course	3
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours

Knowledge control form	Examination

Short description of discipline
The discipline is aimed at studying the engineering support of buildings and individual objects for various purposes, sewers and drains of buildings and objects. The discipline studies theoretical and practical recommendations for solving engineering problems. The purpose of studying the discipline is to train specialists in the field of design and operation of sanitary and technical systems, cold and hot water supply systems, as well as drainage systems of buildings for various purposes

Purpose of studying of the discipline
The purpose of studying the discipline "Sanitary and technical equipment of buildings" is to train specialists in the field of design and operation of sanitary and technical systems, cold and hot water supply systems, as well as drainage systems of buildings for various purposes.

Learning Outcomes
ON 4 Calculate engineering systems and machines in civil engineering.

Prerequisites
Engineering systems of buildings and structure

Postrequisites
Technology of construction of buildings and structures

Construction machines and equipment

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33196 (3022883)
Course	3
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
The content of the discipline is aimed at studying the classification of construction machines, transport, transport, loading and unloading and lifting machines, machines and equipment for excavation and pile work. Machines for crushing, sorting and washing stone materials are being investigated.
The purpose of mastering the discipline is the formation of knowledge, skills and abilities in the use of construction machinery and construction equipment in the construction of residential and industrial buildings.

Purpose of studying of the discipline
The purpose of mastering the discipline "Construction machinery and equipment" is to form knowledge, skills and abilities in the field of application of construction machinery and construction equipment in the construction of residential and industrial buildings.

Learning Outcomes
ON 4 Calculate engineering systems and machines in civil engineering.

Prerequisites
Introduction to construction

Postrequisites
Technology of production construction

Module 5. Design and calculation of building structures

Engineering mechanics

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	33175 (3022886)
Course	2
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
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 3 Distinguish the types and properties of building materials and structures used.
ON 5 Design and calculate building structures .
Prerequisites
Mathematics
Postrequisites
Construction structures

Industrial practice I

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	33191 (3022924)
Course	2
Term	2
Credits count	5
Working practice	150hours
Total	150hours
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 .
Prerequisites
Educational practice
Postrequisites
Production practice III

Construction structures

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	33194 (3022945)
Course	2
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
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 3 Distinguish the types and properties of building materials and structures used.
ON 5 Design and calculate building structures .
Prerequisites
Basic and profile disciplines of the EP Introduction to construction
Postrequisites
Metal structures Technology of construction of buildings and structures

Stone and reinforced concrete structures

Discipline cycle	Profiling discipline
Discipline component	University component
SubjectID	33205 (3022887)
Course	3
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
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 3 Distinguish the types and properties of building materials and structures used.
ON 5 Design and calculate building structures .

Prerequisites

Introduction to construction Stone and reinforced concrete structures

Postrequisites

Technology of construction of buildings and structures The construction of special buildings and structures

Production of metal structures

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	33269 (3022890)
Course	3
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The discipline is aimed at studying the technological and transport schemes of metal structures factories. The main materials used for the manufacture of metal structures. Basic operations for the manufacture of metalwork parts. The main characteristics of the equipment for the manufacture of parts and their devices. The objectives of the discipline are to prepare students for professional activity in the field of metal structures design related to the manufacture and installation of building structures.

Purpose of studying of the discipline

The purpose of the discipline is to prepare students for professional activity in the field of designing metal structures.

Learning Outcomes

ON 3 Distinguish the types and properties of building materials and structures used.
ON 5 Design and calculate building structures .
ON 9 Plan the organization and technology of construction production of buildings and structures.

Prerequisites

Construction structures

Postrequisites

Technological bases of production of building materials, products and structures

Metal structures

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	33270 (3022888)
Course	3
Term	2

Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
The discipline "Metal structures" is aimed at studying the technology of manufacturing elements of metal structures. Such as: assembly of lattice solid wall structures; assembly of surface structures; welding of steel structures; assembly of general and control structures; protection of metal structures from corrosion; product quality control. The purpose of mastering the discipline is to form students` functional foundations of design and design features of modern load-bearing and enclosing metal structures of buildings and structures.

Purpose of studying of the discipline
The purpose of mastering the discipline" metal structures "is to form students` functional bases of design and features of design of modern lifting and enclosing metal structures of buildings and structures.

Learning Outcomes
ON 3 Distinguish the types and properties of building materials and structures used.
ON 5 Design and calculate building structures .
ON 9 Plan the organization and technology of construction production of buildings and structures.

Prerequisites
Construction structures

Postrequisites
Technology of construction of buildings and structures Technological bases of production of building materials, products and structures

Installation of metal structures

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	33271 (3022889)
Course	3
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
The purpose of studying the discipline is the formation of students` functional foundations for the design of existing supporting and enclosing metal structures of buildings and structures; the ability to correctly design structural materials that provide the necessary reliability indicators of the design object. The purpose of mastering the discipline is to study the basics of design, manufacture, installation, as well as to prepare students for professional activity in the field of metal structures design.

Purpose of studying of the discipline
The purpose of mastering the discipline "Installation of metal structures" is to study the basics of design, manufacture, installation, reinforcement of metal structures of buildings and structures, as well as to prepare students for professional activity in the field of design of metal structures.

Learning Outcomes
ON 3 Distinguish the types and properties of building materials and structures used.
ON 9 Plan the organization and technology of construction production of buildings and structures.

Prerequisites
Construction structures

Postrequisites
Technology of construction of buildings and structures The construction of special buildings and structures Technological bases of production of building materials, products and structures

Projecting and construction of energy efficient buildings

Discipline cycle	Profiling discipline
Discipline component	University component
SubjectID	33223 (3022904)
Course	4
Term	1
Credits count	6
Lections	30hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	40hours

Independent work of the student	80hours
Total	180hours
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 3 Distinguish the types and properties of building materials and structures used.
ON 5 Design and calculate building structures .
ON 9 Plan the organization and technology of construction production of buildings and structures.
ON 10 Develop technology for testing and reconstruction of buildings.

Prerequisites
The architecture Technology of production construction Design and estimate work

Postrequisites
Final examination

Module 6. Geotechnical research and design of foundations in construction

Academic writing and the basics of scientific research

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	33181 (3023048)
Course	2
Term	1
Credits count	3
Lections	15hours
Practical and seminar classes	15hours
Independent work of a student under the guidance of a teacher	20hours
Independent work of the student	40hours
Total	90hours
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.

Prerequisites
School course

Postrequisites
Final examination

Geodetic works in the construction of structures

Discipline cycle	Basic disciplines
Discipline component	Electives

SubjectID	33188 (3022892)
Course	2
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
The discipline is aimed at studying road transport structures, surveys and breakdown of roads, bridge crossings, pipelines. As well as the removal of planning and building projects in kind. The study of geodetic support of urban construction, geodetic works in the construction of industrial, hydraulic structures. The discipline is the training of specialists with the necessary theoretical knowledge and practical skills for conducting geodetic works.

Purpose of studying of the discipline
The purpose of the discipline is to train specialists who have the necessary theoretical knowledge and practical skills of conducting geodetic works, which would allow them to master and implement all the progressive achievements of training and modern geodetic technologies in the future of their professional activities.

Learning Outcomes
ON 6 Analyze geo research and design foundations.

Prerequisites
School course

Postrequisites
Geodesic control in construction

Geodesy

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33187 (3022891)
Course	2
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
The discipline «Geodesy» is aimed at studying the basic information on geodesy, geodetic measurements, types of surveys, their classifications. The issues of geodetic support, installation of equipment for thermal and nuclear power plants are also being studied. Geodetic support for the construction of agricultural facilities is also being studied. The discipline «Geodesy» is the development of basic information about geodetic measurements performed on the Earth`s surface, their mathematical processing.

Purpose of studying of the discipline
The purpose of the discipline "Geodesy" is to master the basic information about geodetic measurements performed on the Earth`s surface, their
mathematical processing, methods of drawing up maps and plans and vertical profiles, training in the implementation of planned and high-altitude ground
geodetic surveys, the product of mathematical processing of the results of field measurements, the solution of individual engineering tasks necessary for the
construction of buildings and structures.

Learning Outcomes
ON 6 Analyze geo research and design foundations.

Prerequisites
Introduction to construction

Postrequisites
Geodesic control in construction

Geotechnics

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33189 (3022893)
Course	2
Term	2

Credits count	5
Lections	15hours
Practical and seminar classes	15hours
Laboratory works	15hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

Geotechnics is a relatively new concept, which currently covers such sciences as soil mechanics, on which the foundation construction is based. The purpose of mastering the discipline "Geotechnics" is to acquaint the student with methods for determining physical and mechanical properties, with methods for analyzing the earth mass as the basis or environment for the location of engineering structures, depending on natural pressure and external load.

Purpose of studying of the discipline

The objectives of mastering the discipline The objectives of mastering the discipline "Fundamentals of Geotechnics" are- initial acquaintance of the student with the methods of determining the physical and mechanical properties of soils in massifs, methods of calculating the stress-strain state of the soil mass depending on natural pressure and external load, analysis of the soil mass as a base or environment for placing engineering structures, familiarization with the methods of designing foundations according to limit states.

Learning Outcomes

ON 5 Design and calculate building structures .
ON 6 Analyze geo research and design foundations.

Prerequisites

Construction materials

Postrequisites

Technology of production construction

Engineering geology and soil mechanics

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33190 (3022894)
Course	2
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	15hours
Laboratory works	15hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The purpose of the discipline is to form the necessary knowledge among specialists in the complex study of natural and man-made conditions of construction objects, making forecasts of the interaction of these objects with the environment, their engineering protection and justification of safe living conditions of the population. The purpose of the discipline is to gain in-depth knowledge of soil mechanics, to develop skills in the application of numerical computational methods in soil mechanics.

Purpose of studying of the discipline

The purpose of the discipline is the formation of knowledge and practical skills necessary for specialists in the integrated study of natural and man- made conditions of the territory of construction projects, forecasting the interaction of these objects with the environment, the rationale for their engineering protection and safe living conditions

Learning Outcomes

ON 5 Design and calculate building structures .
ON 6 Analyze geo research and design foundations.

Prerequisites

Construction materials

Postrequisites

Technology of production construction

Fundamentals of soil mechanics

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33193 (3022931)
Course	2
Term	2
Credits count	5
Lections	15hours

Practical and seminar classes	15hours
Laboratory works	15hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
The development of the discipline is aimed at obtaining theoretical knowledge and practical skills in determining the physical and mechanical properties of soils, determining the maximum stress state of soils on the grounds that contribute to the formation of a specialist in the field of engineering and geological surveys. The goal is to gain in-depth knowledge of soil mechanics.

Purpose of studying of the discipline
The purpose of the discipline is to acquire in-depth knowledge about soil mechanics, experimental and theoretical prerequisites, features of soil deformation, basic calculation models, special types of soils, rheological foundations of soil mechanics, dynamic properties of soils, development of skills in applying numerical calculation methods in soil mechanics.

Learning Outcomes
ON 5 Design and calculate building structures .
ON 6 Analyze geo research and design foundations.

Prerequisites
Construction materials

Postrequisites
Technology of production construction

Systems of coordinates and altitudes in geodesy

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33192 (3022930)
Course	2
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
To solve various tasks related to the implementation of economic activities on the territory of the state or its subjects, it is necessary, for a number of reasons, to use different coordinate systems, each of which has its advantages and disadvantages. The choice of the desired coordinate system, the ability to perform coordinate transformations from one system to another. The discipline is the development of basic information about geodetic measurements performed on the Earth`s surface.

Purpose of studying of the discipline
The purpose of the discipline "Coordinate systems and heights in geodesy" is to master the basic information about geodetic measurements performed on the Earth`s surface.

Learning Outcomes
ON 6 Analyze geo research and design foundations.

Prerequisites
Geodesy

Postrequisites
Geodesic control in construction

Engineering geodesy

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33200 (3022899)
Course	3
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
The discipline "Engineering Geodesy" studies planned and high-altitude engineering and geodetic networks, topographic and geodetic

surveys, geodetic center work, geodetic support of installation work, control of deformations of structures, geodetic work in transport construction, geodetic work on industrial sites, the use of space and computer technologies. The purpose of mastering the discipline is to form students` knowledge, skills and abilities in the field of engineering geodesy.

Purpose of studying of the discipline

The purpose of mastering the discipline "Engineering Geodesy" is to form students ` knowledge, skills and abilities in the field of engineering geodesy: - improvement of measurement techniques that ensure obtaining results with a given and reasonable accuracy; - research and improvement of devices, as well as the organization and methods of performing measurements in various natural conditions.

Learning Outcomes

ON 6 Analyze geo research and design foundations.

Prerequisites

Geodesy

Postrequisites

Geodesic control in construction

Engineering landscaping

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33201 (3022900)
Course	3
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

Students should be competent in the organization of transport and pedestrian traffic in the improvement of urban areas, engineering improvement of sports complexes and recreation areas.

The purpose of mastering the discipline is the theoretical development of the basic methods of organizing the design of sites related to the engineering preparation of the territory and the solution of transport problems in the planning projects of residential buildings and partially municipalities.

Purpose of studying of the discipline

The purpose of mastering the discipline "Engineering landscaping of territories" is the theoretical development of the main methods and methods of organizing the design of sections related to the solution of engineering preparation of the territory and transport tasks in the planning projects of residential territories and, partially, municipalities.

Learning Outcomes

ON 8 Determine the cost of production costs and the efficiency of construction according to regulatory and economic bases.

Prerequisites

The architecture

Postrequisites

Technology of construction of buildings and structures

Foundations and bases

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33199 (3022898)
Course	3
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The discipline studies the basic concepts of foundations and foundations, their types and classification. The main components. Deposition of bases. Deformation of foundations. The calculation of the foundation precipitation, the depth of the foundation, the main and additional loads, the method of calculating foundations are studied.

Students study basic information about the types of modern foundations and foundations, methods of calculation and design, methods of strengthening the foundations and foundations of buildings and structures.

Purpose of studying of the discipline

Students study basic information about the types of modern foundations and foundations, methods of calculation and design, methods

of strengthening the foundations of buildings and structures

Learning Outcomes

ON 3 Distinguish the types and properties of building materials and structures used.
ON 5 Design and calculate building structures .
ON 6 Analyze geo research and design foundations.

Prerequisites

Geotechnics

Postrequisites

Technology of construction of buildings and structures

Automations topographergeodetic Work

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33211 (3022897)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

In this discipline, we study the automation of geodetic measurements. Software features in topographic packages. Satellite navigation devices. Automated technology to create a topographic plan. Organization of work in CREDO- DAT system. Equalization of geodetic networks in CREDO-DAT system. The creation of digital elevation models in the system CREDO-MIX.

Purpose of studying of the discipline

The purpose of this discipline is to study and master modern methods and means of automation of technological processes of topographic and geodetic production.

Learning Outcomes

ON 6 Analyze geo research and design foundations.
ON 9 Plan the organization and technology of construction production of buildings and structures.

Prerequisites

Geodesy

Postrequisites

Final examination

Geodetic works on the construction of industrial site

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33207 (3022896)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The discipline studies the basic geodetic center work on an industrial site, teaches to carry out the removal in kind of the main and main (overall) axes of buildings, structures, engineering communications from the points of the center geodetic basis. This discipline teaches you to process the measurement results, solve the tasks of transferring the mark to the bottom of the pit and tiers, determine the height of the structure at an inaccessible distance.

Purpose of studying of the discipline

The objectives of the discipline are to acquire theoretical and practical knowledge necessary for the design, construction and operation of industrial, civil and special-purpose facilities.

Learning Outcomes

ON 6 Analyze geo research and design foundations.
ON 9 Plan the organization and technology of construction production of buildings and structures.
ON 10 Develop technology for testing and reconstruction of buildings.

Prerequisites

Geodesy

Postrequisites

Final examination

Geodesic control in construction

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33212 (3022895)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The discipline "Geodetic control in construction" studies the method of production of topographic and geodetic works for solving engineering problems in various sectors of the economy. The discipline "Geodetic control in construction" allows you to reveal such main topics of the course as topographic and geodetic surveys of construction sites; engineering geodetic design of structures; center work; geodetic alignment of structures and technical equipment; monitoring of deformation of structures.

Purpose of studying of the discipline

The initial requirements necessary for studying the discipline "Geodetic control in construction" include knowledge, skills and abilities formed in the process of studying different disciplines.

Learning Outcomes

ON 6 Analyze geo research and design foundations.
ON 9 Plan the organization and technology of construction production of buildings and structures.
ON 10 Develop technology for testing and reconstruction of buildings.

Prerequisites

Geodesy

Postrequisites

Final examination

Module 7. Energy-efficient design and information modeling of buildings

Computer drawing in design

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33179 (3022903)
Course	2
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The discipline is devoted to the study and practical development of computer technology in graphics application packages, develops spatial imagination of students. In addition, the study of State Standards Unified system of design documentation, the basic principles and rules of design documentation. Students study ways of graphic representations, fulfillment of sketches of details, drawing up of design and technical documentation creation of volume models with the help of AutoCAD computer program

Purpose of studying of the discipline

The purpose of teaching the discipline "Computer drawing in design" is computer engineering training: for students of builders. The tasks include providing the student with a minimum of fundamental engineering and geometric knowledge and knowledge in the field of drawing and modeling.

Learning Outcomes

ON 3 Distinguish the types and properties of building materials and structures used.
ON 5 Design and calculate building structures .
ON 7 Design energy efficient and information modeling of buildings.

Prerequisites

Construction drawing

Postrequisites

The architecture BIM-technology in building design

Autocad in pojecting

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33177 (3022901)
Course	2
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
The discipline is devoted to the study of AutoCAD program, mastering the interface of AutoCAD, tools for mastering 2D modeling: drawing, editing, forming image formats, the formation of orthogonal projections of parts with a section, the formation of images of diagrams by means of AutoCAD. 3D modeling in AutoCAD: the basic elements of 3D modeling, building 3 D models, building orthogonal projections. Construction of 2D and 3D objects in AutoCAD

Purpose of studying of the discipline
The study of the basic principles of computer-aided design fundamentals of drawing in AutoCAD

Learning Outcomes
ON 3 Distinguish the types and properties of building materials and structures used.
ON 7 Design energy efficient and information modeling of buildings.

Prerequisites
Introduction to construction Construction drawing

Postrequisites
The architecture BIM-technology in building design

Computer graphics in construction

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33178 (3022902)
Course	2
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
The discipline is devoted to the study and practical development of methods for the development of text and drawing
design documentation using modern graphic editors, as well as the development of students` ability to spatial imagination.
In the course students study the application of computer technology in the system AutoCAD in the construction of graphic models: drawings, objects in construction. Construction of drawing elements: walls, window blocks, doors, sizing, symbols

Purpose of studying of the discipline
The purpose of teaching the discipline "Computer graphics in construction»: preparing students for independent, creative work, performing which they must demonstrate basic knowledge when working with the computer-aided design program AutoCAD.

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

Prerequisites
Construction drawing

Postrequisites
The architecture BIM-technology in building design

BIM-technology in building design

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33272 (3022905)
Course	3
Term	2
Credits count	5
Lections	15hours

Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
The discipline "BIM Technologies in Building Design" studies the use of special architectural software to perform the necessary elements in the design of standard architectural exhibits, the use of special functions to create walls, windows and specific building requirements for construction in residential/ commercial and industrial architecture. The discipline allows you to master the knowledge of the concept and terminology of BIM technology,get acquainted with the advantages and disadvantages, methods of implementation

Purpose of studying of the discipline
The purpose of the discipline: To provide information about a new design method (Bilding Informa-tional Modeling) - the process that results in the formation of an information model of a building.

Learning Outcomes
ON 3 Distinguish the types and properties of building materials and structures used.
ON 5 Design and calculate building structures .
ON 7 Design energy efficient and information modeling of buildings.

Prerequisites
Autocad in pojecting

Postrequisites
Final examination

Smart technologies in construction

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33273 (3022906)
Course	3
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
This discipline gives students information about modern technologies in the design of engineering networks, as well as to study in more detail in the global construction industry, to find errors and shortcomings by comparing and analyzing, which ultimately choose the best option using a computer model of buildings and structures

Purpose of studying of the discipline
The purpose of mastering the discipline "Smart technologies in construction" is to prepare the future student for independent work on the development of new technologies by optimizing technological modes.

Learning Outcomes
ON 3 Distinguish the types and properties of building materials and structures used.
ON 5 Design and calculate building structures .
ON 7 Design energy efficient and information modeling of buildings.

Prerequisites
Autocad in pojecting Information and communication technology

Postrequisites
Final examination

Software packages for computer-aided design

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33274 (3022936)
Course	3
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The study of the discipline will become familiar with the basic principles of CAD, methods of classification of design processes and design work, to form knowledge, skills, automation process design and design documentation in the design of buildings and structures using modern software systems.
To achieve the goal is given a review of the structure and principles of computer-aided design, provides an overview of the components and software tools CAD.

Purpose of studying of the discipline

The main purpose of the discipline "Software systems for computer- aided design" is to familiarize students with the fundamental principles of CAD, their classification, methods of formalization of the design and construction process, ways of using information technologies to automate design, design and technological work.

Learning Outcomes

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

Prerequisites

Autocad in pojecting

Postrequisites

Final examination

Industrial practice II

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	33275 (3022925)
Course	3
Term	2
Credits count	5
Working practice	150hours
Total	150hours
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 7 Design energy efficient and information modeling of buildings.

Prerequisites

Industrial practice I

Postrequisites

Production practice III

Calculation of structures and systems of buildings by computer programs

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33277 (3022943)
Course	3
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The discipline «Calculation of structures and systems of buildings by computer programs» makes it possible for students to acquire the necessary knowledge for the use of software complexes (SCAD, LIRA etc.) when solving professional problems in separate parts and in general buildings, which is required for a modern design engineer

Purpose of studying of the discipline

The objectives of mastering the discipline "Calculation of structures and systems of buildings according to computer programs" are: - study in the theoretical part of the classification of existing CAD systems, and their principles of functioning, including methods of mathematical (computer) modeling.

Learning Outcomes

ON 3 Distinguish the types and properties of building materials and structures used.
ON 5 Design and calculate building structures .
ON 7 Design energy efficient and information modeling of buildings.

Prerequisites
Autocad in pojecting
Postrequisites
Final examination

Computer-aided design systems in construction

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33276 (3022915)
Course	3
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
Acquisition and development of students of the theoretical foundations of computer-aided design, familiarization with the principles of modern CAD and skills in solving engineering problems of designing complex technical systems using CAD. Formation of students ` theoretical and practical knowledge in the field of computer-aided design
Purpose of studying of the discipline
The purpose of mastering the discipline "CAD in construction" is to form the knowledge, skills and abilities of students to use a computer when performing design work and preparing relevant documentation.
Learning Outcomes
ON 3 Distinguish the types and properties of building materials and structures used.
ON 5 Design and calculate building structures .
ON 7 Design energy efficient and information modeling of buildings.
Prerequisites
Autocad in pojecting
Postrequisites
Final examination

Digital technologies in organizations, management and planning of buildings

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33278 (3022907)
Course	3
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
Preparation of students for organizational and technical, experimental research and designers related to digital technologies: design of modern, reliable, high-performance structural elements. Concepts of digital technologies and their types; digital technologies in the construction industry; features of modern design methods; methods of developing solutions using CT
Purpose of studying of the discipline
The purpose of mastering the discipline "Digital technologies in the organization, management and planning of buildings" is to master students ` knowledge of digital and information and communication technologies, basic mathematical and statistical laws.
Learning Outcomes
ON 5 Design and calculate building structures .
Prerequisites
Autocad in pojecting Information and communication technology
Postrequisites
Final examination

Module 8. Regulatory and economic framework in construction

Organization of project documentation

Discipline cycle	Basic disciplines
Discipline component	Electives

SubjectID	33279 (3022921)
Course	3
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
The discipline "Organization of project activities" is basic and forms students` theoretical knowledge in the field of organization of project activities of enterprises, in the field of methodological approaches to project evaluation and practical skills in the field of working with project management standards, creating regulations for project activities, planning, management and control of projects, as well as analyzing the effectiveness of projects.

Purpose of studying of the discipline
The purpose of the discipline "Organization of project activities" is to provide students with competencies in the field of organizing creative and production activities of designers and project teams.

Learning Outcomes
ON 8 Determine the cost of production costs and the efficiency of construction according to regulatory and economic bases.
ON 9 Plan the organization and technology of construction production of buildings and structures.

Prerequisites
The architecture

Postrequisites
Normative and technical documentation in construction

Design and estimate work

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33280 (3022920)
Course	3
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
The discipline "Design and estimate business" is included in the cycle of basic disciplines. It provides for issues on determining the price of construction products, taking into account modern conditions and the requirements of the new estimate and regulatory framework of 2001, the rules and procedure for drawing up estimates using the ABC-4RS computer program. The discipline aims to provide an appropriate theoretical level and practical orientation in the issues of design and estimate documentation.

Purpose of studying of the discipline
The purpose of studying the discipline is to form students ` theoretical knowledge and practical skills on the issues of estimated pricing and financing of capital construction, the methodology for determining the price of construction products in order to ensure the profitability of construction organizations.

Learning Outcomes
ON 3 Distinguish the types and properties of building materials and structures used.
ON 5 Design and calculate building structures .
ON 8 Determine the cost of production costs and the efficiency of construction according to regulatory and economic bases.

Prerequisites
The architecture

Postrequisites
Normative and technical documentation in construction

Documentation, valuation and pricing of construction works

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33281 (3022922)
Course	3
Term	2
Credits count	5
Lections	15hours

Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
The discipline "Estimate documentation, rationing and pricing of construction works" belongs to the block of basic disciplines. To master it, a student must know architecture and economics. The purpose of studying the discipline is to expand the system of knowledge and skills for the development of the estimated cost of construction and the formation of prices for construction products, determining the cost of construction and installation work to perform technical and economic calculations.

Purpose of studying of the discipline
The purpose of studying the discipline is to expand the system of knowledge and skills for developing the estimated cost of construction and the formation of prices for construction products, determining the cost of construction and installation works for performing technical and economic calculations related to the specifics of the work of construction organizations in the conditions of the development of market relations.

Learning Outcomes
ON 8 Determine the cost of production costs and the efficiency of construction according to regulatory and economic bases.

Prerequisites
The architecture

Postrequisites
Normative and technical documentation in construction

Control and management of normative documentation at CIW

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	33214 (3022909)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
The discipline checks the organization of quality control in construction, quality control in the production and acceptance of CIW and the organization of supervision and acceptance of objects. Since the quality of the performance of the CIW largely depends on the knowledge of the performers of the work. The purpose of mastering the discipline is to form knowledge about modern methods of organization and quality control of construction and installation works, construction materials, project documentation

Purpose of studying of the discipline
The purpose of mastering the discipline "Control and management of normative documentation at the SMR" is to form knowledge about modern methods of organization and technical methods of quality control of construction and installation works, construction materials, project documentation.

Learning Outcomes
ON 8 Determine the cost of production costs and the efficiency of construction according to regulatory and economic bases.

Prerequisites
Design and estimate work

Postrequisites
Final examination

Normative and technical documentation in construction

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	33213 (3022908)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The discipline introduces the concept of normative documents, methods of standardization, statemanagement of works on technical regulation. The procedure for the development of BCiR, standards. The purpose of studying the discipline "Normative and technical documentation in
construction": preparation of bachelors to solve professional problems in the field of construction based on the study of the provisions of the main legal and regulatory documents regulating the procedure for the development of regulatory and technical documents

Purpose of studying of the discipline

The purpose of studying the discipline "Normative and technical documentation in construction": preparation of bachelors for solving professional problems in the field of construction on the basis of studying the provisions of the main legal and regulatory documents regulating the procedure for the development of normative and technical documents.

Learning Outcomes

ON 8 Determine the cost of production costs and the efficiency of construction according to regulatory and economic bases.

Prerequisites

Design and estimate work

Postrequisites

Final examination

The organization, management and planning in building

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	33215 (3022910)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The discipline "organization, management and planning of construction" is aimed at training qualified specialists- organizers of construction production, who know the basics of organization and planning of construction production and the ability to apply them in practice in construction organizations. Teaching the discipline "organization, management and planning of construction" specialists with knowledge of the basics of organization and planning of construction production and the ability to apply them in practice in construction organizations.

Purpose of studying of the discipline

The purpose of teaching the discipline "Organization, management and planning in construction" is to train qualified specialists-organizers of construction production who know the basics of organization and planning of construction production and are able to use them in practical activities in construction organizations.

Learning Outcomes

ON 3 Distinguish the types and properties of building materials and structures used.
ON 5 Design and calculate building structures .
ON 9 Plan the organization and technology of construction production of buildings and structures.

Prerequisites

Technology of production construction

Postrequisites

Final examination

Module 9. Organization and technology of construction production of buildings and structures and production of building materials

Educational practice

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	33173 (3022923)
Course	1
Term	2
Credits count	2
Study practics	60hours
Total	60hours
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

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

Learning Outcomes

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

Prerequisites

Basic and profile disciplines of the EP

Postrequisites

Final examination

Modern finishing materials

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33204 (3022935)
Course	3
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The purpose of the discipline is to obtain basic knowledge in the field of finishing materials for interior decoration of buildings for civil and industrial purposes; acquisition and development of skills in choosing facade materials. The purpose of mastering the discipline is to prepare for practical activities on the rational choice of finishing materials and the effective use of their artistic capabilities in the composition of environmental objects for various purposes.

Purpose of studying of the discipline

The purpose (goals) of mastering the discipline:
- to form students ` idea of the level and prospects of development of modern finishing materials used in the design of the environment architecture;
- to prepare for practical activities on the rational choice of finishing materials and the effective use of their artistic capabilities in the composition of environmental objects for various purposes.

Learning Outcomes

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

Prerequisites

Construction materials

Postrequisites

Technology of construction of buildings and structures

Technological bases of production of building materials, products and structures

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33203 (3022934)
Course	3
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The discipline considers topics as raw materials: concept, classification, fundamentals of production technology.
The purpose of the discipline: to study the basics of organizational and technological support of construction industry enterprises based on a systematic approach. Study of the concepts of operational stability of building materials; theoretical knowledge in the field of ensuring the reliability of building structures; methods for obtaining materials with predictable strength.

Purpose of studying of the discipline

The purpose of the discipline: To study the basics of organizational and technological support of construction industry enterprises based on a systematic approach. Study of ideas about the operational resistance of building materials; give theoretical knowledge in the field of ensuring the reliability of building structures; methodology for obtaining materials with predicted durability.

Learning Outcomes

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

Prerequisites

Construction materials

Postrequisites
Projecting and construction of energy efficient buildings

Technology of production of building materials

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33202 (3022933)
Course	3
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
The discipline "Technology of production of building materials" provides accurate information about the main groups of modern building materials, the basics of their production technology and promising areas of their application and improvement. The discipline "Technology of production of building materials" has properties, nomenclature and features of technology of building materials and products, pursues the goal of training highly qualified bachelors for their rational use in construction.

Purpose of studying of the discipline
The discipline "Technology of production of building materials" aims to train highly qualified bachelors who possess the properties, nomenclature and features of the technology of building materials and products for their rational use in construction.

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

Prerequisites
Construction materials

Postrequisites
Technology of construction of buildings and structures

Technology of production construction

Discipline cycle	Profiling discipline
Discipline component	University component
SubjectID	33206 (3022911)
Course	3
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
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 3 Distinguish the types and properties of building materials and structures used.
ON 5 Design and calculate building structures .

Prerequisites
Construction materials The architecture

Postrequisites
Technology of construction of buildings and structures

Technology of construction of buildings and structures

Discipline cycle	Profiling discipline
Discipline component	University component
SubjectID	33282 (3022912)

Course	3
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
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 5 Design and calculate building structures .
ON 6 Analyze geo research and design foundations.
ON 9 Plan the organization and technology of construction production of buildings and structures.

Prerequisites

Technology of production construction

Postrequisites

Final examination

The construction of special buildings and structures

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	33216 (3022913)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The discipline considers the following topics: basic concepts and regulatory provisions, technology of engineering preparation of a construction site, technology of construction of earthworks, technology of construction of underground structures, construction of buildings from prefabricated structures, general information on the construction of high-rise and large-span buildings and structures, students mastering the theoretical foundations and regulations of methods of construction of buildings and structures of various structural systems from prefabricated, monolithic and prefabricated monolithic structures

Purpose of studying of the discipline

The purpose of mastering the discipline "Construction of special 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 3 Distinguish the types and properties of building materials and structures used.
ON 5 Design and calculate building structures .
ON 9 Plan the organization and technology of construction production of buildings and structures.
ON 10 Develop technology for testing and reconstruction of buildings.

Prerequisites

Technology of production construction Construction structures

Postrequisites

Final examination

Construction in seismic areas

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	33217 (3022914)

Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
The discipline "Construction in seismic areas" provides the knowledge and skills necessary for the design and construction of unique buildings and structures in earthquake- prone areas. Basic information about earthquakes, their causes, manifestations, and consequences. Causes of earthquakes, types of earthquakes. Earthquake -prone zones of the Earth. The discipline forms knowledge, skills and abilities in the calculation and design of structures of buildings and structures erected and operated in seismic areas.

Purpose of studying of the discipline
The purpose of mastering the discipline "Construction in seismic areas" is to form knowledge, skills and abilities in the calculation and design of structures of buildings and structures erected and operated in seismic areas.

Learning Outcomes
ON 5 Design and calculate building structures .
ON 6 Analyze geo research and design foundations.
ON 9 Plan the organization and technology of construction production of buildings and structures.
ON 10 Develop technology for testing and reconstruction of buildings.

Prerequisites
Stone and reinforced concrete structures Metal structures Technology of production construction Construction structures

Postrequisites
Final examination

Technologies of high-rise construction

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	33222 (3022932)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
The discipline studies the general concepts and provisions of technology for the construction of various high- rise and large- span buildings and structures. In this discipline, the design and preparation of production of these works on the construction site and methods and methods of work on the construction of aboveground engineering structures for various purposes, modern methods of construction of high-rise and large-span buildings and structures are considered

Purpose of studying of the discipline
The purpose of studying the discipline "Technology of high-rise construction" is to familiarize students with the basics of design and modern methods of construction of high-rise and large-span buildings and structures.

Learning Outcomes
ON 3 Distinguish the types and properties of building materials and structures used.
ON 5 Design and calculate building structures .
ON 9 Plan the organization and technology of construction production of buildings and structures.

Prerequisites
Technology of production construction Technology of construction of buildings and structures The construction of special buildings and structures

Postrequisites
Final examination

Pre-diploma practice

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	33224 (3022926)
Course	4
Term	2
Credits count	15

Working practice	450hours
Total	450hours
Knowledge control form	Total mark on practice

Short description of discipline
Pre-diploma practice of students is a stage of training, and made after the development of the program of theoretical and practical courses of delivery by students of all types of intermediate certification provided by the state requirements to the minimum content and level of training of graduates.

Purpose of studying of the discipline
The purpose of the pre-graduate practice is to prepare the student for solving design and production and technological problems in production and to collect the initial data for working on the diploma project.

Learning Outcomes
ON 5 Design and calculate building structures .
ON 6 Analyze geo research and design foundations.
ON 7 Design energy efficient and information modeling of buildings.
ON 8 Determine the cost of production costs and the efficiency of construction according to regulatory and economic bases.
ON 9 Plan the organization and technology of construction production of buildings and structures.

Prerequisites
Industrial practice II Production practice III

Postrequisites
Final examination

Production practice III

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	33225 (3022946)
Course	4
Term	2
Credits count	15
Working practice	450hours
Total	450hours
Knowledge control form	Total mark on practice

Short description of discipline
This course is necessary to prepare for the final certification based on practical experience in the current production. (production facility). The course is conducted after studying the theory and practice blocks and passing the intermediate certification. The information obtained helps students to gain initial professional experience, to test themselves in professional readiness as a future specialist

Purpose of studying of the discipline
The purpose of Industrial practice III is to prepare students to solve geodetic tasks to ensure the effectiveness of the required quality required for engineering and geodetic works of buildings and structures

Learning Outcomes
ON 8 Determine the cost of production costs and the efficiency of construction according to regulatory and economic bases.
ON 9 Plan the organization and technology of construction production of buildings and structures.

Prerequisites
Industrial practice II

Postrequisites
Production practice III

Module 10. Technology of testing and reconstruction of buildings

Fundamentals of Structural Safety of Buildings and Structures

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33208 (3022939)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
The discipline "Fundamentals of Structural Safety of Buildings and Structures" is a basic discipline of the educational program, studying the basic concepts and methods in the field of buildings and structures safety during construction and operation to solve a number of state and construction tasks. In the course of study students will be able to predict potential risks and develop measures to eliminate

them

Purpose of studying of the discipline

The purpose of mastering the discipline is the formation of knowledge, skills and abilities to determine the structural safety of buildings and structures at the stages of design, construction and operation of residential and industrial buildings and structures

Learning Outcomes

ON 3 Distinguish the types and properties of building materials and structures used.
ON 5 Design and calculate building structures .

Prerequisites

Construction structures

Postrequisites

The construction of special buildings and structures Technology reconstruction of buildings

Construction and operation of highways

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33209 (3022938)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The discipline is aimed at studying the prospects for the development of the road network, the influence of highways on the level of development of the national economy, the composition of road construction works and ways of their implementation. The study of the discipline helps to master theoretical knowledge and practical techniques for performing technological processes for the repair and maintenance of structural elements of the highway and road structures.

Purpose of studying of the discipline

The purpose of mastering the discipline "Construction and operation of highways" is to master theoretical knowledge and practical techniques for performing technological processes for the repair and maintenance of structural elements of highways and road structures, mechanization and quality control of work, organization and ensuring road safety.

Learning Outcomes

ON 6 Analyze geo research and design foundations.

Prerequisites

Geodesy Technology of production construction

Postrequisites

Final examination

Operation of housing and communal services and urban infrastructure

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33210 (3022937)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The discipline studies the modern principles of the use and maintenance of housing. As well as technical inspection and repair of the housing stock. Evaluation of the operational properties of the object. Organization, planning and management of technical operation of the facility and the urban area. The purpose of mastering the discipline is to form students` theoretical knowledge in the field of infrastructure and improvement of urban areas for various purposes, as well as practical skills.

Purpose of studying of the discipline

The purpose of mastering the discipline is to form students ` theoretical knowledge in the field of infrastructure and improvement of urban areas for various purposes, as well as practical skills for using this knowledge within the framework of the chosen educational direction.

Learning Outcomes

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

Prerequisites

The architecture Construction structures

Postrequisites

Final examination

Tests of buildings and structures

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	33218 (3022917)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The discipline studies the testing of buildings and structures, their main tasks. Methods of testing buildings and structures; Reliability, reliability, durability, maintainability, failure, operating time, technical resource. It also studies the indicators of reliability, durability and maintainability. The history of the development of methods of testing buildings and structures The purpose of the discipline "Testing of buildings and structures" is to prepare a bachelor who knows the principles of optimal experiment planning, who is able to establish a correspondence between the actual work of the structure and its design model.

Purpose of studying of the discipline

The purpose of the discipline "Testing of buildings and structures" is to prepare a bachelor who knows the principles of optimal planning of the experiment, who is able to establish a correspondence between the actual work of the structure and its design model.

Learning Outcomes

ON 5 Design and calculate building structures .
ON 10 Develop technology for testing and reconstruction of buildings.

Prerequisites

Technology of production construction

Postrequisites

Final examination

Technical maintenance of buildings

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	33220 (3022918)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

The discipline studies the main provisions on the production and operation of buildings, regulatory and technical documentation for the operation of buildings and structures. Surveys during the operation of the building. Students study methods of quality control and acceptance of work into operation, labor protection and fire prevention. The objectives of mastering the discipline "Technical operation of buildings" are: To determine the operational qualities of building structures and engineering equipment.

Purpose of studying of the discipline

The objectives of mastering the discipline "Technical operation of buildings" are: To determine the operational qualities of building structures and engineering equipment, as well as the building as a whole.

Learning Outcomes

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

Prerequisites

Technology of construction of buildings and structures Construction structures

Postrequisites

Final examination

Technical operation and testing of buildings and structures

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	33219 (3022916)

Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline
Basic provisions for the production and operation of buildings. Technical documentation for the operation of buildings, wages of workers, their billing, collective and employment contracts. Industrialization, complex automation and mechanization in the operation of buildings. Excavation works, repair of foundations, partitions, walls, restoration of insulation of building structures

Purpose of studying of the discipline
The purpose of the discipline is the acquisition by students of knowledge and skills in the field of ensuring trouble-free operation, the required technical condition of building structures and engineering systems, as well as their maintenance, the development and consolidation of academic and socio-personal competencies.

Learning Outcomes
ON 9 Plan the organization and technology of construction production of buildings and structures.
ON 10 Develop technology for testing and reconstruction of buildings.

Prerequisites
Technology of production construction Construction structures

Postrequisites
Final examination Fundamentals of Structural Safety of Buildings and Structures

Technology reconstruction of buildings

Discipline cycle	Profiling discipline
Discipline component	University component
SubjectID	33221 (3022919)
Course	4
Term	1
Credits count	6
Lections	30hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	40hours
Independent work of the student	80hours
Total	180hours
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 3 Distinguish the types and properties of building materials and structures used.
ON 5 Design and calculate building structures .
ON 10 Develop technology for testing and reconstruction of buildings.

Prerequisites
Technology of production construction

Postrequisites
Final examination

Final examination

Writing and defending a graduation project or preparing and passing a comprehensive exam.

Thesis project

Credits count	8

Comprehensive exam

Credits count	8

4.Summary table on the scope of the educational program

«6B07302 - Civil engineering»

Name of discipline	Cycle/ Component	Term	Number of credits	Total hours	Lec	SPL	LC	IWST	IWS	Knowledge control form
Module 1. Fundamentals of social and humanitarian knowledge										
Foreign language	GER/CC	1	5	150		45		35	70	Examination
Kazakh language	GER/CC	1	5	150		45		35	70	Examination
Bases of economics, law and ecological knowledge	GER/US	1	5	150	15	30		35	70	Examination
Russian language	GER/CC	1	5	150		45		35	70	Examination
Physical Culture	GER/CC	1	2	60		60				Differentiated attestation
Kazakh language	GER/CC	2	5	150		45		35	70	Examination
Foreign language	GER/CC	2	5	150		45		35	70	Examination
History of Kazakhstan	GER/CC	2	5	150	30	15		35	70	Qualification examination
The module of socio-political knowledge (sociology, political science, cultural studies, psychology)	GER/CC	2	8	240	30	45		55	110	Examination
Russian language	GER/CC	2	5	150		45		35	70	Examination
Physical Culture	GER/CC	2	2	60		60				Differentiated attestation
Physical Culture	GER/CC	3	2	60		60				Differentiated attestation
World of Abai	BS/US	3	3	90	15	15		20	40	Examination
Information and communication technology	GER/CC	4	5	150	15	15	15	35	70	Examination
Physical Culture	GER/CC	4	2	60		60				Differentiated attestation
Philosophy	GER/CC	5	5	150	15	30		35	70	Examination
Module 2. Natural science disciplines										
Mathematics	BS/US	1	5	150	15	30		35	70	Examination
Physics	BS/US	1	3	90	15	15	0	20	40	Examination
Module 3. Fundamentals of architectural and construction activity										
Introduction to construction	BS/US	1	3	90	15	15		20	40	Examination
Construction drawing	BS/US	2	5	150	15	30		35	70	Examination
The architecture	BS/US	3	5	150	15	30		35	70	Examination and term work/Project
Construction materials	BS/CC	3	5	150	15	15	15	35	70	Examination
Module 4. Engineering systems and machines in civil engineering										

Water supply and sewerage	BS/CCh	4	5	150	15	30		35	70	Examination
Engineering systems of buildings and structure	BS/CCh	4	5	150	15	30		35	70	Examination
Heating and ventilation systems	BS/CCh	4	5	150	15	30		35	70	Examination
Hydraulics and hydraulic machines	BS/CCh	5	5	150	15	30		35	70	Examination
The Sanitary equipment of buildings	BS/CCh	5	5	150	15	30		35	70	Examination
Construction machines and equipment	BS/CCh	5	5	150	15	30		35	70	Examination
Module 5. Design and calculation of building structures										
Engineering mechanics	BS/US	3	5	150	15	30		35	70	Examination
Industrial practice I	BS/US	4	5	150						Total mark on practice
Construction structures	BS/US	4	5	150	15	30		35	70	Examination
Stone and reinforced concrete structures	AS/US	5	5	150	15	30		35	70	Examination
Production of metal structures	AS/CCh	6	5	150	15	30		35	70	Examination
Metal structures	AS/CCh	6	5	150	15	30		35	70	Examination
Installation of metal structures	AS/CCh	6	5	150	15	30		35	70	Examination
Projecting and construction of energy efficient buildings	AS/US	7	6	180	30	30		40	80	Examination and term work/Project
Module 6. Geotechnical research and design of foundations in construction										
Academic writing and the basics of scientific research	BS/US	3	3	90	15	15		20	40	Examination
Geodetic works in the construction of structures	BS/CCh	4	5	150	15	30		35	70	Examination
Geodesy	BS/CCh	4	5	150	15	30		35	70	Examination
Geotechnics	BS/CCh	4	5	150	15	15	15	35	70	Examination
Engineering geology and soil mechanics	BS/CCh	4	5	150	15	15	15	35	70	Examination
Fundamentals of soil mechanics	BS/CCh	4	5	150	15	15	15	35	70	Examination
Systems of coordinates and altitudes in geodesy	BS/CCh	4	5	150	15	30		35	70	Examination
Engineering geodesy	BS/CCh	5	5	150	15	30		35	70	Examination
Engineering landscaping	BS/CCh	5	5	150	15	30		35	70	Examination
Foundations and bases	BS/CCh	5	5	150	15	30		35	70	Examination
Automations topographergeodetic Work	BS/CCh	7	5	150	15	30		35	70	Examination
Geodetic works on the construction of industrial site	BS/CCh	7	5	150	15	30		35	70	Examination
Geodesic control in construction	BS/CCh	7	5	150	15	30		35	70	Examination
Module 7. Energy-efficient design and information modeling of buildings										
Computer drawing in design	BS/CCh	3	5	150	15	30		35	70	Examination
Autocad in pojecting	BS/CCh	3	5	150	15	30		35	70	Examination
Computer graphics in construction	BS/CCh	3	5	150	15	30		35	70	Examination

BIM-technology in building design	BS/CCh	6	5	150	15	30		35	70	Examination
Smart technologies in construction	BS/CCh	6	5	150	15	30		35	70	Examination
Software packages for computer-aided design	BS/CCh	6	5	150	15	30		35	70	Examination
Industrial practice II	BS/US	6	5	150						Total mark on practice
Calculation of structures and systems of buildings by computer programs	BS/CCh	6	5	150	15	30		35	70	Examination
Computer-aided design systems in construction	BS/CCh	6	5	150	15	30		35	70	Examination
Digital technologies in organizations, management and planning of buildings	BS/CCh	6	5	150	15	30		35	70	Examination
Module 8. Regulatory and economic framework in construction										
Organization of project documentation	BS/CCh	6	5	150	15	30		35	70	Examination
Design and estimate work	BS/CCh	6	5	150	15	30		35	70	Examination
Documentation, valuation and pricing of construction works	BS/CCh	6	5	150	15	30		35	70	Examination
Control and management of normative documentation at CIW	AS/CCh	7	5	150	15	30		35	70	Examination
Normative and technical documentation in construction	AS/CCh	7	5	150	15	30		35	70	Examination
The organization, management and planning in building	AS/CCh	7	5	150	15	30		35	70	Examination
Module 9. Organization and technology of construction production of buildings and structures and production of building materials										
Educational practice	BS/US	2	2	60						Total mark on practice
Modern finishing materials	BS/CCh	5	5	150	15	30		35	70	Examination
Technological bases of production of building materials, products and structures	BS/CCh	5	5	150	15	30		35	70	Examination
Technology of production of building materials	BS/CCh	5	5	150	15	30		35	70	Examination
Technology of production construction	AS/US	5	5	150	15	30		35	70	Examination and term work/Project
Technology of construction of buildings and structures	AS/US	6	5	150	15	30		35	70	Examination and term work/Project
The construction of special buildings and structures	AS/CCh	7	5	150	15	30		35	70	Examination
Construction in seismic areas	AS/CCh	7	5	150	15	30		35	70	Examination
Technologies of high-rise construction	AS/CCh	7	5	150	15	30		35	70	Examination
Pre-diploma practice	AS/CCh	8	15	450						Total mark on practice
Production practice III	AS/CCh	8	15	450						Total mark on practice
Module 10. Technology of testing and reconstruction of buildings										
Fundamentals of Structural Safety of Buildings and Structures	BS/CCh	7	5	150	15	30		35	70	Examination
Construction and operation of highways	BS/CCh	7	5	150	15	30		35	70	Examination
Operation of housing and communal services and urban infrastructure	BS/CCh	7	5	150	15	30		35	70	Examination
Tests of buildings and structures	AS/CCh	7	5	150	15	30		35	70	Examination

Technical maintenance of buildings	AS/CCh	7	5	150	15	30		35	70	Examination
Technical operation and testing of buildings and structures	AS/CCh	7	5	150	15	30		35	70	Examination
Technology reconstruction of buildings	AS/US	7	6	180	30	30		40	80	Examination and term work/Project
Final examination										
Thesis project		8	8	240						
Comprehensive exam		8	8	240						