

REPUBLIC OF UZBEKISTAN
MINISTRY OF HIGHER EDUCATION, SCIENCE AND INNOVATION

QUALIFICATION REQUIREMENTS

for the Master's Degree Specialty
70730308 – Construction Materials Technology

Tashkent – 2024

DEVELOPED AND SUBMITTED BY:

Tashkent University of Architecture and Civil Engineering;

APPROVED AND PUT INTO EFFECT:

Approved by Order No. _____ dated “___” _____ 2024 of the Ministry of Higher Education, Science and Innovation of the Republic of Uzbekistan.

IMPLEMENTED BY:

Ministry of Higher Education, Science and Innovation of the Republic of Uzbekistan.

These Qualification Requirements have been developed in accordance with the State Educational Standard of Higher Education “Basic Provisions”, the State Educational Standard of Higher Education “Classifier of Higher Education Fields of Study and Specialties”, the National and Sectoral Qualification Frameworks of the Republic of Uzbekistan, professional standards, and proposals from personnel customers, and constitute an official regulatory and methodological document.

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1. General Description

The training of Master’s degree students in the specialty **70730308 – Construction Materials Technology** is carried out in the full-time mode of study. For all forms of education, the educational process is organized on the basis of the **credit-module system**. The standard duration of the Master’s degree program is **2 years**.

1.1. Scope of Application

1.1.1. Application of the Qualification Requirements

These Qualification Requirements establish a set of requirements for all higher education institutions providing Master’s degree training in the specialty 70730308 – Construction Materials Technology.

1.1.2. Main Users of the Qualification Requirements

The main users of these Qualification Requirements are:

- professors and teaching staff of higher education institutions responsible for the quality development, effective implementation, and updating of curricula and course programs for this Master’s degree specialty, taking into account achievements in science, technology, and the social sphere;

- all employees and students involved in effectively carrying out educational and training activities related to the acquisition of the curriculum and course programs of the Master’s degree specialty;

- management personnel of higher education institutions, including rectors, vice-rectors, heads of academic departments, deans, and heads of departments, who are responsible within their respective powers for the level of graduates’ training;

- State Attestation Commissions responsible for assessing the level of graduates’ training;

- bodies responsible for financing higher education institutions;

- authorized state bodies responsible for the accreditation and quality assurance of the higher education system;

- bachelor’s degree graduates and other stakeholders who have the right to voluntarily choose one of the Master’s degree specialties.

1.2. Description of Professional Activities

1.2.1. Areas of Professional Activity

70730308 – Construction Materials Technology is a specialty in the field of Architecture and Construction, covering the following areas of professional activity:

- teaching specialized subjects at all educational institutions;

- conducting research activities at the **Academy of Sciences of the Republic of Uzbekistan**, sectoral research institutes, research centers, design institutes, and research and production associations, as well as solving comprehensive issues relat-

ed to the organization and management of construction, design, and service enterprises of various forms of ownership;

determining prospects for the development of construction at the national, regional, sectoral, and industry levels, and developing programs for the management and development of construction;

developing and conducting expert examination of legislative and regulatory documents governing construction activities and ensuring their implementation; standardizing construction works; developing, reviewing, and conducting control tests in accordance with the **National Standards of Uzbekistan, Urban Planning Rules and Regulations, Construction Rules and Regulations, and Departmental Rules and Regulations;**

developing regulatory documents and requirements for the technical regulation of road construction, as well as the production of road construction materials, products, and structures;

designing and performing calculations for enterprises producing all types of construction materials using modern information technology software;

improving the reliability and efficiency of all types of construction materials and structures, as well as improving methods for their calculation and design;

organizing the use of construction materials and structures, determining their technical and economic efficiency, and addressing a comprehensive range of issues related to their fields of application.

1.2.2. Objects of Professional Activity

The objects of professional activity include:

the Academy of Sciences of the Republic of Uzbekistan, sectoral research institutes, research centers, design institutes, and research and production associations;

higher education institutions, institutions for advanced training and retraining, and professional education institutions;

ministries and committees, state administration bodies, as well as processes related to construction activities within regional, city, and district administrations;

construction and construction-related production and service enterprises of various forms of ownership, holding companies, associations, concerns, unions, joint ventures, foreign enterprises, exchanges, banks, consulting and venture enterprises, as well as processes related to construction activities and the operation of buildings and structures in various enterprises and organizations;

construction facilities being developed across all sectors and areas of the economy;

research centers, design institutes, and research and production associations;

departments and educational processes of professional education institutions corresponding to the specialty;

computer software systems used in construction activities across various sectors and areas of the economy;

scientific projects of design institutes, research institutions, and research and production organizations

1.2.3. Types of Professional Activities

- Production and Technological Activity;
- Design and Engineering Activity;
- Organizational and Management Activity;
- Research Activity;
- Scientific-Pedagogical Activity in Higher Education, Advanced Training and Retraining Institutions, and Pedagogical Activity in the Secondary Specialized and Professional Education System;
- Information and Analytical Activity.

1.2.4. Professional Tasks

In accordance with Level 7 of the National Qualifications Framework for the specialty 70730308 – Construction Materials Technology, as well as the areas, objects, and types of professional activities of a Master’s degree graduate, the graduate shall be capable of performing the following professional tasks.

In Production and Technological Activity:

- processing and monitoring data obtained from production activities using appropriate methods;
- implementing scientific and technological achievements in production processes;
- preparing technical documentation in construction, including work schedules, instructions, plans, estimates, and orders for materials and equipment;
- improving instrumental tools and the production environment in practical activities;
- conducting structural and structural analysis of asphalt concrete and cement concrete materials used in the construction and operation of motor roads;
- developing and applying technologies for modifying road bitumen for pavement structures and activating road construction materials;
- developing and applying systems relevant to the field in scientific and practical activities.

In Design and Engineering Activity:

- developing and investigating mathematical, information, and simulation models related to experimental design and applied work, as well as developing standard technological processes;
- developing investment projects related to the production of construction materials, products, and structures;
- developing instrumental tools and environments of automated systems in scientific and practical activities;
- organizing the implementation of new innovative projects and technological processes in labor activities.

In Organizational and Management Activity:

- organizing corporate training based on e-learning and m-learning technologies and developing corporate databases;
- managing projects, planning production processes and resources, and analyzing potential emergency risks;

- developing systems of modern information technologies related to the production of construction materials and products, as well as developing methods and mechanisms for monitoring and evaluating the quality of production processes associated with their operation;

- developing and implementing processes for quality management of production activities in the construction and road construction sectors;

- monitoring production processes based on requirements for environmental protection, fire safety, technical safety, and occupational safety;

- preparing work plans for assigned activities and ensuring their implementation, monitoring, and control;

- developing and implementing measures for quality management in the production of construction materials and products, including processes involving various modifications and improvements;

- organizing work at road-sector production enterprises and managing the quality of manufactured products;

- managing the implementation of research projects related to the specialty and coordinating scientific research teams.

In Operation and Service Activities:

- providing services for determining the properties of construction materials;
- organizing the operation of construction facilities and providing services related to their use;

- organizing the operation, repair, and maintenance of construction structures at facilities;

- possessing knowledge of the rules and technologies for the installation, adjustment, testing, and commissioning of structures, equipment, products, and machinery at construction facilities;

- calculating the durability of asphalt concrete and cement concrete used in the construction and operation of motor roads;

- organizing the operation, repair, and maintenance of construction products and structures at facilities.

In Research Activity:

- conducting fundamental, applied, and innovative research based on relevant sources; understanding theoretical and practical problems in the field; and identifying current areas requiring solutions and improvement;

- purposefully searching for, identifying, and studying information on the latest scientific developments and technological achievements in the field through the Internet and investigating their practical application;

- conducting scientific research and obtaining new scientific and practical results;

- researching and developing models, algorithms, methods, software solutions, and instrumental tools related to research projects in the fields of construction and design engineering;

- conducting experimental, design, and exploratory research using standard methodologies and other appropriate approaches, and processing the results obtained.

In Pedagogical Activity in the Secondary Specialized and Professional Education System:

- mastering teaching methodologies;
- conducting theoretical, practical, and laboratory classes in relevant subjects specified for the specialty within higher and secondary specialized vocational education institutions;
- conducting non-traditional educational sessions using modern information and pedagogical technologies;
- preparing, compiling, and formatting educational and methodological documentation required for conducting classes in the subjects taught;
- using technical teaching aids necessary for conducting educational sessions in the subjects taught;
- continuously improving professional and pedagogical competencies in various methods, tools, and related areas through independent learning and creative research;
- participating in the development of the State Educational Standards (SES), Qualification Requirements, State Requirements, and other educational and regulatory documents for the fields of architecture and construction.

In Information and Analytical Activity:

- evaluating the effectiveness of projects;
- preparing reports based on the results of information and analytical activities;
- evaluating the effectiveness of management decisions.

2. Requirements for Professional Competencies

A graduate of the **70730308 – Construction Materials Technology** Master’s degree specialty shall possess the following professional competencies:

- possess a system of knowledge related to a scientific worldview, understand the foundations of general methodological disciplines, and be aware of current issues of state policy;
- be capable of independently analyzing social problems and processes;
- be able to express their views orally and in writing on national spiritual and universal human values, understand the theoretical foundations of the national idea, and recognize the essence of the fundamental principle of **“Building a free and prosperous homeland and a free and prosperous life,”** as well as its similarities and differences with other fundamental ideas;
- have a comprehensive understanding of processes and phenomena occurring in nature and society, possess knowledge of the spiritual image of the individual, and be able to apply such knowledge in everyday life, professional activities, and modern scientific research;
- be able to apply legal and ethical standards regulating relations between individuals, society, and the environment in professional activities;
- be able to independently acquire and improve new knowledge and organize their professional work on a scientific basis;

- understand and analyze socially and personally significant problems based on their individual knowledge;
- be able to use regulatory and legal documents in their professional activities;
- possess a culture of thinking, a specific style of reasoning, and the ability to clearly express ideas in oral and written form;
- be able to creatively and critically review and analyze acquired knowledge and apply it in scientific activities;
- possess a developed sense of social responsibility aimed at understanding the results and consequences of scientific activities;
- be able to apply the fundamental laws of the disciplines acquired in professional activities, classify methods, and use methodological principles in scientific activities;
- have proficiency in at least one foreign language as a means of scientific communication and professional knowledge exchange;
- possess methods for collecting, storing, processing, and using information;
- be able to make well-founded and independent decisions in professional activities;
- be able to distinguish between information, knowledge, and data, and use information technologies effectively;
- understand the essence and importance of information technologies in today's information society, recognize the risks and threats associated with information attacks, and comply with the basic requirements of information security;
- possess the basic methods and tools for obtaining, storing, and processing information via the Internet and have practical skills in using computers as information management tools;
- use information and pedagogical technologies in educational activities;
- apply innovative approaches to improving the quality and effectiveness of education;
- prepare project proposals for participation in projects announced domestically and internationally based on the results of scientific activities;
- be able to prepare the necessary regulatory documents for obtaining patents;
- possess the skills required to prepare project proposals for participation in projects announced by governmental, non-governmental, and non-profit organizations.

3. Requirements for Internships

Professional internship is aimed at reinforcing theoretical knowledge acquired in general professional and specialized subjects and integrating it with practical (production) processes, as well as developing relevant practical skills, competencies, and professional qualifications.

The following internship is provided within the Master's degree specialty:

1. Scientific Internship (Practical Training)

4. Structure of the Course Catalogue:

T.r.	Qualification Code of the Course	Courses, Blocks, and Types of Activities	Total Workload, Hours	Number of Credits	Semester
1.00	General Compulsory Courses		1440	48	1-3
1.01	SMR1104	Scientific Research Methodology	120	4	1
1.02	MSTS1104	Methods of Teaching Specialized Subjects	120	4	1
1.03	SRDC1104	System of Regulatory Documents in the Construction Industry	120	4	1
1.04	ITCM1104	Innovative Technologies in Construction Materials	180	6	1
Compulsory Courses in the Field of Construction Materials Technology					
1.05	BD1110	Durability of Concrete	300	10	1,2
1.06	MSST1110	Material Structure and Structural Analysis	120	4	2
1.07	MBA1106	Admixtures for Mortars and Concrete	180	6	2
1.08	RCD1110	Design of Reinforced Concrete Structures	300	10	2,3
2.00		Elective Courses	360	12	2,3
2.00		Elective Courses	360	12	2,3
Qualification		Engineer-Technologist; Teacher-Researcher			
Compulsory Courses in the Field of Road Construction Materials Production					
1.05	AD11210	Durability of Asphalt Concrete and Cement Concrete	300	10	1,2
1.06	ASMSA1204	Structure and Structural Analysis of Asphalt Concrete and Cement Concrete Materials	120	4	2
1.07	RCMA1206	Activation of Road Construction Materials	180	6	2
1.08	RBMT12310	Road Bitumen Modification Technologies	300	10	2,3
2.00		Elective Courses	360	12	2,3
2.00		Elective Courses	360	12	2,3
Qualification		Engineer-Technologist; Teacher-Researcher			
		Total:	1800	60	
		Scientific Research Work and Preparation of the Master's Thesis	900	30	1,2,3,4
		Scientific and Pedagogical Work	360	12	1,2,3
		Scientific Internship (Traineeship)	540	18	4
		Total:	1800	60	
		Total:	3600	120	

Bibliographic Information

UDC: 002:651.1/7

Group T 55

ICS 01.040.01

Keywords:

State Educational Standard, Qualification Requirements, Curriculum, Competence, Module, Area of Professional Activity, Object of Professional Activity, Type of Professional Activity, Internship, Internship Object, Quality of Personnel, Workload, Workload Volume, Scientific Activity, Internal Control, Final State Assessment, State-Public Control, External Control, Material and Technical Facilities, Course Program, Building, Structure, Project, Computer-Aided Design, Technical and Economic Indicators, Structural System, Structural Scheme, Construction Materials, Production of Construction Structures, Construction Products, Reinforced Concrete Structures, Reinforcement, Durability of Asphalt Concrete and Cement Concrete, Materials Structure and Structural Analysis, Material Activation, Bitumen Modification, Standardization, Construction Structures, Technological Processes, Information and Communication Systems, Modern Research Methods, Reinforced Concrete Structures, Innovative Technologies, Information and Modern Pedagogical Technologies, Modern Measuring Instruments, Organization of Scientific Research.

**Developers, Coordinating Higher Education Institutions in Related Fields,
and Employers**

DEVELOPED BY:

Tashkent University of Architecture and Civil Engineering

Rector _____ B.Tulaganov

2023 year « _____ » _____
M.O'.

AGREED:

**Republic of Uzbekistan
Center for Research on the Development
of Higher Education under the Ministry
of Higher Education, Science and
Innovation**

Director _____ M.Boltabayev

202_ year “ _____ ” _____

M.O'.

**Islam Karimov Tashkent State Technical
University**

Rector _____ S. Turabdjano

202_ year “ _____ ” _____

M.O'.

Tashkent State Transport University

Rector _____ O.Abduraxmonov

202_ year “ _____ ” _____

M.O'.

BETOMAX BETON” LLC Plant

Director _____ I.I. Raximov

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M.O'.

“AYSEL INSHAAT” JV LLC

Director _____ M.M. Akramov

202_ year « _____ » _____

M.O'.

““O'zyo'l ko'prik” Cluster SE

Director _____ R. A'zamov

202_ year « _____ » _____

M.O'.

O'zbekiston Respublikasi
Oliy ta'lim, fan va innovatsiyalar vazirligi

***70730308 – Qurilish materiallari texnologiyalari magistratura
mutaxassisligining***

MALAKA TALABI

Toshkent – 2024

ЎЗР ОТЕИ
Buyruq № 277
2024 yil "01" 08

ISHLAB CHIQILGAN VA KIRITILGAN:

Toshkent arxitektura-qurilish universiteti;

TASDIQLANGAN VA AMALGA KIRITILGAN:

O‘zbekiston Respublikasi Oliy ta’lim, fan va innovatsiyalar vazirligining 2024 yil «01» 08 dagi 277 - sonli buyrug‘i bilan tasdiqlangan.

JORIY ETILGAN:

O‘zbekiston Respublikasi Oliy ta’lim, fan va innovatsiyalar vazirligi.

Mazkur Malaka talablari “Oliy talimning davlat talim standarti. Asosiy qoidalar”, “Oliy talimning davlat talim standarti. Oliy talim yo‘nalishlari va mutaxassisliklari klassifikatori”, O‘zbekiston Respublikasi Milliy va tarmoq malaka doiralari (ramkasi), kasbiy standartlar va kadrlar buyurtmachilari takliflariga muvofiq ishlab chiqilgan va rasmiy meyoriy-uslubiy hujjat hisoblanadi.

O‘zbekiston Respublikasi hududida Malaka talablarini rasmiy chop etish huquqi O‘zbekiston Respublikasi Oliy talim, fan va innovatsiyalar vazirligiga tegishlidir.

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1. Umumiy tavsifi

70730308 – Qurilish materiallari texnologiyalari magistratura mutaxassisligi bo'yicha magistrlar tayyorlash kunduzgi ta'lim shakilda amalga oshiriladi. Barcha ta'lim shakillari bo'yicha o'qitish kredit-modul tizimi asosida tashkil qilinadi. Magistratura dasturining me'yoriy muddati 2 yil.

1.1. Qo'llanish sohasi.

1.1.1. Malaka talabinig qo'llanilishi.

Malaka talabi 70730308 – Qurilish materiallari texnologiyalari magistratura mutaxassisligi bo'yicha magistrlar tayyorlovchi barcha oliy ta'lim tashkilotlari uchun talablar majmuyini ifodalaydi.

1.1.2. Malaka talabning asosiy foydalanuvchilari:

Mazkur magistratura mutaxassisligi bo'yicha fan, texnika va ijtimoiy soha yutuqlarini hisobga olgan holda o'quv reja va fan dasturlarini sifatli ishlab chiqish, samarali amalga oshirish va yangilash uchun mas'ul – oliy ta'lim muassasalarining professor-o'qituvchilari;

magistratura mutaxassisligining o'quv reja va fan dasturlarini o'zlashtirish bo'yicha o'quv-tarbiya faoliyatini samarali amalga oshiruvchi barcha xodimlari va talabalari;

o'z vakolat doirasida bitiruvchilarning tayyorgarlik darajasiga javob beradigan oliy ta'lim muassasalarining boshqaruv xodimlari (rektor, prorektorlar, o'quv bo'limi boshlig'i, dekanlar va kafedra mudirlari);

bitiruvchilarning tayyorgarlik darajasini baholashni amalga oshiruvchi Davlat attestatsiya komissiyalari;

oliy ta'lim muassasasini moliyalashtirishni ta'minlovchi organlar;

oliy ta'lim tizimini akkreditatsiya va sifatini nazorat qiluvchi vakolatli Davlat organlari;

magistratura mutaxassisliklaridan birini ixtiyoriy tanlash huquqiga ega bo'lgan bakalavrlar va boshqa manfaatdorlar.

1.2. Kasbiy faoliyatlarining tavsifi.

1.2.1. Kasbiy faoliyatining sohalar.

70730308 – Qurilish materiallari texnologiyalari arxitektura va qurilish sohasidagi mutaxassislik bo'lib, barcha ta'lim muassasalarida mutaxassislikka oid oid fanlarni o'qitish; O'zbekiston Respublikasi Fanlar akademiyasi va tarmoq ilmiy tadqiqot institutlarida, ilmiy-tadqiqot markazlarida, loyihalash institutlarida, ilmiy-ishlab chiqarish birlashmalarida ilmiy tadqiqot ishlarini olib borish, turli mulkchilik shaklidagi qurilish, loyihalash va xizmat ko'rsatish korxonalari faoliyatini tashkil etish va boshqarishga oid kompleks masalalarni yechish;

davlat miqyosida, hududiy hamda tarmoq va sohalar kesimida qurilishni rivojlantirish istiqbollari belgilash, qurilishni boshqarish va uni rivojlantirish dasturlarini ishlab chiqish;

qurilish sohasi faoliyatini tashkil etish bo'yicha qonuniy-me'yoriy hujjatlarni ishlab chiqish, ekspertiza qilish va ular ijrosini ta'minlash, qurilish ishlarini me'yorlash, “O'zbekiston milliy standartlari”, “Shaharsozlik qoidalari va me'yorlari”, “Qurilish qoidalari va me'yorlari”, “Idoraviy qoidalar va me'yorlar” lar ishlab chiqish, ekspertiza qilish va nazorat sinovlari o'tkazish;

yo'l qurilishi, yo'l-qurilish materiallari, buyumlar va konstruktsiyalar ishlab chiqarish sohasini texnik tartibga solishda normativ hujjatlar va talablar ishlab chiqishni amalga oshirish;

barcha turdagi qurilish materiallari ishlab chiqarish korxonalarini zamonaviy axborot texnologiyalar dasturlari yordamida loyihalash va hisoblash;

barcha turdagi qurilish materiallari va konstruktsiyalarining ishonchliligi va samaradorligini oshirish, ularni xisoblash va loyihalash usullarini takomillashtirish ishlarini amalga oshirish;

qurilish materiallari va konstruktsiyalaridan foydalanishni tashkil etish, texnik-iqtisodiy samaradorligini aniqlash va foydalanish soxalari bilan bog'liq kompleks masalalar majmuasini qamrab oladi.

1.2.2. Kasbiy faoliyatlarining obyektlari.

O'zbekiston Respublikasi Fanlar akademiyasi va tarmoq ilmiy tadqiqot institutlarida, ilmiy tadqiqot markazlari, loyihalash institutlari, ilmiy-ishlab chiqarish birlashmalari;

oliy, malaka oshirish va qayta tayyorlash, professional ta'lim muassasalari;

vazirlik va qo'mitalar, davlat boshqaruvi organlari; viloyat, shahar, tuman hokimiyatlarida qurilish faoliyati bilan bog'liq jarayonlari;

turli mulkchilik shaklidagi qurilish va qurilish bilan bog'liq bo'lgan ishlab chiqarish va xizmat ko'rsatish korxonalari, xolding kompaniyalar, assotsiatsiyalar, konsernlar, uyushmalar, qo'shma korxonalar, xorijiy korxonalar, birjalar, banklar, konsalting va venchur korxonalar, turli korxona tashkilotlarning qurilish hamda bino va inshootlardan foydalanish faoliyati bilan bog'liq jarayonlar;

iqtisodiyotning barcha tarmoq va sohalarida bunyod etilayotgan qurilish obyektlari;

ilmiy-tadqiqot markazlari va loyihalash institutlari, ilmiy-ishlab chiqarish birlashmalari;

mutaxassislikka mos professional ta'lim muassasalarining bo'limlari va o'quv jarayonlari;

iqtisodiyotning turli tarmoq va sohalarida qurilish faoliyatida qo'llaniladigan kompyuter dasturiy ta'minoti tizimlari;

loyiha institutlari, ilmiy-tadqiqot va ilmiy ishlab chiqarish muassasalari ilmiy loyihalari.

1.2.3. Kasbiy faoliyatlarining turlari:

- *Ishlab chiqarish–texnologik faoliyat;*
- *Loyiha-konstruktorlik faoliyati;*
- *Tashkiliy-boshqaruv faoliyati;*
- *Ilmiy - tadqiqot faoliyati;*
- *Pedagogik faoliyat;*
- *Axborot-tahliliy faoliyat*
- *Ekspluatatsiya va servis xizmatini ko'rsatish faoliyatida.*

1.2.4. Kasbiy vazifalari:

70730308 – Qurilish materiallari texnologiyalari mutaxassisligi bo'yicha Milliy malaka ramkasining 7-malaka darajasi xamda magistr faoliyatlarining sohalari,obyektlari va turlariga muvofiq bakalavriat bitiruvchisi quydagi kasbiy vazifalarni bajarishga qodir bo'lishi lozim.

Ishlab chiqarish-texnologik faoliyatda:

Ishlab chiqarish faoliyati natijalari bo'yicha ma'lumotlarni qayta ishlash usullaridan foydalanish va monitoringini olib borish;

fan va texnika yutuqlarini ishlab chiqarish jarayoniga tadbiq etish;

qurilishda texnik hujjatlarni (ishlarni bajarish grafiklari, yo'riqnomalar, rejalar, smetalar, material va jihozlarga buyurtmalar) tuzish;

amaliy faoliyatda instrumental vositalarni va ishlab chiqarish muhitini takomillashtirish;

avtomobil yo'llarini qurish va ekspluatatsiya qilishda asfaltbeton va sementbeton materiallar strukturasi va strukturaviy tahlilini bajarish;

avtomobil yo'llari qoplamalari uchun yo'lbop bitumlarni modifikatsiyalash texnologiyalarini ishlab chiqish, qo'llash va yo'l qurilish materiallarini faollashtirish;

ilmiy va amaliy faoliyatda sohaga mos tizimni rivojlantirish va ulardan foydalanish.

Loyiha-konstruktorlik faoliyatida:

Bajarilayotgan tajriba–konstruktorlik va amaliy ishlar mavzusi bo'yicha matematik, informatsion va imitatsion modellarni ishlab chiqishi va tadqiq etish, namunaviy texnologik jarayonlarni ishlab chiqish;

qurilish materiallari, buyumlari va konstruksiyalarini ishlab chiqarish bilan bog'liq investitsiya loyihalarini ishlab chiqish;

ilmiy va amaliy faoliyatda avtomatlashtirilgan tizimlarning instrumental vositalari va muhitlarini rivojlantirish;

mehnat munosabatlariga yangi innovatsion loyihalar va texnologik jarayonlarni tadbiq qilinishini tashkil qilish.

Tashkiliy-boshqaruv faoliyatida:

e-learning va m-learning texnologiyalari asosida korporativ o‘qitishni tashkil qilish va korporativ ma’lumotlar bazasini rivojlantirish;

loyihalarni boshqarish, ishlab chiqarish jarayonlari va resurslarini rejalashtirish, favqulodda sodir bo‘lishi mumkin bo‘lgan xavf-xatarlarni tahlil qilish;

qurilish materiallari va buyumlarini ishlab chiqarish sohasiga oid zamonaviy axborot texnologiyalari tizimini yaratish va ularning ekspluatatsiyasi bilan bog‘liq bo‘lgan ishlab chiqarish jarayonlari monitoringi va sifatini baholash usullari va mexanizmlarini ishlab chiqish;

qurilish shuningdek, avtomobil yo‘llari sohasida ishlab chiqarish faoliyati sifatini boshqarish jarayonlarini ishlab chiqish va tadbiq qilish;

atrof-muhitni muhofaza qilish, yong‘in, texnika va mehnat xavfsizligi talablariga rioya qilish talablaridan kelib chiqib ishlab chiqarish jarayonlarini nazorat qilish;

bajarayotgan faoliyati bo‘yicha ish rejasini tuzish va uni bajarish, nazorat qilish va amalga oshirish;

qurilish materiallari va buyumlarini ishlab chiqarish, hamda ularda turli o‘zgarishlarni amalga oshirish ishlari sifatini boshqarish bo‘yicha tadbirlarni ishlab chiqish va tatbiq qilish;

yo‘l xo‘jaligi ishlab chiqarish korxonalarida ishlarni tashkil qilish, tayyorlanayotgan mahsulot sifatini boshqarish;

mutaxassisligiga tegishli ilmiy tadqiqot loyihalarini amalga oshirish jarayonlarini va ilmiy jamoani boshqarish.

Ekspluatatsiya va servis xizmatini ko‘rsatish faoliyatida:

Qurilish materiallari xossalarini aniqlash bo‘yicha xizmat ko‘rsatish;

qurilish obyektlari ekspuluatatsiyasini tashkil etish va ulardan foydalanish bo‘yicha servis xizmatlari ko‘rsatish;

obyektlarning qurilish konstruksiyalaridan foydalanish, ta’mirlash va ularga texnik xizmat ko‘rsatishni tashkil etish;

obyektlarining konstruksiyalari, uskunolari, buyumlari va jihozlarini montaj qilish, sozlash, sinash va foydalanishga topshirish qoidalari va texnologiyasini bilishi;

avtomobil yo‘llarini qurish va ekspluatatsiya qilishda ishlatiladigan asfaltbeton va sementbetonlarning umrboqiyiligini hisoblash;

obyektlarning qurilish buyumlari va konstruksiyalari foydalanish, ta’mirlash va ularga texnik xizmat ko‘rsatishni tashkil etish.

Ilmiy-tadqiqot faoliyatida:

Manbalarga asoslangan holda, fundamental, amaliy va innovatsion tadqiqotlar olib borish, sohaning nazariy va amaliy muammolarini bilish, davr uchun dolzarb,

hal etilishi lozim bo'lgan va takomillashtirish talab etiladigan yo'nalishlarga doir mavzularni aniqlay olish;

internet tarmog'ida sohaga tegishli eng yangi ilmiy yangilik, texnologik yutuqlar haqidagi ma'lumotlarni maqsadga yo'naltirilgan holda qidirish, topish va amaliyotga qo'llash bo'yicha izlanish olib borish;

ilmiy-tadqiqotlarni o'tkazish va yangi ilmiy hamda amaliy natijalarni olish;

qurilish va loyiha-konstruktorlik sohasida o'tkazilayotgan ilmiy-tadqiqot loyihalari mavzusi bo'yicha modellar, algoritmlar, metodlar, dasturiy yechimlar, instrumental vositalarni tadqiq qilish va ishlab chiqish;

namunaviy uslublar va boshqalar bo'yicha eksperimental, loyiha-qidiruv tadqiqotlarni o'tkazish va ularning natijalarini qayta ishlash.

Pedagogik faoliyatida:

O'qitish metodikasini egallash;

oliy va o'rta maxsus, kasb-hunar ta'limi tizimining ta'lim muassasalarida mutaxassisligiga oid tayyorgarlik yo'nalishida nazarda tutilgan o'quv fanlari bo'yicha nazariy, amaliy va laboratoriya mashg'ulotlarini o'tkazish;

zamonaviy axborot va pedagogik texnologiyalardan foydalanib noan'anaviy o'quv mashg'ulotlarini o'tkazish;

o'qitilayotgan fanlar bo'yicha darslarni o'tkazish uchun zarur bo'lgan o'quv-uslubiy hujjatlarni tuzish, tayyorlash va rasmiylashtirish;

o'qitilayotgan fan bo'yicha o'quv mashg'ulotlarni o'tkazish uchun o'qitishning texnik vositalaridan foydalanish;

mustaqil ta'lim va ijodiy izlanish natijasida o'qitilayotgan fan hamda pedagogik faoliyat sohasidagi turli usullar, vositalar va boshqa sohalarda o'z-o'zini muntazam takomillashtirib borish;

arxitektura va qurilish sohasi uchun DTS, Malaka talablari, Davlat talablari va boshqa o'quv-me'yoriy hujjatlarni ishlab chiqishda ishtirok etish.

Axborot-tahliliy faoliyatida:

Loyihalar samaradorligini baholash;

axborot-tahlil faoliyati natijalari bo'yicha hisobot tayyorlash;

boshqaruv qarorlarining samaradorligini baholash.

2. Kasbiy kompetensiyalariga qo'yiladigan talablar.

Ilmiy dunyoqarashga doir bilimlar tizimini egallagan bo'lishi, umummetodologik fanlar asosini, davlat siyosatining dolzarb masalalarini bilishi; ijtimoiy muammolar va jarayonlarni mustaqil tahlil qilish qobiliyatiga ega bo'lishi;

ijtimoiy muammolar va jarayonlarni mustaqil taxlil qilish qobiliyatlariga ega bo'lishi;

milliy ma'naviy va umuminsoniy qadriyatlar bo'yicha o'z nuqtai nazarini og'zaki va yozma bayon etishi, milliy g'oyaning nazariy asoslarni anglagan holda “Ozod va obod vatan, erkin va farovon hayot qurish” bosh g'oyasining mohiyatini hamda uning asosiy g'oyalar bilan mutanosibligi va farqini bilishi;

tabiat va jamiyatda yuz berayotgan jarayon va hodisalar haqida yaxlit tasavvurga ega bo'lishi, insonning ma'naviy qiyofasi haqida bilimlarga ega bo'lishi, ulardan hayotda va kasbiy faoliyatida hamda zamonaviy ilmiy tadqiqotlarda foydalana olishi;

shaxsning inson, jamiyat, atrof-muhitga bo'lgan munosabatini tartibga soluvchi huquqiy va axloqiy me'yorlarni kasbiy faoliyatida qo'llay olishi.

yangi bilimlarni mustaqil o'zlashtira olishi, takomillashtirishi va o'z mehnatini ilmiy asosda tashkil qila bilishi;

o'zining individual bilimlariga tayangani holda ijtimoiy va shaxsiy ahamiyatga ega bo'lgan muammolarni tushunishi va ularni tahlil qilishi;

o'z faoliyatida me'yoriy huquqiy hujjatlardan foydalana bilishi;

fikrlash madaniyati, muayyan tafakkur uslubiga, og'zaki va yozma nutqini aniq bayon qilish qobiliyatiga ega bo'lishi;

o'zlashtirilgan bilimlarni ijodiy tanqidiy ko'rib chiqish va tahlil qilishi, ulardan ilmiy faoliyatida foydalana olishi;

ilmiy faoliyati natijalarini his qilishga yo'naltirilgan ijtimoiy mas'uliyat shakllangan bo'lishi;

kasbiy faoliyatda o'zlashtirgan fanlarning asosiy qonunlaridan foydalanishi, metodlarni tasniflashi, metodologik tamoyillardan ilmiy faoliyatida foydalana olishi;

xorijiy tillardan birini ilmiy muloqot va kasbiy malaka almashish vositasi sifatida egallagan bo'lishi;

axborotni to'plash, saqlash, ularga ishlov berish va ulardan foydalanish usullarini egallashi;

o'zining kasbiy faoliyatida asosli mustaqil qarorlar qabul qila bilishi;

axborot, bilim, ma'lumotni bir-biridan farqlash malakasiga ega bo'lishi, axborot texnologiyalaridan foydalana olishi;

bugungi axborotlashgan jamiyat sharoitida axborot texnologiyalarining mohiyati va ahamiyatini tushunish, axborot xuruji xavfi va tahdidlarni anglash, axborot xavfsizligining asosiy talablariga rioya qilish qobiliyatiga ega bo'lishi;

internet tarmog'idan axborotlarni olish, saqlash, qayta ishlashning asosiy usullari va vositalariga ega bo'lishi, axborotni boshqarish vositasi sifatida kompyuter bilan ishlash ko'nikmalariga ega bo'lishi;

pedagogik faoliyatida axborot va pedagogik texnologiyalardan foydalanishi;

ta'lim sifati va samaradorligini oshirishga innovatsion yondashishi;

ilmiy faoliyati natijalari bo'yicha davlat va xorijda e'lon qilingan loyihalarda ishtirok etish uchun loyiha tayyorlashi;

patent olish uchun ish me'yoriy hujjatlar tayyorlay olishi;

davlat, nodavlat va notijorat tashkilotlari tomonidan e'lon qilingan loyihalarda ishtirok etish uchun loyiha tayyorlash malakalariga ega bo'lishi lozim.

3. Amaliyotlarga qo'yiladigan talablar.

Malakaviy amaliyot – umumkasbiy va ixtisoslik fanlaridan nazariy bilimlarni mustahkamlash va amaliy (ishlab chiqarish) jarayonlari bilan uyg'unlashtirish, tegishli amaliy ko'nikmalar, kompetensiyalar va malakalarni shakllantirishga qaratiladi.

Magistratura mutaxassisligi bo'yicha quyidagi amaliyot o'tkaziladi:

1. Ilmiy amaliyot (stajirovka)

4. Fanlar katalogining tuzilishi:

T.r.	Fanning malakaviy kodi	O'quv fanlari, bloklar va faoliyat turlari	Umumiy yuklamaning hajmi, soatlarda	Kredit miqdori	Semestri
1.00	Umumiy majburiy fanlar		1440	48	1-3
1.01	ITM1104	Ilmiy-tadqiqot metodologiyasi	120	4	1
1.02	MFO'M1104	Maxsus fanlarni o'qitish metodikasi	120	4	1
1.03	QSM1104	Qurilish sohasidagi me'yoriy hujjatlar tizimi	120	4	1
1.04	QMIT 1104	Qurilish materiallarida innovatsion texnologiyalar	180	6	1
Qurilish materiallari texnologiyalari faoliyat turi bo'yicha majburiy fanlar					
1.05	BU1110	Betonlarning umrboqiyligi	300	10	1,2
1.06	MSST1110	Materiallar strukturasi va strukturaviy tahlil	120	4	2
1.07	QBQ 1106	Qorishmalar va betonlarga qo'shimchalar	180	6	2
1.08	TBKL1110	Temir-beton konstruksiyalarini loyihalash	300	10	2,3
2.00		Tanlov fanlari	360	12	2,3
2.00		Tanlov fanlar	360	12	2,3
Kvalifikatsiya		Muhandis-texnolog. Pedagog-tadqiqotchi			
Yo'l qurilish materiallarini ishlab chiqarish faoliyat turi bo'yicha majburiy fanlar					
1.05	ASU11210	Asfaltbeton va sementbetonlarning umrboqiyligi	300	10	1,2
1.06	ASMSST1204	Asfaltbeton va sementbeton materiallar strukturasi va strukturaviy tahlili	120	4	2
1.07	YQMF1206	Yo'l qurilish materiallarini faollashtirish	180	6	2
1.08	YBMT12310	Yo'l bop bitumlarni modifikatsiyalash texnologiyalari	300	10	2,3
2.00		Tanlov fanlari	360	12	2,3
2.00		Tanlov fanlar	360	12	2,3

Kvalifikatsiya		Muhandis-texnolog. Pedagog-tadqiqotchi			
		Jami:	1800	60	
		Ilmiy-tadqiqot ishi va magistrlik dissertatsiyasini tayyorlash	900	30	1,2,3,4
		Ilmiy-pedagogik ish	360	12	1,2,3
		Ilmiy amaliyot (stajirovka)	540	18	4
		Jami:	1800	60	
		HAMMASI	3600	120	

Bibliografik ma'lumotlar

UDK: 002:651.1/7

Guruh T 55

OKS 01.040.01

Tayanch so'zlar:

Davlat ta'lim standarti, malaka talablari, o'quv reja, kompetensiya, modul, kasbiy faoliyat sohasi, kasbiy faoliyat obyekti, kasbiy faoliyat turi, amaliyot, amaliyot obyekti, kadrlar sifati, yuklama, yuklama hajmi, ilmiy faoliyat, ichki nazorat, yakuniy davlat nazorati, davlat-jamoat nazorati, tashqi nazorat, moddiy-texnik baza, fan dasturi, bino, inshoot, loyiha, avtomatlashtirilgan loyihalash, texnik-iqtisodiy ko'rsatkichlar, konstruktiv sistema, konstruktiv sxema, qurilish materiallari, qurilish konstruksiyalarini ishlab chiqarish, qurilish buyumlari, temirbeton konstruksiyalar, armatura, asfaltbeton va sementbetonlarning umrboqiyligi, materiallar strukturasi va strukturaviy tahlili, materiallarini faollashtirish, bitumlarni modifikatsiyalash, standartlashtirish, qurilish konstruksiyalari, texnologik jarayonlar, axborot-kommunikativ tizimlar, zamonaviy tadqiqot metodlari, temir-beton konstruksiyalari, innovatsion texnologiyalar, axborot va zamonaviy pedagogik texnologiyalar, zamonaviy o'lchov asboblari, ilmiy tadqiqotlarni tashkil qilish.

Ishlab chiquvchilar, kelishilgan asosiy turdosh oliy ta'lim muassasalari hamda kadrlar iste'molchilari

ISHLAB CHIQILGAN:



Toshkent arxitektura-qurilish universiteti

Rektor

B.Tulaganov

2023 yil « _____ » _____

M.O'.

KELISHILGAN:

**O'zbekiston Respublikasi
Oliy ta'lim, fan va innovatsiyalar vazirligi
huzuridagi Oliy ta'limni rivojlantirish
tadqiqotlari markazi**



Direktor

M.Boltabayev

202_ yil « _____ » _____

M.O'.

**Islom Karimov nomidagi Toshkent davlat
texnika universiteti**



Rektor

S. Turabdjano

202_ yil « _____ » _____

M.O'.

MChJ QK "AYSEL INSHAAT"

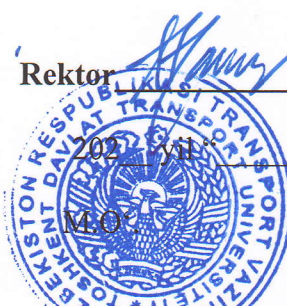
Direktor

M.M. Akramov

202_ yil « _____ » _____

M.O'.

Toshkent davlat transport universiteti



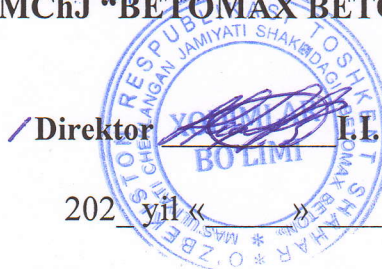
Rektor

O.Abduraxmonov

202_ yil « _____ » _____

M.O'.

MChJ "BETOMAX BETON" zavodi



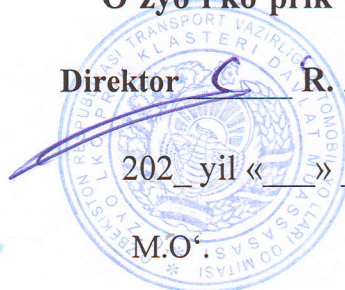
Direktor

I.I. Raximov

202_ yil « _____ » _____

M.O'.

"O'z yo'l ko'pri" klasteri DM



Direktor

R. A'zamov

202_ yil « _____ » _____

M.O'.

Op