ASIIN Seal

Accreditation Report

Bachelor's Degree Programme
Architecture
Civil Engineering

Master's Degree Programme
Architecture
Civil Engineering

Provided by
D. Serikbayev East Kazakhstan Technical University

Version: 28th June 2024

Table of Content

A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for [1]	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC)[2]
Архитектура	Ba Architecture	ASIIN	2014-2019 ASIIN	03
Строительство	Ba Civil Engineering	ASIIN	2014-2019 ASIIN	03
Архитектура	Ma Architecture	ASIIN	2014-2019 ASIIN	03
Строительство	Ma Civil Engineering	ASIIN	2014-2019 ASIIN	03

Date of the contract: 03.06.2022

Submission of the final version of the self-assessment report: 03.01.2023

Date of the onsite visit: 18.-20.01.2023

at: School of Architecture, Construction and Design, Ust-Kamenogorsk

Peer panel:

Prof. Dr.-Ing. Lutz Beckmann, Jade University of Applied Sciences Oldenburg

Prof. Dr.-Ing. Johannes Weinig, University of Applied Sciences Bielefeld

Glaudinova Mehribanu Bekrimzhanovna, Kazakh Leading Academy of Architecture and Civil Engineering (KAZGasa)

Shakhmov Zhanbolat Anuarbekuly, GoldenBuildGroup

Yerzatova Merey, student representative from L.N. Gumilyov Eurasian National University in Astana

Representative of the ASIIN headquarter: Yanna Sumkötter

---

[1] ASIIN Seal for degree programmes

[2] TC: Technical Committee for the following subject areas: TC 03 - Civil Engineering, Geodesy and Architecture

Responsible decision-making committee: Accreditation Commission for Degree Pro-grammes	
Criteria used: European Standards and Guidelines as of May 15, 2015 ASIIN General Criteria, as of December 10, 2015 Subject-Specific Criteria of Technical Committee 03 – Civil Engineering, Geodesy and Architecture as of September 28, 2012	

B Characteristics of the Degree Programmes

a) Name	Final degree (original/English translation)	b) Areas of Specialization	c) Corresponding level of the EQF[3]	d) Mode of Study	e) Double/Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
Architecture	Bachelor of Engineering and Technologies	-	6	Full time	-	10 semesters	300 ECTS	Annually / 2019
Civil Engineering	Bachelor of Engineering and Technologies	-	6	Full time	-	8 semesters	240 ECTS	Annually / 2019
Architecture	Master of Science	-	7	Full time	-	4 semesters	120 ECTS	Annually / 2019
Civil Engineering	Master of Science	-	7	Full time	-	4 semesters	120 ECTS	Annually / 2019

For the <u>Bachelor's degree programme Architecture</u> the institution has presented the following profile on the programme's website:

Formed core competencies	Program outcome
1. Evaluate different situations based on a holistic systemic scientific worldview	Analyze information of philosophical and historical content, methods of discussion and controversy
	Express a thought, reasonably defend one's own opinion on issues of social significance
2. Carry out cultural and verbal communication using modern communication tools and technologies	Demonstrate proficiency in written, oral, and non-verbal communication
	Search and process information using ICT
	Express knowledge of holistic personality in economic and legal environment

---

[3] EQF = The European Qualifications Framework for lifelong learning

3. Define a person in a social environment and focus on a healthy lifestyle	Apply methods of ensuring the safety of social systems in order to preserve, develop and effectively function of an individual, society and the state
4. The ability to identify the nature of natural science problems arising in the course of professional activity	To apply basic and special knowledge in the field of mathematical, natural, humanitarian and technical Sciences in complex engineering activity
5. Ability to realize the aesthetic appeal of architectural objects	Qualities in finding the specific means of art, new figurative and plastic solutions for each creative problem.
	To analyze and justify the implementation of creative projects
6. Ability to prepare documentation on the organization of workplaces, requirements of labor protection and environmental safety.	Demonstrate awareness of health, safety and work in the workplace.
7. Ability to create architectural and urban planning projects that meet both aesthetic and technical requirements.	Demonstrate an understanding of the nature and meaning of technical information.
	Analyze the current situation and develop their own project documentation.
	To show compliance of progressive technology of construction of objects of architecture, requirements of norms and rules, properties of building materials.
8. Ability to develop projects of artistic design and artistic and graphic works.	Comparative analysis of similar domestic and foreign products, evaluation of their aesthetic level.
	Be literate in computer and mock-up modeling.
	Possess the skills of graphic design, detailing the shapes of products, aesthetic and harmonic properties of objects.
9. Knowledge of the regulatory framework in the construction project documentation.	To develop drawings of architectural construction project: conceptual and working, layout, sample color drawings, etc.
	Ensure compliance of projects and technical documentation with standards, technical specifications and other regulatory documents.

For the Master's degree programme Architecture the institution has presented the following profile on the programme's website:

Formed core competencies	Program outcome
1. Carrying out educational and methodical work in educational institutions of additional education, General and professional.	Use basic knowledge and practical experience in the organization and analysis of the educational process, methods of preparation and conduct of classes.
	Be able to apply classical and modern teaching methods.

2. Development of skills of creative approach in pedagogical activity.	To use individual methods and methods of work taking into account age, psychological and physiological characteristics of students.
	Own techniques in the development of professional creative skills of students.
3. Ability in a comprehensive analysis of scientific research or development on one of the issues of theoretical or practical nature.	Develop the ability to develop and lead the development of research-based design solutions.
	Develop the ability to develop innovative (conceptual), interdisciplinary and specialized character.
4. Ability to effectively use engineering and technical knowledge (materials, structures, technologies, engineering systems) in the development of architectural and urban solutions, to carry out their economic justification.	To form architectural and urban planning solutions by integrating fundamental and applied knowledge in the field of architectural activity.
	Present their works to professional and academic communities, management bodies, customers and the public.
5. Ability to implement multimedia, virtual, multi-dimensional digital spatial modeling technologies for scientific research, architectural and planning, urban development projects and production and technological solutions.	Acquire new knowledge and skills related to the professional sphere of activity with the help of information technologies
	To solve engineering and socio-economic problems with the help of professional IT-technology packages.
6. Development of organizational, leadership and management skills.	Calculate and evaluate the conditions and consequences of decisions in the organization and conduct of practical activities in the enterprise.
	To build a logical sequence of activities of the team in the process of interaction with the corresponding structures of legal bodies.

For the Bachelor's degree programme Civil Engineering the institution has presented the following profile on the programme's website:

Formed core competencies	Program outcome
1. Evaluate different situations based on a holistic systemic scientific worldview.	Analyze information of philosophical and historical content, methods of discussion and controversy.
	Express a thought, reasonably defend one's own opinion on issues of social significance
2. Carry out cultural and verbal communication using modern communication tools and technologies.	Demonstrate proficiency in written, oral, and non-verbal communication.
	Search and process information using ICT
	Express knowledge of holistic personality in economic and legal environment.

3. Define a person in a social environment and focus on a healthy lifestyle.	Apply methods of ensuring the safety of social systems in order to preserve, develop and effectively function of an individual, society and the state.
4. Ability to identify the natural science essence of the problems that arise during professional activities.	Apply basic and special knowledge in the field of mathematical, natural, humanitarian and technical sciences in complex engineering activities
5. Ability to develop measures to increase investment attractiveness of construction objects.	Possess the basics of economic knowledge, to own the skills of making decisions of an economic and organizational nature in conditions of vague risk.
	To conduct a technical and economic justification of design solutions, perform organizational and planning calculations.
6. Ability to prepare documentation for the organization of jobs, labor protection requirements and environmental safety.	Demonstrate awareness in matters of health protection, life and labor safety in production.
7. Ability to participate in the design, searches and construction of objects of professional activity.	Demonstrate an understanding of the essence and significance of technical information in the development of modern society.
	Master the new equipment being introduced, check the technical condition and residual life of equipment and structures.
	Analyze existing technical documentation and develop it yourself.
	The ability to use the design of objects and technological processes in construction using standard computeraided design tools.
8. Knowledge of the regulatory framework in the field of engineering surveys, principles of designing buildings, structures, engineering systems and equipment.	Possess design methods and the ability to determine the main tasks of designing engineering systems of buildings and structures .
	Readiness to use the technique of documenting technological solutions at the design stage and the stage of project implementation .
	Apply standard methods for calculating the elements and units of building structures, perform design work and draw up documentation according to standards.
9. Ability to conduct experiments on given methods with processing and analysis of the results .	Apply standard test methods to determine the physical and mechanical properties and technological parameters of the materials and products used .

For the Master's degree programme Civil Engineering the institution has presented the following profile on the programme's website:

Formed core competencies	Program outcome

1. Research, assess, analyze and interpret scientific data and research. Conceive ideas while scientific and practical problems solving.	Analyze trends of the modern science. Scientific communication and communication in the field of expertise.
	Demonstrate effective use of psychological and pedagogical technologies in educational process in higher education.
2. Ability to freely use foreign languages as a means of professional communication	Proficiency in a foreign language at the level of international standards C1-C2 and grammatical characteristics of scientific style; be able to work in an international environment.
3. Ability to participate in pedagogical activities	To carry out pedagogical activities taking into account psychological and pedagogical requirements for the organization of the educational process
4. Ability to participate in research activities	Carry out research work within the framework of professional activity with constant improvement of the methodology of scientific research in the field of construction
	Master modern information technologies, including methods of obtaining, processing and storing scientific information
	Know the rules of registration and protection of intellectual property
	To be able to select the necessary research methods, modify existing methods and develop new methods based on the objectives of a particular study.
5. Ability to participate in design and technological activities	Have the ability to design buildings and structures using modern building materials, structures and engineering systems, computer software and computer-aided design systems with BIM-technology in the design
	Know modern environmentally friendly technologies in construction, including additive technologies in construction, ensuring high quality and productivity of work
6. Ability to participate in organizational and management activities	Defining and evaluating the organization's development strategy, initiating technological and organizational solutions that promote mobility and competitiveness in market conditions

9

C Peer Report for the ASIIN Seal

1. The Degree Programme: Concept, content & implementation

> **Criterion 1.1 Objectives and learning outcomes of a degree programme (intended qualifications profile)**

Evidence:

- Self-Assessment Report
- Objective-module-matrices of the degree programmes
- Study plans of the degree programmes
- Module descriptions
- Webpage of all study programmes
- Discussions during the audit

Preliminary assessment and analysis of the peers:

For the Bachelor's and Master's degree programmes Architecture as well as for the Bachelor's and Master's degree programmes Civil Engineering, EKTU presents a description of the learning outcomes in the self-assessment report. This description is accompanied by detailed learning module matrices for each programme, matching learning objectives, modules and the ASIIN Subject-Specific Criteria (SSC) of the Technical Committees 03 (Civil Engineering, Geodesy and Architecture). The learning objectives of each individual module are also listed in the module descriptions. Furthermore, the objectives and learning outcomes of each programme are presented on the websites of the respective study programmes and thus made transparent and accessible to all stakeholders.

The peers discuss the learning outcomes of each degree programme, which can be found in their entirety in the annex to this accreditation report, with regard to the following criteria: the level of academic qualification aimed at, the respective ASIIN subject-specific label (SSC), whether the intended qualification profiles allow the students to take up an occupation corresponding to their education, which stakeholders are involved in the continuous assessment and further development of the objectives. The peers refer to the SSC of the Technical Committees 03 (Civil Engineering, Geodesy and Architecture) as a basis for

judging whether the objectives and intended learning outcomes of the degree programmes under review correspond with the criteria.

The peers conclude that the objectives and intended learning outcomes of all four degree programmes under review are well adapted to the demands of the Kazakh industry and labor market. As the programme coordinators declare in the audit discussions, it is their primary goal to train students for the regional industry. The peers learn for instance that there is a large number of industrial companies located near EKTU such as KAZZINC (a metallurgical company) and UKTMP (a large supplier of titanium for global aerospace industry). However, the programme coordinators are currently also working on widening the possibilities of graduates so that they are be able to work in international companies as well. Analyzing the objectives and learning outcomes, the peers agree that the intended qualification profiles allow the students to take up an occupation corresponding to their education. Furthermore, they appreciate the abundance of career opportunities that are available to the students due to the thriving industry region of East Kazakhstan. This is also reflected by the statistics that indicate that between 85% and 96% of the graduates of the School of Architecture, Construction and Design find an employment within a year after their studies.

The close connection between the School of Architecture, Construction and Design and the local industry is also visible in the involvement of industry partners in the development of the curricula and the intended learning outcomes. Thus, industry representatives report during the audit that they are regularly consulted to give their feedback on the programmes. In fact, several industry partners, as well as students, are part of the academic committee of EKTU, which results in their continuous involvement in all major changes in the study programmes. Students equally state that their feedback for instance through evaluations is considered in the development of the curricula and the intended learning outcomes. The peers appreciate that all relevant stakeholders are included in the process of formulating and further developing the objectives and learning outcomes of the programmes to be accredited.

At the end of their studies, graduates of the Bachelor's degree programme Architecture have acquired basic and advanced knowledge in architectural design and design methods. They should be able to create architectural and urban planning projects that meet both aesthetic and technical requirements. They know how to design and develop a research-based architecture, produce creative, contextual and theoretically valid architectural works and have gained extensive presentation, writing, manual and digital graphic skills. Moreover, they have gained a solid understanding of how to prepare documentation on the organization of workplaces, requirements of labor protection and environmental safety and know how to use the regulatory framework in the construction project documentation.

Therefore, graduates of this study programme are capable of working in several professions, especially as architect, architecture visualizer, entrepreneur, as well as in the area of building construction or construction management.

The aim of the Bachelor's degree programme Civil Engineering is to produce graduates who have basic knowledge in theoretical concepts and methods of civil engineering and are able to apply this knowledge in the field of mathematical, natural, humanitarian and technical sciences in complex engineering activities. Graduates of this programme know how to participate in the design, searches and construction of objects of professional activity. Moreover, they must be able to use the regulatory framework in the field of engineering surveys, principles of designing buildings, structures, engineering systems and equipment. They are capable of conducting experiments on given methods with processing and analysis of the results. Consequently, graduates of this programme are capable of working as design, laboratory, process or construction supervision engineers and mechanic or design technicians.

Graduates of the Master's degree programme Architecture should be able to effectively use engineering and technical knowledge (materials, structures, technologies, engineering systems) in the development of architectural and urban solutions, to carry out their economic justification and be capable of implementing multimedia, virtual, multi-dimensional digital spatial modelling technologies for scientific research, architectural and planning, urban development projects and production as well as technological solutions. They have acquired organizational, leadership and management skills. They know how to conduct and develop research and innovative methods, either aimed at the development of science or to be applied. Consequently, graduates of this programme are capable of working as researcher, lecturer, consultant or expert in the field of management and planning of architectural and construction complexes.

The aim of the Master's degree programme Civil Engineering is to produce graduates who are able to assess, analyze and interpret scientific data and to conceive ideas while solving scientific and practical problems. Graduates of this programme know how to carry out the design of buildings and structures using modern construction materials, structures and engineering systems, software and computer systems and automated design systems with the use of BIM technologies in design. Moreover, they must know how to apply modern technologies in construction production as well as new methods and methods in the technology of construction processes of buildings and structures. They are capable of conducting and developing research and innovative methods in the field of construction, either aimed at the development of science or to be applied. Consequently, graduates of this programme are capable of working as researcher, lecturer, production organizer, constructor or consultant.

Next to the professional skills, the students of <u>all four study programmes</u> are supposed to acquire personal and social skills such as critical and creative thinking, communication skills, adaptability, the capacity to work in (international) teams, and leadership skills. In addition, they should be able to solve (engineering) problems through research and the application of different concepts and methods.

In the peers' opinion, the intended qualification profiles of all degree programmes are clear, plausible and allow students to take up an occupation, which corresponds to their qualification. They learn that the graduates of EKTU are much sought after in the labor market. The industry representatives emphasize the high quality of the graduates of all four programmes under review and students as well as graduates are satisfied with and well aware of their good job perspectives. To what extent the breadth of civil engineering education could be strengthened in the fields of construction management and water technologies/infrastructure will be discussed under the criterion 1.3.

In summary, the peers confirm that the two <u>Bachelor's degree programmes</u> adequately reflect level 6 of the European Qualification Framework (EQF) while the two <u>Master's degree programmes</u> are adequate to EQF level 7. The programme learning outcomes of all four programmes are consistent with the respective ASIIN Subject-Specific Criteria of the Technical Committee of Civil Engineering, Geodesy and Architecture. They aim at the acquisition of specific competences and are well-anchored, binding and easily accessible to all stakeholders.

Criterion 1.2 Name of the degree programme

Evidence:
- Diploma Supplements
- Self-Assessment Report
- Discussions during the audit

Preliminary assessment and analysis of the peers:
The titles of the degree programmes follow the rules for naming study programmes set by the Kazakh Ministry of Education and Science. The experts confirm that the English translation and the original Russian/Kazakh names of the degree programmes under review correspond with the intended aims and learning outcomes as well as the main course language (Russian/Kazakh).

Criterion 1.3 Curriculum

Evidence:

- Self-Assessment Reports

- Objective-module-matrices of the degree programmes

- Study plans of the degree programmes

- Module descriptions

- Webpages of all study programmes

- Discussions during the audit

Preliminary assessment and analysis of the peers:

The curricula of the four degree programmes are designed to comply with the programme objectives and learning outcomes and they are subject to constant revision processes (cf. chapter 1.1). As such, the curricula are reviewed regularly and commented on by students and teachers as well as by external stakeholders such as alumni or partners from government and the private sector. Regular changes are made to ensure that the curricula are up to modern standards. Besides the POs defined by EKTU itself, the curricula also take into account the requirements of the State Compulsory Standard of Higher and Postgraduate Education of the Republic of Kazakhstan and the Kazakh national qualifications framework as well as the recommendations from industry. In the Self-Assessment Report and the curriculum for each programme, EKTU describes how the POs of each programme are to be achieved in the individual modules and thus explains the significance of each module for the programme as a whole. The curricula are reviewed by the peers in order to identify whether the described learning objectives can be achieved by the available modules. Course descriptions as well as matrices matching the general learning objectives and the module contents were provided for a detailed analysis.

In the Bachelor's degree programmes, students are taught general knowledge in areas such as "Modern History of Kazakhstan" and "Philosophy" in addition to the technical subjects. According to the self-assessment report, all Bachelor's degree programmes at EKTU are divided into four academic cycles. The first cycle consists of general education modules, the second cycle of basic modules in the technical subjects, the third cycle of specialized modules in the technical subjects and the forth cycle of the completion of the final project. The Master's degree programmes are structured similarly: The first cycle is composed of

basic modules in the technical subjects, the second cycle of specialized modules in the technical subjects, the third cycle of additional training and the forth cycle of the completion of the Master's thesis. In terms of the additional training, the students are carrying out advanced research projects and/or pedagogical training in order to prepare for their future career as researchers and lecturers.

The Bachelor's degree programme Architecture comprises 300 ECTS credits and normally spans over ten semesters. The students of the study programme get an overview of basic architectural design, fundamentals of architectural engineering, fundamentals of architectural graphics and layout creating, architectural materials science, drawing, political science, philosophy and psychology as well as information and communication technologies in English in the first four semesters. Over the course of the remaining semesters, they take mandatory courses in the different areas of architecture, such as architectural design, landscape architecture, architectural physics, engineering design, entrepreneurship and business legal environment, theory of urban development, engineering development and transport, colour science and modelling, building constructions, and typology of architectural environment and buildings and structures. Besides the theoretical classes, they also acquire practical competences through studio courses in various areas. Moreover, in semesters 5, 6 and 7, the students can choose from a wide range of minor discipline. The students prepare their undergraduate thesis, which is written in the final semester, through the module about research methods in semester 10 by drafting a topic and handing in a proposal.

The Bachelor's degree programme Civil Engineering comprises 240 ECTS credits and normally spans over eight semesters. The courses in the first four semesters convey basic knowledge of fundamentals of civil engineering such as AutoCAD and manual drawing, building materials, building constructions, geotechnology and soil mechanics, architecture of industrial and civil buildings, protection of steel constructions against corrosion, mechanical engineering as well as philosophy and psychology, political science and information and communication technologies in English. Courses on the different civil engineering sciences (wood and plastic constructions, foundation engineering, seismic resistance of buildings and constructions, maintenance of buildings, enterprise economics, Estimation and pricing of design works, computer-aided design system, metal structures) are offered from the fifth to the eighth semester. Moreover, the students need to complete several design and study projects. The minor disciplines, through which the students can gain further insights in some of these areas, are spread out over semester 4, 5, 6 and 7. The fourth and sixth semester also contain the mandatory internship. The students prepare their undergraduate thesis, which is written in the final semester, through the module about research methods in semester 8 by drafting a topic and handing in a proposal.

The <u>Master's degree programme Architecture</u> encompasses 120 ECTS credits and is designed for four semesters. The study programme offers areas of specialization in form of a significantly larger degree of modules to choose from, more than the Bachelor's degree programme to give the students more room for a broader professional competence. It also includes some compulsory courses to teach the students additional skills in the core subject area (for instance in the field of landscape design, architectural criticism, financial planning and budgeting in architectural-town-planning activity). Students also have to determine their research topic from the beginning of their studies. Based on their study focus and in the framework of the module "Research Project Including Internship and Master Thesis" that Master's students have to complete every semester, students may choose their prospective thesis supervisor and join a specific research group in order to conduct their research work (especially in the module "Research practice").

The <u>Master's degree programme Civil Engineering</u> encompasses 120 ECTS credits and is designed for four semesters. The study programme offers a focus on construction engineering including specialization possibilities in the areas: "modern trends in construction", "modern design trends" and "research module". The programme contains a significantly larger degree of modules to choose from than the Bachelor's degree programme to give the students more room for specialization. It also includes some compulsory courses to teach the students additional skills in the core subject area (for instance in the field of modern design of construction objects, quality control of construction works, modern reinforced concrete constructions, finite element analysis in civil engineering, technology of informative design of building constructions). Students also have to determine their research topic from the beginning of their studies. Based on their study focus and in the framework of the module "Research Project Including Internship and Master Thesis" that Master's students have to complete every semester, students may choose their prospective thesis supervisor and join a specific research group in order to conduct their research work (especially in the module "Research practice").

Overall, the peers are in principle satisfied with the curricular structure of <u>all programmes</u>. They see that the programmes are well structured and that the modules build on each other in a reasonable way, enabling the students to effectively reach the learning outcomes as laid down for the programmes as a whole.

However, the peers note that according to the study plan and the displayed projects of the <u>Bachelor's degree programme Architecture</u>, the design projects do not show the detailed construction of the individual project construction plans. Therefore, the peers recommend

to include suitable and selected construction drawings into the design results of the projects (conceptual scetches and exemplary construction details, scale 1:50 to 1:5).

Moreover, the peers ask where in the <u>Bachelor's Civil Engineering</u> curriculum the aspects of project management, water and environment and transport mobility are included. The programme coordinators explain that these aspects are included in modules like for instance "Modern Aspects of the Organization of Construction Production" and "Engineering Systems of Buildings and Structures". However, since these subjects mainly focus on construction engineering, the peers recommend to convey students basic abilities in/include modules in project management, water and environment and transport mobility into the programme.

With regard to the internships, the peers learn that the fieldwork practice or the so-called "industrial training" in companies is mandatory for <u>all degree programmes</u>. It usually takes a total of 4 to 5 weeks which is valued by the students as this allows them to apply the skills they learned in the programmes in a real working environment. The students highlight that the university is very supportive in finding placements for the internship and that they are always encouraged to gain as much practical experience as possible. The university has established useful guidelines for these internships and every student has one advisor at the company and one at the university to ensure that the work contributes to achieving the programme's learning outcomes. The assessment methods to evaluate this phase is comprehensive and includes a written report.

Furthermore, the peers discuss with EKTU the ways in which the students can improve their English proficiency. They learn that in <u>the Bachelor's degree programmes</u> there are two mandatory modules about foreign language while in the <u>Master's degree programmes</u> there is one. For this purpose, the students are divided into different classes according to their English level. Additionally, English literature is used occasionally as can be seen from the literature suggested for the individual modules in the module descriptions. Students are also obliged to prove the required IELTS score in order to access the <u>Master's programmes</u>. The peers appreciate these efforts.

Finally, the peers ask how the teaching staff and the prospective employers evaluate the soft skills of the students. They learn that the students from EKTU are particularly resilient in many respects: both in terms of competition and in terms of their perseverance. The industry representatives underline that soft skills such as the ability to publicly speak and present in front of an audience, entrepreneurship and communication skills are trained in

designated modules, by participating in several conferences and by completing project works. The teaching staff as well as the students confirm this.

Criterion 1.4 Admission requirements

Evidence:

- Self-Assessment Report
- Admission Rules for Students of Degree Programs of Graduate and Postgraduate Education of NJSC EKTU named after D. Serikbayev
- Discussions during the audit

Preliminary assessment and analysis of the peers:

Based on the documents defining the admission requirements, the peers learn that most of the admission policy is centrally regulated and follows next to the general regulations issued by the Ministry of Education and Science of the Republic of Kazakhstan. At the local level, the admission rules are published in the "Admission Rules for Students of Degree Programs of Graduate and Postgraduate Education of NJSC "EKTU named after D. Serikbayev'". Generally, people with a secondary, technical, vocational, post-secondary, or higher education are admitted to a Bachelor's programme at EKTU. Furthermore, students interested in the <u>Bachelor's degree programme Civil Engineering</u> need to have completed the single national testing (UNT) in three mandatory subjects, which are Mathematical literacy, Reading literacy, and History of Kazakhstan, and in the two specialized subjects Mathematics and Physics. Applicants of the <u>Bachelor's degree programme Architecture</u> need to have completed the single national testing (UNT) in two mandatory subjects, which are Reading literacy and History of Kazakhstan, and an additional creative exam (drawing and draughtsmanship). According to the self-assessment report, applicants must score at least 50 points, including at least 5 points in each discipline; the maximum score is 140. Applicants for the largest number of points on a competitive basis are awarded state grants. Applicants who do not pass the competition, but have reached the threshold level of points, are entitled to study on a paid basis. Admission of foreign citizens is carried out based on the results of an interview conducted by the selection committee. Educational documents issued by foreign educational organizations are recognized by EKTU in accordance with the procedure established by law in accordance with the Rules for the recognition and notification of education documents.

In order to be admitted to one of the <u>Master's degree programmes under review</u>, students need to have completed a higher education programme. In addition, students interested in a Master's programme must participate in a competitive test (CT) in which the student's

knowledge in a foreign language, their expertise in a group of programmes and their readiness for training are assessed. The CT is carried out by the National Testing Center of the Ministry of Education and Science of the Republic of Kazakhstan. According to the admission requirements defined by EKTU, "enrollment of citizens in the magistracy on a paid basis is carried out based on the results of CT in accordance with the Scale of 150-point grading system for CT in the magistracy with the Kazakh or Russian language of instruction: at least 50 points, while in a foreign language - at least 25 points, according to the profile of the group educational programs: with the choice of one correct answer - at least 7 points, with the choice of one or more correct answers - at least 7 points, on the Studying readiness test - at least 7 points".

With regard to the admission regulations of the Bachelor's degree programme Architecture, the peers ask whether the content of the creative exam is mainly about drawing and draughtsmanship or whether digital competences and different creativity testing tasks are also part of it. From the programme coordinators they learn that the creative exam that Bachelor's applicants need to pass is mainly about drawing by hand. This is supposed to identify the applicants' degree of preparedness and his/her awareness in the choice of profession. With reference to the drop-out data of the programme, the peers, however, think that the admission examination could contain different topics like digitalization, personal interests, conceptional, critical, creative thinking. Therefore, they recommend to align the contents of the admission examination more closely with the learning outcomes and the needs of the programme.

For each academic year, the university determines the ratio of students admitted through these different ways. Generally, the number of applications in the Bachelor's degree programmes is higher than the number of admitted students. In 2017 in the Bachelor's degree programme Architecture, there were 34 applicants and 30 enrolled students. In 2021, there were 58 applicants and 56 admitted students. Similarly, in 2017 in the Bachelor's degree programme Civil Engineering 70 people were admitted. In 2021, there were 85 admitted students. With regard to the Master's degree programme Architecture, in 2019 there were 3 applicants and 2 admitted students. In 2021, the number rose to 10 applicants and 6 admitted students. In the Master's degree programme Civil Engineering, there were 2 admitted students in 2019 and 8 in 2021. According to the programme coordinators, the low application rate for the Master's degree programme is due to the fact that a high number of Bachelor's graduates are sought by the industry and immediately employed.

The admission website informs potential students in great detail about the requirements and the necessary steps to apply for admission into the programmes. Since the rules are based on decrees by the ministry of education and on the university's written regulations,

the peers deem them binding and transparent. They confirm that the admission require-
ments – besides the mentioned small restriction – support the students in achieving the
intended learning outcomes.

> **Final assessment of the peers after the comment of the Higher Education Institution re-
> garding criterion 1:**
>
> Since EKTU does not address this in its statement, the peers stick to their previous impres-
> sion.

2. The degree programme: structures, methods and imple-
mentation

Criterion 2.1 Structure and modules

Evidence:

- Regulations on the Procedure for recognition of the results of non-formal Education
  in D. Serikbayev East Kazakhstan technical University

- Objective-module-matrices of the degree programmes

- Self-Assessment Report

- Overview of partnership agreements

- Study plans of the degree programmes

- Module descriptions

- Discussions during the audit

Preliminary assessment and analysis of the peers:

The Bachelor's degree programme Architecture is designed for five years and the students
need to achieve 300 ECTS, while the Bachelor's degree programme Civil Engineering is de-
signed for four years and the students need to complete 240 ECTS. Both Master's degree
programmes encompass 120 ECTS within two years. Each semester is equivalent to 15
weeks, including 14 weeks of learning activities and one week of examination (midterm
and final exams).

After analyzing the module descriptions and the study plans, the peers confirm that all de-
gree programmes under review are divided into modules and that each module is a sum of

coherent teaching and learning units. All programmes allow the students to define individual focuses through broad ranges of specializations and electives (see chapter 1.3 for more details). The students confirm that the structure of the programmes allow them to reach the learning outcomes within the regular duration (see chapter 2.2 for more details).

The <u>Bachelor's degree programmes</u> include three types of modules: "general education modules", "Major or profile discipline modules" (main educational programme) and "Minor or basic discipline modules" (additional educational programme). In the first and second year, the general education modules dominate in all Bachelor's degree programmes and are determined by the university management. In the third and fourth years (and fifth for the <u>Architecture degree programme</u>), modules of the minor and major discipline are studied. Modules of the major include compulsory and elective modules in the core subject area of the programme. A minor constitutes an optional technical specialization that allows students to design an individualized course of study. Minors consist of three modules, which are studied in the second and third year of the <u>Bachelor's degree programmes</u>. Each module is credited with 5 ECTS points, resulting in a total of 15 ECTS for all minors. All minor modules are taught on a specific day to avoid overlap with other major modules. Students report that the range of minor subjects is published transparently on the university's website and that students have the opportunity to suggest another subject to the pool if they feel that an important subject is missing. Furthermore, lecturers present the content of all current minors at the end of every academic year so that students can gain a deeper insight into the minors offered. The peers appreciate the division of the programmes into major and minor so that students can develop an expertise in a technical field of their choice.

The <u>Master's degree programmes</u> also include three types of modules: the already mentioned "Major or profile discipline modules" and "Minor or basic discipline modules" as well as additional research work modules that are supposed to support and accompany the students' research activities until the completion of their thesis.

In summary, the peers gain the impression that the choice of modules and the structure of the curriculum ensure that the intended learning outcomes of the respective degree programme can be achieved.

International Mobility

According to the self-assessment report and further documents, EKTU has collaborations with a large number of universities abroad. Stakeholders can view the entire lists of partner universities on the website of EKTU. These include, for example, University of Obuda – Hungary, Leoben Mining Institute – Austria, University of Cadiz – Spain, University of Brno – Czech Republic, University of Magdeburg and Otto-von-Guerike, Clausthal University – Germany as well as Akita University – Japan. In addition, EKTU collaborates with a number of

companies abroad. The recognition of achievements acquired at these partner institutions is ensured through an academic agreement. All students participating in academic mobility receive a transcript confirming the acquisition and recognition of credits. Generally, the rules for the recognition of achievements and competences acquired outside the higher education institution can be found in the binding document "The Regulations on the Procedure for recognition of the results of non-formal Education in D. Serikbayev East Kazakhstan technical University" on the website of EKTU.

Next to student mobility, EKTU also offers teachers and researchers opportunities to participate in an international exchange programme. According to the self-assessment report, each year the faculty hosts a foreign lecturer/researcher and/or sends one of its lecturers abroad. The peers appreciate that EKTU encourages both students and staff to participate in international exchange programmes and conclude that the university provides an appropriate framework for conducting academic mobility. They particularly welcome the process of recognition of achievements acquired externally.

Criterion 2.2 Work load and credits

Evidence:
- Self-Assessment Report
- Study plans of the degree programmes
- Samples of module assessment
- Survey of student satisfaction
- Module descriptions
- Discussions during the audit

Preliminary assessment and analysis of the peers:
The student's workload is measured in European Credit Transfer System (ECTS). One ECTS point corresponds to 30 hours of study time, which includes contact hours and self-study time. The self-assessment report and the study plans illustrate that the workload is evenly distributed in all study programmes. Thus, the total amount of the planned student workload does not exceed 60 ECTS credits per academic year in all programmes. The workload of most modules is structured in a way that approximately 30% of the study time is achieved in the classroom i.e. constitute contact hours whereas roughly 70% of the time is designated to the self-study time of the students. The 30% contact hours are in turn divided into lecture and practical hours and - depending on the module - also laboratory hours. In most cases, about 30% of the contact hours are lecture hours and 70% are practical hours

and, if applicable, laboratory hours. In the example of a 5 ECTS module (which makes up most modules in <u>Bachelor's degree programmes</u>), 45 hours are contact hours, of which 15 hours are for lectures and 30 hours are for practical hours. The remaining 105 hours are for students' independent study. During the audit, the teachers throw light on the term "practical hours". They explain that these are usually conducted in the form of seminars, in which students have to solve tasks both individually and in groups.

In the students discussion round, the students report that they are familiar with the workload regulations and that all teachers follow these norms. Furthermore, regular teaching evaluations assess and monitor the students' actual workload. The students also emphasise that they consider the workload high but manageable. The peers are satisfied to hear that all teachers follow these regulations so that no peaks in the workload emerge. Furthermore, they confirm that the workload in hours is indicated in the module descriptions and the distinction between classroom work and self-studies is made transparent and is in line with the credits awarded. At the end of each semester, the students' workload for every course is monitored and evaluated.

As the statistical data provided by EKTU shows, the average amount of students who graduated on time in 2019 until 2022 was approximately 50% in the <u>Bachelor's degree programme Architecture</u>, approximately 65% in the <u>Master's degree programme Architecture</u> and approximately 82% in the <u>Bachelor's and Master's degree programmes Civil Engineering</u>. As already mentioned under criterion 1.4, with regard to the <u>Bachelor's degree programme in Architecture</u>, the peers think that aligning the contents of the admission examination more closely with the learning outcomes and the needs of the programme could considerably enhance the average amount of students who graduate on time as well as reduce the drop-outs. Nevertheless, in all degree programmes under review, the average length of study is predominantly equivalent to the standard duration of study. The data verifies that – besides the mentioned small restriction – all four degree programmes under review can be completed in the expected period.

However, with regard to the distribution of the workload, the peers note that in the module description of <u>the Bachelor's degree programme Architecture</u>, the workload does not match the credit points awarded in the industrial training module. According to EKTU's academic regulations and as already mentioned above, 1 ECTS equals 30 hours of student work. The Industrial Training module of the <u>Bachelor's degree Architecture</u> is worth 2 ECTS and thus corresponds to 60 hours of student work. However, the corresponding module description indicates 900 hours of workload. During the discussion with the students, the peers learn that this must be a typing error in the module description as they confirm that the workload of the Industrial Training module is manageable and matches the actual workload. Therefore, with regard to the information that is provided in the module description,

EKTU must ensure that the workload matches the credit points awarded in the Industrial Training module of <u>the Bachelor's degree programmes in Architecture</u>.

Criterion 2.3 Teaching methodology

Evidence:

- On-site visit of the institution

- Self-Assessment Report

- Module descriptions

- Samples of lecturer evaluation by students

- Websites

- Discussion during audit

Preliminary assessment and analysis of the peers:

From the presented material as well as the discussions on site, it becomes apparent that members of EKTU are invested in offering students a high quality of teaching and overall study experience. According to the self-assessment report, it is the goal of the university to form professionally competent, competitive and culturally developed graduates, who are modern specialists in the respective technical field. To achieve this goal, the composition of teaching methods integrates knowledge from a variety of disciplines: humanitarian and cultural, socio-economic, psychological, pedagogical and technical fields. The peers appreciate this strategy.

Through the use of the ECTS credit system (see chapter 2.2), an adequate balance between face-to-face activities and independent learning is already ensured for all courses. Besides the regular lectures, methods such as group discussions, project- and problem-based learning, laboratory/studio sessions where students carry out practical tasks, and internships etc. are used. The students confirm that these methods are actually in use and that they are satisfied with the variety of teaching methods, which support them in achieving the learning outcomes.

During the classes, active and interactive teaching methods (e.g. lectures, discussions, reports, presentations, and group work) are applied. EKTU wants to encourage the students to gain knowledge from different scientific areas and to introduce them to research activities. Teaching and learning is supported by a broad range of media, both traditional (books, papers) and online (videos, presentations etc.). The university's online learning management system (LMD platform or Moodle) supports teachers and students in communicating and disseminating learning material.

The peers consider the teaching methodology employed in the degree programs to be diverse, interactive and to show a healthy mixture between traditional and modern/alternative methods. They are well adapted to the aims and conditions of the individual courses and suitable to support the students in achieving the intended learning outcomes.

Criterion 2.4 Support and assistance

Evidence:

- Self-Assessment Report

- Discussions during the audit

Preliminary assessment and analysis of the peers:

In order to support students in completing their studies on time with good achievements, the university and the faculty provide academic and personal support and assistance through various means. The offers can be divided into two types: academic support and non-academic support. Academic advice includes the academic advisors, the international office, the programme coordinators, the Dean and the supervisors for the theses. Non-academic support comprises the medical centre, sports facilities, the language centre, the career centre, the central library, computer laboratories and student dormitories.

The main contact person for every student is their academic advisor, who is assigned to them in their first semester. An academic advisor shall help them develop an adequate schedule for their studies, choose electives according to their skills and interests and support them in case of academic and non-academic problems. Each student meets his or her academic advisor on a regular basis, who is also responsible for monitoring the study progress. The academic advisor also has to approve the student's study plan for the semester. As the peers learn and highly appreciate, the study progress is not only monitored by the academic advisor on an individual basis, but the faculty is automatically alerted when students fall below a certain number of credit points per semester and are thus threatened with dropping out. In these cases, additional advice can be provided. Therefore, at the beginning of each semester, GPA provides direction for the students regarding their study plans, targets to be achieved and strategies for selecting courses. During the semester, GPA monitors the academic progress of the students. At the end of the semester, GPA evaluates the student's achievement under their supervision by checking the GPA that the students achieve.

Furthermore, there is supporting staff in the international office (cf. chapter 2.1), the career centre and the general academic administration. The career centre regularly organizes job fairs, seminars with potential employers, trainings for writing applications etc. in order to

support the students in their career planning. Moreover, there are many scholarships offered to students, (e.g. from private companies, the government or other foundations). This includes scholarship for students from low-income families and for those with high academic achievements. New students can attend classes to develop their effective learning and soft skills.

In addition, every student who enrols for the thesis course will be assigned one or two thesis supervisors. The role of the thesis supervisors is to help students to complete their thesis research; they also monitor the progress of the thesis in order to ensure the completion of the thesis in the intended amount of time. The students confirm towards the peers that they are supervised in the research group during their work on the thesis. There are regular meetings where the students present their results and receive feedback from the other members.

All students at EKTU have access to the online-learning site (LMD platform or Moodle). By using those two platforms, lecturers can upload their syllabus and learning materials or modules as well as assignment for students. Through those platforms, students can also interact with other students and lecturers.

The peers conclude that there are enough resources available to provide individual assistance, advice, and support for all students. The support systems help the students to achieve the intended learning outcomes and to complete their studies successfully and without delay.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 2:

Criterion 2.2:

EKTU provides a statement with regard to the workload and credit points awarded in the Industrial Training module of the Bachelor's degree programme Architecture and explains that the indicated 900 hours in the description of the above mentioned module are a typo. The correct amount of work for students of this module corresponds to 60 hours (2 ECTS). EKTU submits the updated version of the module description together with its statement response. The peers appreciate this clarification and therefore consider the requirement to be fulfilled.

3. Exams: System, concept and organisation

Criterion 3 Exams: System, concept and organisation

Evidence:

- Self-Assessment Report

- Module descriptions for each degree programme

- Websites

- Academic regulations

- Sample written exams and final theses

Preliminary assessment and analysis of the peers:

Each course has to determine objectives, which support the achievement of the Programme Learning Outcomes of the respective programme. Accordingly, each course must assess whether all defined learning outcomes stated in the module descriptions have been achieved. For this purpose, EKTU utilizes various types of examination.

In each course, assignments as well as a mid-term and a final examination are employed. There are different assessment methods in the programmes, such as written tests, practical performances, assignments, small projects, oral tests and presentations. In most courses, mid-term and final exam consist of written tests and additional assignments are used. However, the other assessment methods are also used to a certain degree. Via the Academic Calendar, the students are informed about mid-term and final exams. The form and length of each exam is mentioned in the module descriptions that are available to the students via EKTU's homepage and in the internal university system known as LMS platform or Moodle.

The final grade of each module is calculated based on the score of these individual kinds of assessment, whereby the lecturer determines the ratio between them in accordance with the Academic Guidelines. The exact formula is given in the module handbook. At the first meeting of a course, the students are informed about what exactly is required to pass the module and about how the final grade is determined through the teaching and learning plan. EKTU uses a grading system with the grades A, A-, B+, B, B-, C+, C, C-, D+, D, FX and F, where a D (equivalent to a Grade Point of 1) is necessary to pass a module.

Based on the academic regulation to be eligible to take final exam, students must attend at least 50 % of the total course sessions. Students who have obstacles due to illness or other reasons and are not able to fulfil 50% of the total course sessions need to inform the academic supervisor and related lecturers. The arrangement to re-sit an exam can be adjusted in advance as compensation for the student's disability by providing the evidence. Furthermore, students who are not able to attend the final exam due to illness or

other reasons can provide proof and take the follow-up exam scheduled by the study programme.

The peers discuss with the students how many and what kind of exams they have to take each semester. They learn that for most courses there are one or two mid-term exams and one final exam in every semester. Usually, there are additional practical assignments or reports. The students confirm that a variety of assessment methods is used, including traditional methods such as written or oral exams, but also presentations or project reports are utilized. The final grade is the sum of the sub exams. Although this means that the total number of tests taken during a semester is comparatively high, the students do not complain about this workload and instead appreciate that there are several short exams instead of one big exam as this requires them to continuously study during the entire semester and not having to solely work for one final exam at the end of the semester. The students also confirm that they are well informed about the examination schedule, the examination form and the rules for grading.

Every student is required to do a thesis in the last year of studies. Prior to the actual research work, the students are required to write a research proposal and present it in a seminar attended by lecturers and other students who form a research group. The research proposal has to be accepted by the Dean and the supervisor committee who will then appoint the research supervisors. In the Master's degree programmes Civil Engineering and Architecture, students also have to determine their research topic from the beginning of their studies. Based on their study focus and in the framework of the module "Research Project Including Internship and Master Thesis" that Master's students have to complete every semester, students may choose their prospective thesis supervisor and join a specific research group in order to conduct their research work (especially in the module "Research practice").

Usually, there are one or two research supervisors for each student. One will act as the principal supervisor and the other act as co-supervisor. In case the student writes her or his thesis in collaboration with the industry, she or he is also assigned a supervisor from the industry. After completing the work on the thesis, the student has to present and defend the results in front of teachers and fellow students. The peers discuss with the programme coordinators, the members of the teaching staff, and the students about the process of finding suitable topic of the final project or thesis. There are two possibilities: either students can propose their own ideas or they can ask their academic advisor or other teachers for suggestions.

During the on-site visit, the peers were provided with a selection of exams and final projects to check. They confirm that these represent an adequate level of knowledge as required by the EQF level 6 for the two Bachelor's programmes and EQF level 7 for the two Master's

programmes. The forms of exams are oriented towards the envisaged learning outcomes of the respective courses, and the workload is distributed in an acceptable way.

The peers conclude that the criteria regarding the examinations system, concept, and organization are fulfilled and that the examinations are suitable to verify whether the intended learning outcomes are achieved or not.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 3:

Since EKTU does not address this in its statement, the peers stick to their previous impression.

4. Resources

Criterion 4.1 Staff

Evidence:
- Self-Assessment Report
- Staff Handbook
- Samples of lecturer evaluation by students
- Study plans of the degree programmes
- Module descriptions
- Websites
- Discussions during the audit

Preliminary assessment and analysis of the peers:
At EKTU, the staff members have different academic positions. There are professors, associate professors, senior teachers and teachers. The academic position of each staff member is based on research activities, publications, academic education, supervision of students, and other supporting activities. For example, there are teachers who hold a Master's degree and teachers who hold a PhD degree. A full professor needs to hold a PhD degree. The main difference of tasks and responsibilities based on academic staff position lies on the proportion of teaching and research activities. The higher the academic staff position is, the greater is the proportion of research activities, but the lower is the proportion of teaching activities. The latter may become professors once they have earned a certain amount of credits with regard to their academic work.

There are 25 teaching staff for <u>the Bachelor's degree programme Architecture</u> (8 associate professors, 9 senior teachers, 8 teachers), 31 for <u>the Bachelor's degree programme Civil Engineering</u> (1 professor, 13 associate professors, 12 senior teachers, 5 teachers), 10 for <u>the Master's degree programme Architecture</u> (4 associate professors, 6 senior teachers) and 11 for <u>the Master's degree programme Civil Engineering</u> (1 professor, 6 associate professors, 4 senior teachers). These numbers mean that there are 2 Doctors of Science and 26 PhD candidates for the <u>Bachelor's and Master's degree programmes in Civil Engineering</u> and 4 Doctors of Science and 20 PhD candidates for <u>the same degree programmes in Architecture</u>. The university encourages the teaching staff with a Master's degree to pursue further qualification. Those with a master's degree only teach in the two bachelor's programmes.

These numbers mean that the ratio between academic staff and students is approximately 1:12 in all four degree programmes. In addition, the faculty regularly invites visiting lecturers from Kazakhstan and abroad to facilitate academic exchange. The academic staff is supported by a considerable number of administrative and technical employees at department, faculty, and university level.

Recruiting new teaching staff follows a defined procedure starting with a needs analysis of the degree programmes, the proposal for new positions to the university, a public announcement and finally the recruitment based on the results of a basic competence test, a field competence test and an interview.

The academic staff is actively involved in research projects funded by grants from the Kazakh government, the university itself or other research funds, which results in a reasonable number of publications per year. EKTU positions itself as a university with a practice-oriented focus and therefore a strong cooperation with key industrial partners, which the peers appreciate. They learn that, within this framework, students can also be involved in research projects, for instance through their theses.

The peers ask about the share of teaching and the share of research of the teaching staff. They learn from the programme coordinators that about 35% is invested in teaching, while 45% is research and 20% administrative/planning tasks. This means that, depending on the semester, of the total 1.500 hours per year, about 600 hours are used for teaching and 900 hours for research and administrative/planning tasks. The peers support this approach, because EKTU claims to offer predominantly practice-oriented education, which is also confirmed by the very strong connection to industry (in terms of internships, theses, guest lecturers etc.).

In summary, the peers highlight the well qualified and engaged staff members and confirm that the composition and scientific orientation of the teaching staff are suitable for successfully implementing and sustaining the degree programmes. Both students and staff members confirm that in case of questions or problems, there is always an academic advisor available to solve the issues together with the student.

Criterion 4.2 Staff development

Evidence:

- Self-Assessment Report

- Staff handbook

- Discussions during the audit

Preliminary assessment and analysis of the peers:
According to the self-assessment report and the discussions during the on-site audit, EKTU encourages the continuing professional development of its staff. For this purpose, various opportunities are provided. There is a mandatory didactic training for new academic staff that encompasses curriculum design, teaching material, and innovative teaching and learning methods. Moreover, workshops are held to refresh and to deepen various didactic competences in each semester. The lecturers can also regularly participate in external didactical trainings offered and funded by the government. Senior lecturers must mentor and train the newly recruited staff. The junior staff has to assist the senior as a sit-in lecturer for a minimum of one year.

The teaching staff is encouraged to study abroad or to participate in international research projects and conferences in order to enhance their knowledge, increase their English proficiency and to build international networks. For this purpose, the university informs about possible scholarships to support academic mobility. In general, the staff exchange is managed and under the coordination of the Faculty of Professional Development (FPD) of EKTU. Particularly for junior lecturers with a master's degree, EKTU offers systematic training to prepare them for acquiring a PhD abroad, for instance through English courses, information on foreign education systems, administrative support, and supporting (international) research collaborations. According to the professional development overview provided by EKTU, in the last five years, lecturers of all four study programmes under review have been involved in international activities. They have been sent abroad to conduct doctoral programmes and research collaboration, for instance to the ITMO University, Russia or to participate in international conferences or seminars.

Moreover, the peers learn from the teaching staff that there are many different options to apply for funding for research projects, not only from EKTU but also from the government and big companies the university collaborates with.

In summary, the peers appreciate the university's efforts in the further development of its employees and consider the support mechanisms for the continuing professional development of the teaching staff adequate and sufficient.

Criterion 4.3 Funds and equipment

Evidence:
- List of laboratories and equipment
- On-site visit of the institution
- Self-Assessment Report
- Discussions during the audit

Preliminary assessment and analysis of the peers:
The university and the faculty are mainly funded by the Kazakh government and the community, through tuition fees and through grants for research projects in collaboration with industry. The figures presented by the university show that the faculty's income is stable and the funding of the degree programmes is secured. The academic staff emphasize that from their point of view, all four programmes under review receive sufficient funding for teaching and learning activities as well as research, which results in well-equipped facilities and good access to literature, databases and modern software. The students confirm this positive impression and state their satisfaction with the available resources.

In the self-assessment report, EKTU gives an overview of the available learning spaces and the library. Moreover, they list detailed information of all laboratories available per study programme. During the on-site visit, the university showed the peers the relevant research and teaching facilities and, in particular, all the different laboratories and studios available for the four study programmes. The university has licensed Microsoft Office and other standard software and provides the students full access to this software. The peers appreciate the range of learning tools and resources available to the students. They consider the university's facilities and available equipment in the labs to be of appropriate standards. The facilities offer sufficient opportunities for the professional and individual development of students and teachers.

However, during the tour of the institution, the peers point out that for the <u>Bachelor's and Master's degree programmes Architecture and Bachelor's degree programme Civil Engineering</u> some extra work places should be provided in order to facilitate group work projects as well as individual work in an adequate, contemporary way. From the teaching staff, the peer group learns that for all students of the three degree programmes there are dedicated work places on the department level as well as on university level (library), but by increasing the number of available places in labs and studios, interdisciplinary cooperation could also be promoted. Consequently, the peers recommend to provide more extra work places in the studios/labs for students' individual work.

In summary, the peer group judges the available funds, the technical equipment, and the infrastructure (laboratories, studios, library, seminar rooms etc.) to comply – besides the mentioned small restriction – with the requirements for adequately sustaining the degree programmes.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 4:

Since EKTU does not address this in its statement, the peers stick to their previous impression.

5. Transparency and documentation

Criterion 5.1 Module descriptions

Evidence:
- Module descriptions
- Websites

Preliminary assessment and analysis of the peers:
The module handbooks for all four programmes are published on the university's website and are thus accessible to the students as well as to all stakeholders.

The experts observe that they contain the necessary information about the persons responsible for each module, the teaching methods and workload, the credit points awarded, the intended learning outcomes, the applicability, the forms of assessment, and details explaining how the final grade is calculated. However, the experts also note that the information about the admission and examination requirements are missing in the module

handbooks of all four programmes under review. Therefore, they urge EKTU to include this information in the module handbooks.

Criterion 5.2 Diploma and Diploma Supplement

Evidence:

* Sample Diploma Supplement and Transcript of Records for each degree programme

Preliminary assessment and analysis of the peers:

The experts confirm that the students of all four degree programmes under review are awarded a Diploma and a Diploma Supplement after graduation. The Diploma consists of a Diploma Certificate and a Transcript of Records. The Transcript of Records lists all courses that the graduate has completed, the achieved credit points, grades, and cumulative GPA. However, the experts note that neither the Transcript of Records nor the Diploma Supplement contains the marks and credits gained by each individual student and their overall classification. EKTU must indicate the acquired ECTS points of each course and how many ECTS credits are awarded for every individual degree programme. Therefore, the experts point out that the Diploma Supplement needs to follow the European template and needs to include statistical data about the distribution of final grade according to the ECTS Users' Guide.

Criterion 5.3 Relevant rules

Evidence:

* Self-Assessment Reports

* All relevant regulations on the studies, examination, admission and quality assurance are published on the university's website

Preliminary assessment and analysis of the peers:

The experts confirm that the rights and duties of both EKTU and the students are clearly defined and binding. All rules and regulations are published on the university's website in Kazakh/Russian as well as in English and hence available to all stakeholders. In addition, the students receive all relevant course material in the language of the degree programme at the beginning of each semester.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 5:

Since EKTU does not address this in its statement, the peers stick to their previous impression.

6. Quality management: quality assessment and development

Criterion 6 Quality management: quality assessment and development

Evidence:
- Self-Assessment Report
- Questionnaire templates
- Academic regulations
- Discussions during the audit

Preliminary assessment and analysis of the peers:
The experts discuss the quality management system at EKTU with the programme coordinators and the students. They learn that there is a continuous process in order to improve the quality of the degree programmes and it is carried out through internal and external quality assurance.

All programmes at EKTU are regular part of internal quality assessment procedures of the Management and Quality System which is certified in accordance with International Quality Standards ISO 9001. This encompasses all activities focused on implementing measures for improving the teaching and learning quality at the university and therefore includes besides internal audits also evaluations of the single courses by students.

Since EKTU is striving to become an internationally acknowledged university, the reliance on students' feedback and the necessity to ensure and improve the employability of the graduates are of major importance to the coordinators. Internal evaluation of the quality of the degree programmes is mainly provided through student, alumni and employer surveys.

On the institutional level, the performance of the departments is continuously checked through a specific information system. There is a major curriculum revision process for each programme every three years and a minor one every year (cf. chapter 1). The graduates

are followed by EKTU through a regular tracer study conducted by the career centre. Internal and external stakeholders give input through these processes in various ways.

Lastly, at the end of each semester, the students give their feedback on the courses by filling out the questionnaire online. The questionnaires are developed by the course survey committee and include questions with respect to the courses in general and about the teachers' performance. The discussion with the students revealed that those in charge are always eager and open for feedback aside from the official evaluations and that students have the impression that their comments are taken into consideration with regard to the further improvement of the programmes. This becomes apparent in the already mentioned constant curricular revision process that is performed under participation of students and industry partners. The industry representatives confirm in the discussion that the university is eager to receive feedback about new developments and trends and the employability of their graduates. The peers particularly appreciate that EKTU implemented an academic committee consisting of students, alumni, teachings staff, different associations and other stakeholders who are involved in modifying and improving the curricula of the degree programmes.

Concerning the internal feedback loops, the results of the course evaluations are centrally assessed and analysed before they are communicated to the Head of Department who would then be responsible to initiate any measures if problems or needs for improvement have been detected. A summary of the results is made accessible to the students. In case the satisfaction of the students with staff members is deficient, the Heads of Department will contact the respective teacher, discuss the issue and propose solutions. If no improvement can be achieved over a longer period, the staff member will be dismissed. Thus, the peers agree that the quality management circles at EKTU are well established and work under participation of all stakeholders.

In summary, the peers are satisfied with the quality management system at EKTU, especially with the continuous feedback loops and the involvement of important stakeholder groups such as students, alumni and representatives from the industry.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 6:

Since EKTU does not address this in its statement, the peers stick to their previous impression.

D Additional Documents

No additional documents needed.

E Comment of the Higher Education Institution

EKTU provided a short statement with regard to the workload and the credit points awarded in the Industrial Training module and submitted updated module descriptions.

F Summary: Peer recommendations (02.05.2023)

The peers summarize their analysis and final assessment for the award of the seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Architecture	With requirements for one year	-	30.09.2030
Ma Architecture	With requirements for one year	-	30.09.2030
Ba Civil Engineering	With requirements for one year	-	30.09.2030
Ma Civil Engineering	With requirements for one year	-	30.09.2030

Requirements

For all degree programmes

A 1.   (ASIIN 5.1) It must be ensured that the module descriptions include the correct information about the admission and examination requirements.

A 2.   (ASIIN 5.2) The Transcript of Records needs to list the acquired ECTS points of each course and how many ECTS points are awarded for the whole degree programme. The Diploma Supplement needs to include statistical data about the distribution of final grade according to the ECTS Users' Guide.

Recommendations

For the Bachelor's degree programme Architecture

E 1.   (ASIIN 1.4) It is recommended to align the contents of the admission examination more closely with the learning outcomes and the needs of the programme.

For the Bachelor's and Master's degree programmes Architecture

E 2.   (ASIIN 4.3) It is recommended to add more work places in the studios for individual work.

E 3.   (ASIIN 1.3) It is recommended to include suitable and selected construction drawings into the design results of the projects (conceptual scetches and exemplary construction details, scale 1:50 to 1:5).

For the Bachelor's degree programme Civil Engineering

E 4.   (ASIIN 1.3) It is recommended to convey students basic abilities in/include modules in project management, water and environment and transport mobility into the programme.

E 5.   (ASIIN 4.3) It is recommended to add more work places in the labs for individual work.

F Comment of the Technical Committee 03 – Civil Engineering, Geodesy and Architecture (12.06.2023)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee discusses the accrediting procedure and follows the assessment of the peers without any changes.

The TC 03 – Civil Engineering, Geodesy and Architecture recommends the award of the seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Architecture	With requirements for one year	-	30.09.2030
Ma Architecture	With requirements for one year	-	30.09.2030
Ba Civil Engineering	With requirements for one year	-	30.09.2030
Ma Civil Engineering	With requirements for one year	-	30.09.2030

Requirements

For all degree programmes

A 1. (ASIIN 5.1) It must be ensured that the module descriptions include the correct information about the admission and examination requirements.

A 2. (ASIIN 5.2) The Transcript of Records needs to list the acquired ECTS points of each course and how many ECTS points are awarded for the whole degree programme. The Diploma Supplement needs to include statistical data about the distribution of final grade according to the ECTS Users' Guide.

Recommendations

For the Bachelor's degree programme Architecture

E 1. (ASIIN 1.4) It is recommended to align the contents of the admission examination more closely with the learning outcomes and the needs of the programme.

For the Bachelor's and Master's degree programmes Architecture

E 2. (ASIIN 4.3) It is recommended to add more work places in the studios for individual work.

E 3. (ASIIN 1.3) It is recommended to include suitable and selected construction drawings into the design results of the projects (conceptual scetches and exemplary construction details, scale 1:50 to 1:5).

For the Bachelor's degree programme Civil Engineering

E 4. (ASIIN 1.3) It is recommended to convey students basic abilities in/include modules in project management, water and environment and transport mobility into the programme.

E 5. (ASIIN 4.3) It is recommended to add more work places in the labs for individual work.

G Decision of the Accreditation Commission (23.06.2023)

Assessment and analysis for the award of the ASIIN seal:

The Accreditation Commission discusses the accreditation procedure and makes editorial changes to recommendations E 3 and E 4. For the rest, it follows the assessment of the peers and TC without any changes.

The Accreditation Commission decides to award the following seals:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Architecture	With requirements for one year	-	30.09.2030
Ma Architecture	With requirements for one year	-	30.09.2030
Ba Civil Engineering	With requirements for one year	-	30.09.2030
Ma Civil Engineering	With requirements for one year	-	30.09.2030

Requirements

For all degree programmes

A 1. (ASIIN 5.1) It must be ensured that the module descriptions include the correct information about the admission and examination requirements.

A 2. (ASIIN 5.2) The Transcript of Records needs to list the acquired ECTS points of each course and how many ECTS points are awarded for the whole degree programme. The Diploma Supplement needs to include statistical data about the distribution of final grade according to the ECTS Users' Guide.

Recommendations

For the Bachelor's degree programme Architecture

E 1. (ASIIN 1.4) It is recommended to align the contents of the admission examination more closely with the learning outcomes and the needs of the programme.

For the Bachelor's and Master's degree programmes Architecture

E 2. (ASIIN 4.3) It is recommended to add more work places in the studios for individual work.

E 3. (ASIIN 1.3) It is recommended to include suitable and selected construction drawings into the design results of the projects (conceptual sketches and exemplary construction details, scale 1:50 to 1:5).

For the Bachelor's degree programme Civil Engineering

E 4. (ASIIN 1.3) It is recommended to convey students basic abilities in project management, water and environment and transport mobility by including corresponding modules.

E 5. (ASIIN 4.3) It is recommended to add more work places in the labs for individual work.

H Fulfilment of Requirements (28.06.2024)

Analysis of the experts and the Technical Committee (10.06.2024)

Requirements

For all degree programmes

A 1.   (ASIIN 5.1) It must be ensured that the module descriptions include the correct information about the admission and examination requirements.

Initial Treatment	
Experts	Fulfilled. Justification: Together with its response statement, EKTU submitted updated module descriptions for each degree programme that list admission and examination requirements for each module.
TC 03	Fulfilled. Vote: unanimous Justification: The TC follows the assessment of the experts without any changes.

A 2.   (ASIIN 5.2) The Transcript of Records needs to list the acquired ECTS points of each course and how many ECTS points are awarded for the whole degree programme. The Diploma Supplement needs to include statistical data about the distribution of final grade according to the ECTS Users' Guide.

Initial Treatment	
Experts	Fulfilled. Justification: Together with its response statement, EKTU submitted updated Diploma Supplements for each degree programme that list the acquired ECTS points of each course and how many ECTS points are awarded for the whole degree programme. They also include statistical data about the distribution of final grade according to the ECTS Users' Guide.
TC 03	Fulfilled. Vote: unanimous Justification: The TC follows the assessment of the experts without any changes.

Decision of the Accreditation Commission (28.06.2024)

Degree programme	ASIIN-label	Subject-specific label	Accreditation until max.
Ba Architecture	All requirements fulfilled	--	30.09.2030
Ma Architecture	All requirements fulfilled	--	30.09.2030
Ba Civil Engineering	All requirements fulfilled	--	30.09.2030
Ma Civil Engineering	All requirements fulfilled	--	30.09.2030

Appendix: Programme Learning Outcomes and Curricula

According to Website the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme <u>Architecture</u>:

Matrix of learning outcomes - Modules for EP «6B07301 - Architecture»

Key competencies being formed	Learning outcomes (key competence units)		Name of the module
<td colspan="4" style="text-align:center">**General Education Discipline Modules**</td>			
KK1 Evaluate different situations based on a holistic systemic scientific worldview	PO1 Analyze information of philosophical and historical content, methods of discussion and controversy	HM 1.1	Humanities Module
		SPSM 1.3	Social and Political Science Module
	PO2 Express a thought, reasonably defend one's own opinion on issues of social significance	HM 1.1	Humanities module
		SPSM 1.3	Social and Political Science Module
KK2 Carry out cultural and verbal communication using modern communication tools and technologies	PO3 Demonstrate proficiency in written, oral, and non-verbal communication	CITM 1.2	Communication and Information Technology Module
	PO4 Search and process information using ICT	HDM 1.4	Human Development Module
		CITM 1.2	Communication and Information Technology Module
KK3 Define a person in a social environment and focus on a healthy lifestyle	PO5 Express knowledge of holistic personality in economic and legal environment	HDM 1.4	Human Development Module
	PO6 Apply methods of ensuring the safety of social systems in order to preserve, develop and effectively function of an individual, society and the state	HDM 1.4	Human Development Module
KK6 Ability to prepare documentation on the organization of workplaces, requirements of labor protection and environmental safety.	PO10 Demonstrate awareness of health, safety and work in the workplace.	HDM 1.4	Human Development Module
<td colspan="4" style="text-align:center">**Basic Discipline Modules**</td>			
KK2 Carry out cultural and verbal communication using modern communication tools and technologies	PO3 Demonstrate proficiency in written, oral, and non-verbal communication	MEC 2.6	Module Engineering and Construction
	PO4 Search and process information using ICT	MEC 2.6	Module Engineering and Construction

Key competencies being formed	Learning outcomes (key competence units)		Name of the module
KK4 The ability to identify the nature of natural science problems arising in the course of professional activity	PO7 To apply basic and special knowledge in the field of mathematical, natural, humanitarian and technical Sciences in complex engineering activity	BETM 2.2	Basic Engineering Training Module
		PBM 2.5	Project Business Module
		MEC 2.6	Module Engineering and Construction
KK5 Ability to realize the aesthetic appeal of architectural objects	PO8 Qualities in finding the specific means of art, new figurative and plastic solutions for each creative problem.	MAA 2.1	The Module is Architectural and Art
	PO9 To analyze and justify the implementation of creative projects	MAA 2.1	The Module is Architectural and Art
		BETM 2.2	Basic Engineering Training Module
		MBAD 2.3	The Module of the Basis of Architectural Design
KK6 Ability to prepare documentation on the organization of workplaces, requirements of labor protection and environmental safety.	PO10 Demonstrate awareness of health, safety and work in the workplace.	MAH 2.1	The Module is Architectural and Art
		EEM 2.7	Engineering Entrepreneurship Module
KK7 Ability to create architectural and urban planning projects that meet both aesthetic and technical requirements.	PO11 Demonstrate an understanding of the nature and meaning of technical information.	MAH 2.1	The Module is Architectural and Art
		PBM 2.5	Project Business Module
		MEC 2.6	Module Engineering and Construction
	PO12 Analyze the current situation and develop their own project documentation.	MBAD 2.3	The Module of the Basis of Architectural Design
		DM 2.4	Design Module
	PO13 To show compliance of progressive technology of construction of objects of architecture, requirements of norms and rules, properties of building materials.	PBM 2.5	Project Business Module
		MEC 2.6	Module Engineering and Construction
KK8 Ability to develop projects of artistic design and artistic and graphic works.	PO14 Comparative analysis of similar domestic and foreign products, evaluation of their aesthetic level.	MAH 2.1	The Module is Architectural and Art

Key competencies being formed	Learning outcomes (key competence units)		Name of the module
	PO15 Be literate in computer and mock-up modeling.	MAH 2.1	The Module is Architectural and Art
		MEC 2.6	Module Engineering and Construction
	PO16 Possess the skills of graphic design, detailing the shapes of products, aesthetic and harmonic properties of objects.	MAH 2.1	The Module is Architectural and Art
		PBM 2.5	Project Business Module
KK9 Knowledge of the regulatory framework in the construction project documentation.	PO18 Ensure compliance of projects and technical documentation with standards, technical specifications and other regulatory documents.	PBM 2.5	Project Business Module
Major Disciplines Module			
KK4 The ability to identify the nature of natural science problems arising in the course of professional activity	PO7 To apply basic and special knowledge in the field of mathematical, natural, humanitarian and technical Sciences in complex engineering activity	BDMUD 3.4	Building Design Module and Undergraduate Design
KK7 Ability to create architectural and urban planning projects that meet both aesthetic and technical requirements.	PO11 Demonstrate an understanding of the nature and meaning of technical information.	MUPCD 3.3	Module of Urban Planning and Computer Design
		BDMUD 3.4	Building Design Module and Undergraduate Design
	PO12 Analyze the current situation and develop their own project documentation.	ADM 3.1	Architectural Design Module
		MAPPA 3.2	Module for Architectural Design and Pre-Project Analysis
		MUPCD 3.3	Module of Urban Planning and Computer Design
		BDMUD 3.4	Building Design Module and Undergraduate Design
	PO13 To show compliance of progressive technology of construction of objects of architecture, requirements of norms and rules, properties of building materials.	BDMUD 3.4	Building Design Module and Undergraduate Design

Key competencies being formed	Learning outcomes (key competence units)		Name of the module
KK8 Ability to develop projects of artistic design and artistic and graphic works.	PO14 Comparative analysis of similar domestic and foreign products, evaluation of their aesthetic level.	MUPCD 3.3	Module of Urban Planning and Computer Design
	PO15 Be literate in computer and mock-up modeling.	MUPCD 3.3	Module of Urban Planning and Computer Design
KK9 Knowledge of the regulatory framework in the construction project documentation.	PO17 To develop drawings of architectural construction project: conceptual and working, layout, sample color drawings, etc.	BDMUD 3.4	Building Design Module and Undergraduate Design
	PO18 Ensure compliance of projects and technical documentation with standards, technical specifications and other regulatory documents.	BDMUD 3.4	Building Design Module and Undergraduate Design

The following **curriculum** is presented:

Education plan «6B07301 – Architecture»(BA)

1 semestr	2 semestr	3 semestr	4 semestr	5 semestr	6 semestr	7 semestr	8 semestr	9 semestr	10 semestr
2106 Physical Education 2 prac. 2 ECTS GradedCredit	2106 Physical Education 2 prac. 2 ECTS GradedCredit	2106 Physical Education 2 prac. 2 ECTS GradedCredit	2106 Physical Education 2 prac. 2 ECTS GradedCredit	3301 Architectural Design III 5 prac. 7 ECTS Course Project, Exam	3216 Enterprise Economics 1 lec. 2 prac. 5 ECTS Exam	4307 Architectural Design VII 3 prac. 5 ECTS Course Project, Exam	4308 Architectural Design VIII 5 prac. 7 ECTS Course Project, Exam	5315 Architectural Design IX 3 prac. 5 ECTS Course Project, Exam	5318 Architecture of Kazakhstan History 2 lec. 3 ECTS Exam
1104 Foreign Language 3 prac. 5 ECTS Abstract	1104 Foreign Language 3 prac. 5 ECTS Exam	2101 Modern History of Kazakhstan 1 lec. 2 prac. 5 ECTS State Exam	2102 Philosophy 1 lec. 2 prac. 5 ECTS Exam	DM1 Minor Discipline 1 1 lec. 2 prac. 5 ECTS Exam	3224 Architectural Design IV 3 prac. 5 ECTS Course Project, Exam	4306 Architectural Design VI 3 prac. 5 ECTS Course Project, Exam	4314 Landscape Architecture 1 lec. 2 prac. 5 ECTS Exam	5316 Pre-Project Analysis 3 prac. 5 ECTS Exam	5317 Innovation and Patenting 1 lec. 1 prac. 3 ECTS Exam
1103 Kazakh (Russian) Language 3 prac. 5 ECTS Abstract	1103 Kazakh (Russian) Language 3 prac. 5 ECTS Exam	2105 Information and Communication Technologies (in english) 1 lec. 2 lab. 5 ECTS Exam	2109 Political Science 1 lec. 1 prac. 2 ECTS Exam	3305 Theory of Urban Development G3305 History and Basics of Urban Planning 2 lec. 1 prac. 5 ECTS Exam	3225 Architectural Design V 3 prac. 5 ECTS Course Project, Exam	4218 Entrepreneurship and Business Legal Environment 1 lec. 2 prac. 5 ECTS Exam	4312 Engineering Development and Transport 4312 Engineering Training of Urban areas 1 lec. 2 prac. 5 ECTS Exam	5215 Color Science 5215 Color Modeling 3 prac. 5 ECTS Exam	5310 Undergraduate Analysis 5310 Undergraduate Project 5 prac. 7 ECTS Course Project, Exam
1108 Sociology 1 lec. 1 prac. 2 ECTS Exam	1204 Drawing 1 3 prac. 5 ECTS Exam	2205 Architectural Design I 3 prac. 5 ECTS Course Project, Exam	2110 Psychology 1 lec. 1 prac. 2 ECTS Exam	3213 Typology of Architectural Environment 3213 Architectural Typology of Buildings and Structures 2 lec. 1 prac.	DM2 Minor Discipline 2 1 lec. 2 prac. 5 ECTS Exam	DM3 Minor Discipline 3 1 lec. 2 prac. 5 ECTS Exam	4220 Occupational Health and Safety 4220 Production Safety Fundamentals 1 lec. 2 prac. 3 ECTS Exam	5219 Engineering Design 5219 Pricing of Design Works 1 lec. 2 prac. 5 ECTS Exam	5221 Pre FYP Industrial Training 5 ECTS GradedCredit

1 semestr	2 semestr	3 semestr	4 semestr	5 semestr	6 semestr	7 semestr	8 semestr	9 semestr	10 semestr
				5 ECTS Exam					
1107 Culture Studies 1 lec. 1 prac. 2 ECTS Exam	1222 Fundamentals of Architectural Engineering 4 prac. 6 ECTS Course Paper, Exam	2111 Fundamentals of Ecology and Health and Safety 2111 Integrity and Anti-Corruption 2111 Economics Basics 2111 Adam Bol 2111 Adam Bol 1 lec. 2 prac. 5 ECTS Exam	2208 Architectural Design II 3 prac. 5 ECTS Course Project, Exam	3210 Architectural Physics 1 3210 Physical Methods in Architectural Design 1 2 lab. 3 ECTS Exam	3226 Architectural Physics 2 3226 Physical Methods in Architectural Design 2 4 lab. 6 ECTS Exam	4313 Painting 4313 The Principles of the Art of Painting 3 prac. 5 ECTS Exam	4309 Design of Residential and Public Buildings 4309 Modern Problems of Residential and Pulic Buildings Design 2 lec. 1 prac. 5 ECTS Exam	5311 Designing Energy-Efficient Buildings 5311 Green Architecture. 1 lec. 2 prac. 5 ECTS Exam	Final Attestation 12 ECTS
1202 Fundamentals of Architectural Graphics and Layout Creating 4 prac. 6 ECTS Exam	1206 Architectural Composition 1206 Fundamentals of Architectural Design 3 prac. 5 ECTS Exam	2209 Architectural Constructions 1 2209 Structures of Low-Rise Residential Buildings 1 lec. 2 prac. 5 ECTS Exam	2223 Drawing 2 2223 Special Drawing 3 prac. 4 ECTS Exam	3214 Building Constructions 3214 Architectural Constructions 2 1 lec. 2 prac. 5 ECTS Exam	3212 Industrial Training 1 4 ECTS GradedCredit	4304 Engineering Sistems of Buildings and Structures 4304 Engineering Equipment of Buildings and Structures 1 lec. 2 prac. 5 ECTS Exam	4217 Industrial Training 2 5 ECTS GradedCredit	5227 Professional Computer Programs 5 5227 Technical Means of Architectural Graphics 2 3 lab. 5 ECTS Exam	
1203 Architectural Engineering Graphics 1 3 prac. 5 ECTS Exam	1207 Industrial Training 2 ECTS GradedCredit	2303 Architectural Materials Science 2303 Finishing Agents 1 lec. 1 lab. 3 ECTS Exam	2211 World History of Architecture 2211 World Architectural Heritage 2 lec. 1 prac.						

47

1 semestr	2 semestr	3 semestr	4 semestr	5 semestr	6 semestr	7 semestr	8 semestr	9 semestr	10 semestr
			5 ECTS Exam						
1201 Introduction to Engineering 1 lec. 1 prac. 3 ECTS GradedCredit			2302 Professional Computer Programs 1 2302 Technical Means of Architectural Graphics 1 3 lab. 5 ECTS Exam						
3 lec. + 18 prac. + 0 lab. = 21 h./week	0 lec. + 18 prac. + 0 lab. = 18 h./week	5 lec. + 11 prac. + 3 lab. = 19 h./week	5 lec. + 13 prac. + 3 lab. = 21 h./week	6 lec. + 11 prac. + 2 lab. = 19 h./week	2 lec. + 10 prac. + 4 lab. = 16 h./week	3 lec. + 15 prac. + 0 lab. = 18 h./week	5 lec. + 12 prac. + 0 lab. = 17 h./week	2 lec. + 13 prac. + 3 lab. = 18 h./week	3 lec. + 6 prac. + 0 lab. = 9 h./week
4 exam 2 GradedCredit 2 abstract	5 exam 1 GradedCredit 1 course work 1 practic report	1 state exam 5 exam 1 GradedCredit 1 course work	7 exam 1 GradedCredit 1 course work	5 exam 1 course work	4 exam 2 course work 1 practic report	5 exam 2 course work	5 exam 1 course work 1 practic report	6 exam 1 course work	3 exam 1 course work 1 practic report
30 ECTS	30 ECTS	30 ECTS	30 ECTS	30 ECTS	30 ECTS	30 ECTS	30 ECTS	30 ECTS	30 ECTS
Total									
Component by selection 0 ECTS (0%)	Component by selection 5 ECTS (16.7%)	Component by selection 13 ECTS (43.3%)	Component by selection 14 ECTS (46.7%)	Component by selection 23 ECTS (76.7%)	Component by selection 11 ECTS (36.7%)	Component by selection 15 ECTS (50%)	Component by selection 13 ECTS (43.3%)	Component by selection 20 ECTS (66.7%)	Component by selection 7 ECTS (23.3%)

According to Website the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Master's degree programme <u>Architecture</u>:

Matrix of learning outcomes - Modules for EP «7M07301-Architecture»

Key competencies being formed	Learning outcomes (key competence units)	Name of the module	
Basic discipline module			
KK1 Carrying out educational and methodical work in educational institutions of additional education, General and professional.	PO1 Use basic knowledge and practical experience in the organization and analysis of the educational process, methods of preparation and conduct of classes.	MGC 2.1	Module of general communication
KK1 High level of socio-psychological and communication skills.	PO1 Use knowledge in the field of psychology and pedagogy, special and theoretical disciplines.	MGC 2.1	Module of general communication
KK1 Carrying out educational and methodical work in educational institutions of additional education, General and professional.	PO2 Be able to apply classical and modern teaching methods.	MGC 2.1	Module of general communication
		MBSR 2.2	Module of the basis of scientific research
KK2 Ability in a comprehensive analysis of scientific research or development on one of the issues of theoretical or practical nature.	PO2 Develop the ability to develop innovative (conceptual), interdisciplinary and specialized character.	MGC 2.1	Module of general communication
KK3 Development of skills of creative approach in pedagogical activity.	PO3 To use individual methods and methods of work taking into account age, psychological and physiological characteristics of students.	MGC 2.1	Module of general communication
	PO4 Own techniques in the development of professional creative skills of students.	MGC 2.1	Module of general communication
KK3 Ability to effectively use engineering and technical knowledge (materials, structures, technologies, engineering systems) in the development of architectural and urban solutions, to carry out their economic justification.	PO5 Present their works to professional and academic communities, management bodies, customers and the public.	MGC 2.1	Module of general communication
KK4 Ability in a comprehensive analysis of scientific research or development on one of	PO5 Develop the ability to develop and lead the development of research-based design solutions.	MBSR 2.2	Module of the basis of scientific research

Key competencies being formed	Learning outcomes (key competence units)		Name of the module
the issues of theoretical or practical nature.			
KK4 Ability to implement multimedia, virtual, multi-dimensional digital spatial modeling technologies for scientific research, architectural and planning, urban development projects and production and technological solutions.	PO7 Acquire new knowledge and skills related to the professional sphere of activity with the help of information technologies	MGC 2.1	Module of general communication
KK5 Ability to effectively use engineering and technical knowledge (materials, structures, technologies, engineering systems) in the development of architectural and urban solutions, to carry out their economic justification.	PO7 To form architectural and urban planning solutions by integrating fundamental and applied knowledge in the field of architectural activity.	MAMT 2.3	The module of architectural modeling and typology
	PO8 Present their works to professional and academic communities, management bodies, customers and the public.	TAMT 2.3	The module of architectural modeling and typology
KK5 Development of organizational, leadership and management skills.	PO8 Calculate and evaluate the conditions and consequences of decisions in the organization and conduct of practical activities in the enterprise.	MGC 2.1	Module of general communication
KK6 Ability to implement multimedia, virtual, multi-dimensional digital spatial modeling technologies for scientific research, architectural and planning, urban development projects and production and technological solutions.	PO9 To solve engineering and socio-economic problems with the help of professional IT-technology packages.	MAMT 2.3	The module of architectural modeling and typology
	PO10 Acquire new knowledge and skills related to the professional sphere of activity with the help of information technologies	MAMT 2.3	The module of architectural modeling and typology
KK7 Development of organizational, leadership and management skills.	PO11 Calculate and evaluate the conditions and consequences of decisions in the organization and conduct of practical activities in the enterprise.	MGC 2.1	Module of general communication
	PO12 To build a logical sequence of activities of the team in the process of interaction with the corresponding structures of legal bodies.	MGC 2.1	Module of general communication

Key competencies being formed	Learning outcomes (key competence units)		Name of the module
Major disciplines module			
KK2 Ability in a comprehensive analysis of scientific research or development on one of the issues of theoretical or practical nature.	PO3 Apply modern research methods involving knowledge of different disciplines.	SM 3.2	Simulation module
KK3 Ability to effectively use engineering and technical knowledge (materials, structures, technologies, engineering systems) in the development of architectural and urban solutions, to carry out their economic justification.	PO4 To form architectural and urban planning solutions by integrating fundamental and applied knowledge in the field of architectural activity.	MAD 3.1	Module architectural design
		SM 3.2	Simulation module
KK4 Ability in a comprehensive analysis of scientific research or development on one of the issues of theoretical or practical nature.	PO5 Develop the ability to develop and lead the development of research-based design solutions.	MALD 3.1	Module of architectural and landscape design
KK4 Ability to implement multimedia, virtual, multi-dimensional digital spatial modeling technologies for scientific research, architectural and planning, urban development projects and production and technological solutions.	PO6 To solve engineering and socio-economic problems with the help of professional IT-technology packages.	SM 3.2	Simulation module
KK4 Ability in a comprehensive analysis of scientific research or development on one of the issues of theoretical or practical nature.	PO6 Develop the ability to develop innovative (conceptual), interdisciplinary and specialized character.	MTPRW 3.2	Module theory and practice of research work
KK4 Ability to implement multimedia, virtual, multi-dimensional digital spatial modeling technologies for scientific research, architectural and planning, urban development projects and production and technological solutions.	PO7 Acquire new knowledge and skills related to the professional sphere of activity with the help of information technologies	SM 3.2	Simulation module
KK5 Ability to effectively use engineering and	PO7 To form architectural and urban planning	MALD 3.1	Module of architectural and landscape

Key competencies being formed	Learning outcomes (key competence units)		Name of the module
technical knowledge (materials, structures, technologies, engineering systems) in the development of architectural and urban solutions, to carry out their economic justification.	solutions by integrating fundamental and applied knowledge in the field of architectural activity.		design
		MMAC 3.3	Module modern architecture and combinatorics
	PO8 Present their works to professional and academic communities, management bodies, customers and the public.	MALD 3.1	Module of architectural and landscape design
		MTPRW 3.2	Module theory and practice of research work
		MMAC 3.3	Module modern architecture and combinatorics
KK5 Development of organizational, leadership and management skills.	PO9 To build a logical sequence of activities of the team in the process of interaction with the corresponding structures of legal bodies.	MAD 3.1	Module architectural design
KK6 Ability to implement multimedia, virtual, multi-dimensional digital spatial modeling technologies for scientific research, architectural and planning, urban development projects and production and technological solutions.	PO10 Acquire new knowledge and skills related to the professional sphere of activity with the help of information technologies	MMAC 3.3	Module modern architecture and combinatorics
KK7 Development of organizational, leadership and management skills.	PO11 Calculate and evaluate the conditions and consequences of decisions in the organization and conduct of practical activities in the enterprise.	MTPRW 3.2	Module theory and practice of research work
Research Work Module			
KK3 Ability to effectively use engineering and technical knowledge (materials, structures, technologies, engineering systems) in the development of architectural and urban solutions, to carry out their economic justification.	PO5 Present their works to professional and academic communities, management bodies, customers and the public.	MERWMS	Module of Experimental and Research work of a Master's student

Key competencies being formed	Learning outcomes (key competence units)	Name of the module	
KK4 Ability in a comprehensive analysis of scientific research or development on one of the issues of theoretical or practical nature.	PO6 Develop the ability to develop innovative (conceptual), interdisciplinary and specialized character.	URM	Undergraduate research module
KK5 Development of organizational, leadership and management skills.	PO9 To build a logical sequence of activities of the team in the process of interaction with the corresponding structures of legal bodies.	MERWMS	Module of Experimental and Research work of a Master's student
KK7 Development of organizational, leadership and management skills.	PO12 To build a logical sequence of activities of the team in the process of interaction with the corresponding structures of legal bodies.	URM	Undergraduate research module

The following **curriculum** is presented:

Education plan «7M07301-Architecture» (MA)

1 semester	2 semester	3 semester	4 semester
Research Project Including Internship and Master Thesis 5 ECTS GradedCredit	Research Project Including Internship and Master Thesis 5 ECTS GradedCredit	Research Project Including Internship and Master Thesis 5 ECTS GradedCredit	Research Project Including Internship and Master Thesis 9 ECTS GradedCredit
6301 landscape Design 3 prac. 5 ECTS Exam	6302 Architectural Design - 1 4 prac. 6 ECTS Course Project, Exam	7304 Architectural Design - 2 4 prac. 6 ECTS Course Project, Exam	7308 Research Practice 9 ECTS GradedCredit
6204 Psychology of Management 1 lec. 1 prac. 3 ECTS Exam	6307 Architectural Criticism 3 lec. 5 ECTS Exam	7208 Computer Graphics and Modeling 7208 Modern Computer Programs 3 lab. 5 ECTS Exam	Final Attestation 12 ECTS
6201 History and Philosophy of Science 1 lec. 1 prac. 3 ECTS Exam	6203 Tertiary Pedagogics 1 lec. 1 prac. 3 ECTS Exam	7209 Financial Planning and Budgeting in Architectural-Town-Planing Activity 7209 Modern Design Systems and Additive Technologies in Architecture 2 lec. 1 prac. 5 ECTS Exam	
6202 Foreign language (professional) 2 prac. 3 ECTS Exam	6303 Methods of Teaching Professional Diaciplines 6303 Methods of Architectural Design 4 lec. 6 ECTS Exam	7306 Ergonomics 7306 Architectural Combinatorics and Ergonomics 2 lec. 2 prac. 6 ECTS Exam	
6205 Organization, Planning and Methodology of	6207 Architectural Typology of Buildings and	7206 Pedagogical Practical Training	

1 semester	2 semester	3 semester	4 semester
Scientific Research 3 lec. 5 ECTS Exam	Structures 6207 Architectural Typology of Urban Environment 3 lec. 5 ECTS Exam	3 ECTS GradedCredit	
6305 Trends of Modern Architecture 6305 Business Research in Architectural and Urban Planning 4 lec. 6 ECTS Exam			
9 lec. + 7 prac. + 0 lab. = 16 h./week	11 lec. + 5 prac. + 0 lab. = 16 h./week	4 lec. + 7 prac. + 3 lab. = 14 h./week	0 lec. + 0 prac. + 0 lab. = 0 h./week
6 exam 1 GradedCredit	5 exam 1 GradedCredit 1 course work	4 exam 1 GradedCredit 1 course work 1 practic report	1 GradedCredit 1 practic report
30 ECTS	30 ECTS	30 ECTS	30 ECTS
Total			
Component by selection 6 ECTS (20%)	Component by selection 11 ECTS (36.7%)	Component by selection 16 ECTS (53.3%)	Component by selection 0 ECTS (0%)

According to Website the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme <u>Civil Engineering</u>:

Matrix of learning outcomes - Modules for EP «6B07305 - Civil Engineering»

Key competencies being formed	Learning outcomes (key competence units)		Name of the module
General Education Discipline Modules			
KK1 Evaluate different situations based on a holistic systemic scientific worldview	PO1 Analyze information of philosophical and historical content, methods of discussion and controversy	HM 1.1	Humanities Module
		SPSM 1.3	Social and Political Science Module
	PO2 Express a thought, reasonably defend one's own opinion on issues of social significance	HM 1.1	Humanities Module
		SPSM 1.3	Social and Political Science Module
KK2 Carry out cultural and verbal communication using modern communication tools and technologies	PO3 Demonstrate proficiency in written, oral, and non-verbal communication	CITM 1.2	Communication and Information Technology Module
	PO4 Search and process information using ICT	CITM 1.2	Communication and Information Technology Module
KK3 Define a person in a social environment and focus on a healthy lifestyle	PO5 Express knowledge of holistic personality in economic and legal environment	HDM 1.4	Human Development Module
	PO6 Apply methods of ensuring the safety of social systems in order to preserve, develop and effectively function of an individual, society and the state	HDM 1.4	Human Development Module
KK5 The ability to develop measures to increase investment attractiveness of construction objects	PO8 Have the foundations of economic knowledge, to own the skills of making decisions of an economic and organizational nature in conditions of indefinite risk	HDM 1.4	Human Development Module
KK6 The ability to prepare documentation for the organization of	PO10 Demonstrate awareness in matters of health, safety of life and labor in production	HDM 1.4	Human Development Module

Key competencies being formed	Learning outcomes (key competence units)		Name of the module
workplaces, labor protection requirements and environmental safety			
Basic Discipline Modules			
KK4 Ability to identify the natural science essence of the problems that arise during professional activities	PO7 Apply basic and special knowledge in the field of mathematical, natural, humanitarian and technical sciences in complex engineering activities	NSM 2.1	Natural Sciences Module
		MGFBS 2.2	Module of Geodesy and Foundations of Buildings and Structures
		EMM 2.7	Engineering Mechanics Module
		MBS 2.4	Module of the Basics of the Specialty
KK5 Ability to develop measures to increase investment attractiveness of construction objects	PO8 Possess the basics of economic knowledge, to own the skills of making decisions of an economic and organizational nature in conditions of vague risk	EEM 2.6	Enterprise Engineering Module
	PO9 to conduct a technical and economic justification of design solutions, perform organizational and planning calculations	EEM 2.6	Enterprise Engineering Module
		MBS 2.4	Module of the Basics of the Specialty
KK6 Ability to prepare documentation for the organization of jobs, labor protection requirements and environmental safety	PO10 Demonstrate awareness in matters of health protection, life and labor safety in production	MBS 2.4	Module of the Basics of the Specialty
KK7 Ability to participate in the design, searches and construction of objects of professional	PO11 Demonstrate an understanding of the essence and significance of technical information in the development of modern society	MBS 2.4	Module of the Basics of the Specialty

Key competencies being formed	Learning outcomes (key competence units)	Name of the module	
activity	PO13 Analyze existing technical documentation and develop it yourself	ArhM 2.3	Architecture Module
		MGFBS 2.2	Module of Geodesy and Foundations of Buildings and Structures
	PO14 The ability to use the design of objects and technological processes in construction using standard computer-aided design tools	MBS 2.4	Module of the Basics of the Specialty
KK8 Knowledge of the regulatory framework in the field of engineering surveys, principles of designing buildings, structures, engineering systems and equipment	PO15 Possess design methods and the ability to determine the main tasks of designing engineering systems of buildings and structures	MBS 2.4	Module of the Basics of the Specialty
	PO16 Readiness to use the technique of documenting technological solutions at the design stage and the stage of project implementation	EEM 2.6	Enterprise Engineering Module
		MBS 2.4	Module of the Basics of the Specialty
	PO17 Apply standard methods for calculating the elements and units of building structures, perform design work and draw up documentation according to standards	ArhM 2.3	Architecture Module
		MGFBS 2.2	Module of Geodesy and Foundations of Buildings and Structures
		EMM 2.7	Engineering Mechanics Module
		MFCBS 2.5	Module Fundamentals of Calculation of Building Structures
		MBS 2.4	Module of the Basics of the Specialty
KK9 Ability to conduct experiments on given methods with processing and analysis of the results	PO18 Apply standard test methods to determine the physical and mechanical properties and technological parameters of the materials and products used	NSM 2.1	Natural Sciences Module
		MGFBS 2.2	Module of Geodesy and Foundations of Buildings and Structures
		EMM 2.7	Engineering Mechanics Module
		MFCBS 2.5	Module Fundamentals of Calculation of Building

Key competencies being formed	Learning outcomes (key competence units)	Name of the module	
			Structures
		MBS 2.4	Module of the Basics of the Specialty
Major Disciplines Module			
KK5 Ability to develop measures to increase investment attractiveness of construction objects	PO8 Possess the basics of economic knowledge, to own the skills of making decisions of an economic and organizational nature in conditions of vague risk	CMCP 3.4	Calculation Module by Computer Programs
	PO9 to conduct a technical and economic justification of design solutions, perform organizational and planning calculations	CMCP 3.4	Calculation Module by Computer Programs
KK7 Ability to participate in the design, searches and construction of objects of professional activity	PO12 Master the new equipment being introduced, check the technical condition and residual life of equipment and structures	CWMM 3.3	Construction Work Management Module
		IBDM 3.2	Industrial Building Design Module
		CMCP 3.4	Calculation Module by Computer Programs
	PO13 Analyze existing technical documentation and develop it yourself	CWMM 3.3	Construction Work Management Module
		CMCP 3.4	Calculation Module by Computer Programs
	PO14 The ability to use the design of objects and technological processes in construction using standard computer-aided design tools	CWMM 3.3	Construction Work Management Module
		CMCP 3.4	Calculation Module by Computer Programs
		MMTC 3.1	Module of Modern Technologies in Construction
KK8 Knowledge of the regulatory framework in the field of engineering surveys, principles of designing buildings, structures, engineering systems and equipment	PO15 Possess design methods and the ability to determine the main tasks of designing engineering systems of buildings and structures	MMTC 3.1	Module of Modern Technologies in Construction
	PO16 Readiness to use the technique of documenting technological solutions at the design stage and the stage of project	CWMM 3.3	Construction Work Management Module

Key competencies being formed	Learning outcomes (key competence units)		Name of the module
	implementation		
	PO17 Apply standard methods for calculating the elements and units of building structures, perform design work and draw up documentation according to standards	CWMM 3.3	Construction Work Management Module
		IBDM 3.2	Industrial Building Design Module
		CMCP 3.4	Calculation Module by Computer Programs
		MMTC 3.1	Module of Modern Technologies in Construction

The following **curriculum** is presented:

Education plan «6B07305 – Civil Engineering» (BA)

1 semestr	2 semestr	3 semestr	4 semestr	5 semestr	6 semestr	7 semestr	8 semestr
1106 Physical Education 2 prac. 2 ECTS GradedCredit	1106 Physical Education 2 prac. 2 ECTS GradedCredit	1106 Physical Education 2 prac. 2 ECTS GradedCredit	1106 Physical Education 2 prac. 2 ECTS GradedCredit	3210 Technology of Construction Industry 1 lec. 2 prac. 5 ECTS Exam	3211 Entrepreneurship and Business Legal Environment 1 lec. 2 prac. 5 ECTS Exam	4212 Enterprise Economics 1 lec. 2 prac. 5 ECTS Exam	4213 Occupational Health and Safety 1 lec. 1 prac. 3 ECTS Exam
1104 Foreign Language 3 prac. 5 ECTS Abstract	1101 Modern History of Kazakhstan 1 lec. 2 prac. 5 ECTS State Exam	2102 Philosophy 1 lec. 2 prac. 5 ECTS Exam	2109 Political Science 1 lec. 1 prac. 2 ECTS Exam	3301 Computer-Aided Design System 1 lec. 2 lab. 5 ECTS Exam	3302 The Technology of Construction of Buildings 2 lec. 1 prac. 5 ECTS Course Project, Exam	4305 Maintenance of the Buildings 1 lec. 2 prac. 5 ECTS Exam	4311 Estimation 4311 Pricing of Design Works 1 lec. 2 prac. 5 ECTS Exam
1103 Kazakh (Russian) Language 3 prac. 5 ECTS Abstract	1104 Foreign Language 3 prac. 5 ECTS Exam	2207 Mechanical Engineering 1 lec. 2 prac. 5 ECTS Exam	2110 Psychology 1 lec. 1 prac. 2 ECTS Exam	DM2 Minor Discipline 2 1 lec. 2 prac. 5 ECTS Exam	DM3 Minor Discipline 3 1 lec. 2 prac. 5 ECTS Exam	4304 Modern Aspects of the Organization of Construction Production 1 lec. 2 prac. 5 ECTS Course Paper, Exam	4312 Variant Design 4312 Calculation of Structural Systems of Buildings using Computer Programs 1 lec. 2 lab. 5 ECTS Exam
1105 Information and Communication Technologies (in english) 1 lec. 2 lab. 5 ECTS Exam	1103 Kazakh (Russian) Language 3 prac. 5 ECTS Exam	2206 Building Materials 2 lec. 1 lab. 5 ECTS Exam	2208 Building Constructions 1 lec. 2 prac. 5 ECTS Exam	3219 Foundation Engineering 3219 Foundations of Buildings and Structures 1 lec. 2 prac. 5 ECTS Course Project, Exam	3221 Wood and Plastic Constructions 3221 Construction of Wooden Structures 2 lec. 1 prac. 5 ECTS Course Paper, Exam	4310 Seismic Resistance of Buildings and Constructions 4310 The Construction of Earthquake-Resistant Buildings and Structures 2 lec. 1 prac. 5 ECTS	4306 Pre FYP Industrial Training 5 ECTS GradedCredit

1 semestr	2 semestr	3 semestr	4 semestr	5 semestr	6 semestr	7 semestr	8 semestr
						Exam	
1203 AutoCAD and Manual Drawing 3 prac. 5 ECTS Exam	1108 Sociology 1 lec. 1 prac. 2 ECTS Exam	2216 Architecture 2216 Architecture of Industrial and Civil Buildings 1 lec. 2 prac. 5 ECTS Course Project, Exam	DM1 Minor Discipline 1 1 lec. 2 prac. 5 ECTS Exam	3220 Reinforced Concrete and Masonry Constructions 3220 Design of Reinforced Concrete Constructions 1 lec. 2 prac. 5 ECTS Course Project, Exam	3222 Metal Structures 3222 Construction of Metal Structures 1 lec. 2 prac. 5 ECTS Course Project, Exam	4308 Metal Construction of Single-Storey Industrial Buildings 4308 Reconstruction of Buildings 2 lec. 1 prac. 5 ECTS Course Project, Exam	Final Attestation 12 ECTS
1204 Physics 1 lec. 2 prac. 4 ECTS Exam	1107 Culture Studies 1 lec. 1 prac. 2 ECTS Exam	2111 Fundamentals of Ecology and Health Safety 2111 Integrity and Anti-Corruption 2111 Economics Basics 1 lec. 2 prac. 5 ECTS Exam	2217 Geotechnology 2217 Soil Mechanics 2 lec. 1 lab. 5 ECTS Exam	3307 Engineering Sistems of Buildings and Structures 3307 Additive Technologies in Construction 2 lec. 1 prac. 5 ECTS Exam	3303 Industrial Training 2 5 ECTS Graded Credit	4309 Reinforced Concrete Structures of Industrial Buildings 4309 Special Course 2 lec. 1 prac. 5 ECTS Course Project, Exam	
1201 Mathematics 1 1 lec. 2 prac. 4 ECTS Exam	1202 Mathematics 2 1 lec. 2 prac. 4 ECTS Exam	2215 Protection of Steel Constructions Against Corrosion 2215 Corrosion Prevention Technology 1 lec. 1 prac. 3 ECTS Exam	2218 Strength of Materials and Structural Mechanics 2218 Strength of Materials in Structures 2 lec. 1 prac. 5 ECTS Exam				
	1214 Geodesy 1214 Survey Operations at Site 1 lec. 1 prac.		2209 Industrial Training 1 4 ECTS GradedCredit				

1 semestr	2 semestr	3 semestr	4 semestr	5 semestr	6 semestr	7 semestr	8 semestr
	3 ECTS Exam						
	1205 Geodetik Training Practice 2 ECTS GradedCredit						
3 lec. + 17 prac. + 2 lab. = 22 h./week	5 lec. + 17 prac. + 0 lab. = 22 h./week	7 lec. + 11 prac. + 1 lab. = 19 h./week	8 lec. + 9 prac. + 1 lab. = 18 h./week	7 lec. + 9 prac. + 2 lab. = 18 h./week	7 lec. + 8 prac. + 0 lab. = 15 h./week	9 lec. + 9 prac. + 0 lab. = 18 h./week	3 lec. + 3 prac. + 2 lab. = 8 h./week
4 exam 1 GradedCredit 2 abstract	1 state exam 6 exam 1 GradedCredit 1 practic report	6 exam 1 GradedCredit 1 course work	5 exam 1 GradedCredit 1 practic report	5 exam 2 course work	4 exam 3 course work 1 practic report	6 exam 1 course work	3 exam 1 practic report
30 ECTS	30 ECTS	30 ECTS	30 ECTS	30 ECTS	30 ECTS	30 ECTS	30 ECTS
Total							
Component by selection 0 ECTS (0%)	Component by selection 3 ECTS (10%)	Component by selection 13 ECTS (43.3%)	Component by selection 15 ECTS (50%)	Component by selection 20 ECTS (66.7%)	Component by selection 15 ECTS (50%)	Component by selection 15 ECTS (50%)	Component by selection 10 ECTS (33.3%)

According to Website the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Master's degree programme <u>Civil Engineering</u>:

Matrix of learning outcomes - Modules for EP«7M07305-Civil Engineering»

Key competencies being formed	Learning outcomes (key competence units)	Name of the module	
Basic discipline module			
KK1 Research, assess, analyze and interpret scientific data and research. Conceive ideas while scientific and practical problems solving.	PO1 Analyze trends of the modern science. Scientific communication and communication in the field of expertise.	OM 2.1	Module of general communication
		MM 2.2	Methodology module
KK1 Critical thinking, evaluation and problem solving, communication, management and collaborative leadership.	PO1 Management and collaborative leadership in the field of expertise, interpersonal relations with diverse others	MGC 2.1	Module of general communication
KK1 Research, assess, analyze and interpret scientific data and research. Conceive ideas while scientific and practical problems solving.	PO2 Demonstrate effective use of psychological and pedagogical technologies in educational process in higher education.	MGC 2.1	Module of general communication
KK1 Critical thinking, evaluatëion and problem solving, communication, management and collaborative leadership.	PO2 Communication, problem solving, strategic management	MGC 2.1	Module of general communication
KK2 Ability to freely use foreign languages as a means of professional communication	PO2 Be proficient in a foreign language at the level of international standards C1-C2 and grammatical characteristics of scientific style; be able to work in an international environment.	MGC 2.1	Module of general communication
KK2 Ability to freely use foreign languages as a means of professional communication	PO3 Be proficient in a foreign language at the level of international standards C1-C2 and grammatical characteristics of scientific style; be able to work in an international environment.	MGC 2.1	Module of general communication
KK3 Ability to participate in pedagogical activity	PO3 To carry out pedagogical activity taking into account the psychological and pedagogical requirements for the organization of the educational process	MGC 2.1	Module of general communication
		MM 2.2	Methodology module
KK3 Ability to participate in pedagogical	PO4 Possess modern information technologies,	MM 2.2	Methodology module

Key competencies being formed	Learning outcomes (key competence units)	Name of the module	
activity	including methods of obtaining, processing and storing scientific information		
	PO5 Know the rules of registration and protection of intellectual property	MM 2.2	Methodology module
KK4 Ability to participate in research activities	PO5 Possess modern information technologies, including methods of obtaining, processing and storing scientific information	MM 2.2	Methodology module
	PO6 Know the rules of registration and protection of intellectual property	MM 2.2	Methodology module
	PO7 Be able to choose the necessary research methods, modify existing ones and develop new methods based on the tasks of a specific study.	MM 2.2	Methodology module
KK5 Ability to participate in design and technological activity	PO8 Have the ability to carry out the design of buildings and structures using modern construction materials, structures and engineering systems, software and computer systems and automated design systems with the use of BIM technologies in design	MMTC 2.3	Module of modern trends in construction
KK5 Ability to participate in organizational and managerial activities	PO8 Define and evaluate the development strategy of the organization, initiate technological and organizational solutions that promote mobility and competitiveness in market conditions	MGC 2.1	Module of general communication
KK5 Ability to participate in design and technological activity	PO9 Know modern environmentally safe technologies in construction production, including additive technologies in construction, ensuring high quality and productivity of work	MMTC 2.3	Module of modern trends in construction
KK6 Ability to participate in organizational and managerial activities	PO10 Ability to participate in organizational and management activities	MMTC 2.3	Module of modern trends in construction

Key competencies being formed	Learning outcomes (key competence units)		Name of the module
Major disciplines module			
KK4 Ability to participate in research activities	PO4 To carry out research work within the framework of professional activity with the constant improvement of the methodology of scientific research in the field of construction	TRM 3.2	The research module
KK4 Ability to participate in research activities	PO6 Have the ability to carry out the design of buildings and structures using modern building structures and engineering systems, software and computer-aided design systems	MMTCE 3.1	Module of modern trends in Civil Engineering
	PO7 Know modern technologies in construction production, new methods and methods in the technology of construction processes of buildings and structures	MMTCE 3.1	Module of modern trends in Civil Engineering
KK5 Ability to participate in design and technological activity	PO8 Have the ability to carry out the design of buildings and structures using modern construction materials, structures and engineering systems, software and computer systems and automated design systems with the use of BIM technologies in design	RM 3.2	The research module
		MCTTSSBS3.3	Module on current trends in technology, structures and safety of building systems
KK5 Ability to participate in organizational and managerial activities	PO8 Define and evaluate the development strategy of the organization, initiate technological and organizational solutions that promote mobility and competitiveness in market conditions	MMTCE 3.1	Module of modern trends in Civil Engineering
KK5 Ability to participate in design and technological activity	PO8 Have the ability to carry out the design of buildings and structures using modern construction materials, structures and engineering systems, software and computer systems and automated design systems with the use of BIM technologies in design	MDTM 3.1	Modern design trends module
	PO9 Know modern environmentally safe technologies in construction production, including	MCTTSSBS 3.3	Module on current trends in technology, structures and safety

Key competencies being formed	Learning outcomes (key competence units)		Name of the module
	additive technologies in construction, ensuring high quality and productivity of work		of building systems
KK6 Ability to participate in organizational and managerial activities	PO10 Ability to participate in organizational and management activities	MCTTSSBS 3.3	Module on current trends in technology, structures and safety of building systems
Research Work Module			
KK3 Ability to participate in production activities	PO4 Possess modern information technologies, including methods of obtaining, processing and storing scientific information	MERWMS	Module of Experimental and Research work of a Master's student
	PO5 Know the rules of registration and protection of intellectual property	MERWMS	Module of Experimental and Research work of a Master's student
KK4 Ability to participate in research activities	PO4 Be able to carry out research work within the framework of professional activity with the constant improvement of the methodology of scientific research in the field of construction	MRWU	Module of research work of a undergraduate
	PO7 Be able to choose the necessary research methods, modify existing ones and develop new methods based on the tasks of a specific study.	MRWU	Module of research work of a undergraduate

The following **curriculum** is presented:

Education plan «7M07305- Civil Engineering » (MA)

1 semester	2 semester	3 semester	4 semester
Research Project Including Internship and Master Thesis 5 ECTS GradedCredit	Research Project Including Internship and Master Thesis 5 ECTS GradedCredit	Research Project Including Internship and Master Thesis 5 ECTS GradedCredit	Research Project Including Internship and Master Thesis 9 ECTS GradedCredit
5204 Psychology of Management 1 lec. 1 prac. 3 ECTS Exam	5203 Tertiary Pedagogics 1 lec. 1 prac. 3 ECTS Exam	6304 Finite Element Analysis in Civil Engineering 1 lec. 2 prac. 5 ECTS Exam	6305 Research Practice 9 ECTS GradedCredit
5201 History and Philosophy of Science 1 lec. 1 prac. 3 ECTS Exam	5302 Modern Methods of Construction of Buildings and Structures 2 lec. 2 prac. 6 ECTS Exam	6303 Modern Design Concepts Seismosafe Buildings and Structures 1 lec. 2 prac. 5 ECTS Exam	Final Attestation 12 ECTS
5202 Foreign language (professional) 2 prac. 3 ECTS Exam	6308 Modern Reinforced Concrete Constructions 6308 Management by Projects and Organizations of BIM of Planning Technologies 2 lec. 2 prac. 6 ECTS Exam	6306 Quality Control of Construction Works 6306 Engineering and Ecological Safety of Building Systems 2 lec. 2 prac. 6 ECTS Exam	
5301 Modern Design of Construction Objects 2 lec. 2 prac. 6 ECTS Exam	5208 Modern Efficient Building Design 5208 Modern Methods of Management in Civil Engineering 1 lec. 2 prac. 5 ECTS Exam	6307 New Technological Solutions in Construction 6307 Additive Technologies in Construction 2 lec. 2 prac. 6 ECTS Exam	
5205 There is Methodology of Scientific Researches in Area of Building	5209 Building Information Modeling 5209	6206 Pedagogical Practical Training	

1 semester	2 semester	3 semester	4 semester
1 lec. 2 prac. 5 ECTS Exam	Technology of Informative Design of Building Constructions 1 lec. 2 prac. 5 ECTS Exam	3 ECTS GradedCredit	
5207 Technology of Installation of Buildings and Constructions 5207 Bases of BIM Technology in Design 1 lec. 2 prac. 5 ECTS Exam			
6 lec. + 10 prac. + 0 lab. = 16 h./week	7 lec. + 9 prac. + 0 lab. = 16 h./week	6 lec. + 8 prac. + 0 lab. = 14 h./week	0 lec. + 0 prac. + 0 lab. = 0 h./week
6 exam 1 GradedCredit	5 exam 1 GradedCredit	4 exam 1 GradedCredit 1 practic report	1 GradedCredit 1 practic report
30 ECTS	30 ECTS	30 ECTS	30 ECTS
Total			
Component by selection 5 ECTS (16.7%)	Component by selection 16 ECTS (53.3%)	Component by selection 12 ECTS (40%)	Component by selection 0 ECTS (0%)