


Ministry of Agriculture of the Republic of Kazakhstan
S.Seifullin Kazakh Agro Technical Research University

APPROVED

Dean of the Faculty of Land
Management, Architecture and
Design


Zh.Z. Toleubekova

2023

EDUCATIONAL PROGRAM
"Cadastrе"

Code and classification field of education:

7M07 Engineering, Manufacturing and Civil engineering

Код и Code and direction of personnel training

7M073 Architecture and Civil engineering

Academic degree: **Master of Technical Sciences in the educational program**
"Cadastrе"

Period of study: 2 years (**scientific and pedagogical direction**)

Астана, 2023

Authors:

1. Full name - academic degree, title, position, place of work

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From production employers:

- Sadanov M.A. - Director of the branch the NJSC State Corporation "Government for Citizens" in Astana;

- Dautalinov R.B. – Director of the Land Cadastre Department the NJSC State Corporation “Government for Citizens”;


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Author's collective order for NJSC " S.Seifullin KATRU"

No. _____ from _____

Educational program "Cadastre" consideration at a meeting the department Cadastre" protocol “_05_”_04_ 2023

Approved by the Faculty Council Protocol No. 8-2 “27” 04. 2023

Dean of the Faculty  Toleubekova Zh.Z.

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1 Паспорт образовательной программы

1.1 The purpose of the educational program is to prepare masters for the system of higher, postgraduate education and the research sector with in-depth scientific and pedagogical training in the field of cadastre and land relations.

1.2 learning outcomes

PO1. Know a foreign language in the professional field; demonstrate knowledge of the basics of management psychology and pedagogy of higher education, as well as apply methods, forms and means of teaching in higher education

PO2. Apply economic methods of land management; solve theoretical and practical problems in the field of property management and territory planning
PO3. Использовать основы философских знаний, проводить научные исследования в области кадастра и управления земельными ресурсами

PO4. Implement new methods of maintaining the land cadastre; be able to work with modern software products for cadastre maintenance and conduct monitoring studies based on remote sensing data; know the methods and procedure for performing cadastral work

PO5. Possess methods of regulating land policy at the present stage; know the stages of development of the land market in the Republic of Kazakhstan

PO6. Be able to identify problems in order to find solutions to improve land relations and use of land resources.

2. General characteristics of the educational program

The educational program 7M07303 - “Cadastre” is oriented in line with the objectives of the state program for digitalization, in particular the transfer of land cadastral work into a digital format, allowing for the provision of services online. The relevance of the educational program determines the solution of the following tasks:

-provide an individual educational trajectory in accordance with the specialization chosen by undergraduates;

provide comprehensive and high-quality scientific and pedagogical education, develop professional competence, deepen theoretical and practical, as well as individual training of undergraduates in the field of land management;

-contribute to undergraduates obtaining the most important and sustainable knowledge that ensures a holistic perception of the world;

- to develop in students the ability for self-improvement and mastery of new knowledge;

-to prepare specialists with a high level of professional culture (including the culture of professional communication), who have a civic position, are able to formulate and solve modern scientific and practical problems, teach at universities, and successfully carry out research and management activities;

- ensure the development of fundamental courses at the intersection of sciences that guarantee professional mobility;

-promote the acquisition of skills for participation in scientific events at various levels, the continuation of scientific training in doctoral studies;

- to ensure the acquisition of the necessary amount of knowledge in the field of university pedagogy and psychology and the acquisition of teaching experience at a university.

The uniqueness lies in the fact that the educational program is built on the priorities of sustainable development using GIS technologies in line with the ecological (green) economy, which in the field of land relations is aimed at eliminating externalities (pollutants) of the Earth.

The educational program - “Cadastre” was developed in accordance with the State Compulsory Education Standard for all levels of education dated October 31, 2018 No. 604 (On amendments to the order of the Minister of Science and Higher Education of the Republic of Kazakhstan, Order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated January 19, 2023 year No. 21).

The educational program is designed on the basis of a modular system for studying disciplines and contains 5 modules that form general cultural, special language and professional competencies. The total number of credits for this educational program is 120 credits, of which: the total number of credits for theoretical training - 70, for teaching practice - 2, research practice - 10 credits, research work of a master's student, including the implementation of a master's project - 24 credits, final certification – 8 credits.

3 Competency model (portrait) of a graduate

3.1 Areas of professional activity

With the transition to market conditions, land in the Republic of Kazakhstan has acquired a completely different status; it is classified as real estate, on this basis the land market has been formed and developed, and digitalization is being actively introduced into all types of activities. In these conditions, the application of scientific and methodological approaches to the implementation of land cadastral works, which are studied and mastered by students during their master’s studies, is important. In this regard, Masters of Science in cadastre are in demand on the labor market and can work in the following organizations and enterprises:

- Higher educational institutions in the specialty profile;
- Research institutes according to the specialty profile;
- Committee for Land Resources Management of the Ministry of Agriculture of the Republic of Kazakhstan;
- 16 regional branches of the NJSC “State Corporation “Government for Citizens”, as well as 3 branches of the cities of republican significance Astana, Almaty and Shymkent;
- RSE “Urban Planning Cadastre” of the Ministry of Investment and Development of the Republic of Kazakhstan;

- State Institution “Department of Architecture, Urban Planning and Land Relations”;
- Public Service Centers (PSC), etc.

3.2 Types of professional activities.

A) organizational and managerial activities:

- making management decisions, determining the order of work;
- development of proposals on improving cadastral information systems and computer-aided design;
- support for a unified information space for planning and managing land resources and real estate at all stages of its life cycle;
- processing cadastral information and maintaining software up-to-date;

B) project activities:

- development of projects and zoning schemes for the territory;
- carrying out technical, economic and socio-ecological analysis of the effectiveness of projects and schemes;
- preparation of methodological and regulatory documents, technical documentation, as well as proposals and activities for the development and implementation of projects and schemes.

C) production and technological activities:

- development of methods for land zoning and territorial planning;
- implementation of software tools for collecting and processing source information for the purposes of the state real estate cadastre;
- development of technical specifications for processing databases of automated cadastral systems;
- testing of instructional materials for conducting cadastral, design and survey and topographic and geodetic works;
- monitoring of real estate objects.

D) research activities:

- development of scientific research programs,
- collection, processing, analysis and systematization of scientific and technical information on the research topic, selection of methods and means for solving the problem;
- development of methods for performing land cadastral work;
- preparation of scientific and technical reports, reviews, scientific articles based on the results of completed research;
- monitoring studies of land and other natural resources, real estate objects based on remote sensing methods and geographic information technologies.

3.3 General educational competencies

A master's degree in the educational program - "Cadastre" must have:
the ability to generalize, analyze, perceive information, set a goal and choose ways to achieve it, has a culture of thinking;

the ability to logically correctly, reasoned and clearly construct oral and written speech;

readiness to cooperate with colleagues, work in a team, including in field conditions and expedition conditions in sparsely populated and hard-to-reach places;

the ability to find organizational and managerial solutions in non-standard situations and the willingness to bear responsibility for them;

the ability to self-development, improve one's qualifications and skills;

the ability to critically evaluate one's strengths and weaknesses, outline ways and choose means of developing strengths and eliminating disadvantages;

awareness of the social significance of his future profession, has high motivation to perform professional activities;

the ability to use the basic principles and methods of social, humanities and economic sciences in solving social and professional problems, the ability to analyze socially significant problems and processes;

knowledge of basic methods, methods and means of obtaining, storing, processing information, having skills in working with a computer as a means of information management;

proficiency in one of the foreign languages at a level not lower than conversational;

possession of the means of independent, methodically correct use of methods of physical education and health promotion, readiness to achieve the proper level of physical fitness to ensure full-fledged social and professional activity;

the ability for social interaction on the basis of accepted moral and legal norms, demonstrating respect for historical heritage and cultural traditions, tolerance for another culture, readiness to maintain partnerships;

the ability to navigate the basic principles of economic theory, the features of a market economy, and independently search for work in the labor market;

the ability to understand the essence and significance of information in the development of a modern information society, to recognize the dangers and threats that arise in this process, to comply with the basic requirements of information security, including the protection of state secrets;

3.4 Basic competencies. The master's degree program - "Cadastre" must have:

- the ability to use regulatory legal documents in their activities;
- the ability to use the basic laws of natural sciences in professional activities, to apply methods of mathematical analysis and modeling;
- ability to work with information in global computer networks;
- knowledge of basic methods of protecting production personnel and the population from the possible consequences of accidents, catastrophes, and natural disasters;
- the ability to participate in work on innovative projects using basic research methods.

3.5 Professional competencies. A master in the educational program - "Cadastre" must be able to:

in production and technological activities:

- receive and process information from various sources, using the most modern information technologies, critically comprehend the information received, highlight the main thing in it, create new knowledge based on it;

- solve problems of the land and property complex, modern technologies of the land cadastre and real estate cadastre, scientific and technical policy in the field of land management and cadastre;

- use software and computing systems, geodetic and photogrammetric instruments and equipment, carry out their certification and maintenance;

- solve engineering, technical and economic problems using application software packages;

in design and survey activities:

carry out survey and survey work using modern methods and equipment, interpret and summarize their results;

- create and use planning and cartographic material for drawing up design and other documentation;

- draw up project documentation in the field of land cadastral activities based on a systematic approach, build models to describe and predict the use of land and other real estate, carry out their qualitative and quantitative analyzes;

- formulate and develop technical specifications and use automation tools when planning the use of land resources and real estate;

- apply methods for analyzing various options for design solutions, developing and searching for optimal solutions;

- use methods of analysis and feasibility studies of efficiency in the design and implementation of projects;

- develop and carry out feasibility studies of plans, projects and schemes for the use of land resources and real estate;

in organizational and managerial activities:

- manage existing software and technology systems in the process of drawing up projects and land management schemes, territorial planning and maintaining the cadastre of land and real estate;

- calculate and evaluate the conditions and consequences of organizational and managerial decisions made when organizing and conducting practical activities;

- develop plans and programs for organizing innovative activities at the enterprise

- calculate and evaluate the conditions and consequences of organizational and managerial decisions made when organizing and conducting practical activities;
- develop plans and programs for organizing innovative activities at the enterprise
- manage programs for the development of new technologies for maintaining the real estate cadastre, computer-aided design systems in land management;
- develop an effective strategy and formulate an active policy in the field of land relations;
- use methods of working with personnel, assessing the quality and performance of employees.

4. Base for professional internships

The curriculum provides for teaching and research internships. The basis for teaching practice is the Department of Cadastre of KATU named after. S. Seifullina. The basis for completing research internships are:

- Research institutes according to the specialty profile;
- Committee for Land Resources Management of the Ministry of Agriculture of the Republic of Kazakhstan;
- 16 regional branches of the NJSC “State Corporation “Government for Citizens”, as well as 3 branches of the cities of republican significance Astana, Almaty and Shymkent;
- RSE “Urban Planning Cadastre” of the Ministry of Investment and Development of the Republic of Kazakhstan, etc.

5 Structure of the master's degree educational program in the scientific and pedagogical direction

No.	Name of cycles and disciplines	Total labor intensity	
		in academic hours	in academic credits
1	2	3	4
1.	Theoretical training	2640	88
1.1	Cycle of basic disciplines (BD)	1050	35
1)	University component (VC):		
	including		
	History and philosophy of science	150	5
	Foreign language (professional)	150	5
	Higher education pedagogy	150	3
	Psychology of management	150	5
	Teaching practice	150	2
2)	Component of choice (CV)		
	Technology of cadastral activities	150	5

	Territorial information systems for land management work		
	Methodology and methodology of scientific research	150	5
	Organization of design and scientific activities in land management and cadastre		
	Economic mechanism of land management	150	5
	Economics and ecology of land use		
1.2	Cycle of major disciplines (PD)	1590	53
1)	University component (VC)		
	Development of the land market	150	5
	Land policy in the agro-industrial complex	150	5
	Modern problems of land cadastre	150	5
	Information support for cadastre and land monitoring	180	6
	Research practice	300	16
	Improving land relations	180	6
	Problems and ways to improve the use of land resources	150	5
	Property management and territory planning	150	5
1)	Research work of a master's student, including internship and completion of a master's thesis (NIRM)	720	24
3	Additional types of training (ATT)		
4	Final certification (FC)	240	8
1)	Preparation and defense of a master's thesis	240	8
	Total:	3600	120

Appendix 2 Working curriculum

Министерство сельского хозяйства Республики Казахстан
 НАО "Казахский агротехнический исследовательский университет им. С. Сейфуллина"
 Рассмотрено
 на заседании Академического
 совета университета
 Протокол № _____
 "___" _____ 20__ г.

УТВЕРЖДАЮ
 Член Правления - проректор
 по академическим вопросам
 НАО "КАТИУ" им. С. Сейфуллина"
 _____ Абишева Р. Д.
 "___" _____ 20__ г.

РАБОЧИЙ УЧЕБНЫЙ ПЛАН
 на 2023-2025 учебные годы
 для Модульной образовательной программы "Кадастр"
 область образования 7М07 – Инженерные, обрабатывающие и строительные отрасли
 направление подготовки 7М073 –
 специальность / группа образовательных программ: М128 – Землеустройство
 Степень: Магистратура по направлению (Научно-педагогическое)
 Форма обучения: Отное (магистратура 2 года) / сессиями
 Год поступления: 25-05-2023

Шифр модуля	Наименование модуля	Цели дисциплины	Код дисциплины	Наименование дисциплины	Академические кредиты	Контроль по академическим периодам										Объем в часах					Распределение кредитов по							
						Экзамены	Зачеты	Дифференциальный зачет	Дифференциальный зачет (курсовая)	Практика / НИР	Курсовая работа	Всего	Аудиторные	в т.ч.			СРМП	СРМ	1 курс									
														Лекции	Практические	ЛПЗ			1	2	3	4						
Общие модули																												
1	Общеобразовательные дисциплины	БД	ВК	IFN 5201	История и философия науки	5	1					150,0	45,0	15	30	0	20	85	5,0									
2		БД	ВК	IYaP 5203	Иностранный язык (профессиональный).	5	1					150,0	45,0	0	45	0	20	85	5,0									
3		БД	ВК	PU 5202	Психология управления	5	2					150,0	45,0	15	30	0	20	85		5,0								
4		БД	ВК	PVSH 5208	Педагогика высшей школы	3	2					90,0	30,0	15	15	0	15	45		3,0								
5		БД	ВК	PP 5207	Педагогическая практика	2				60		60,0			0	0	0	0		2,0								
Модули специальности образовательной программы																												
6	регулирование рыночных отношений	ПД	ВК	RZRR 5302	Развитие земельного рынка в РК	5	1					150,0	45,0	15	30	0	20	85	5,0									
7		ПД	ВК	ZPA 5318	Земельная политика в АПК	5	1					150,0	45,0	15	30	0	20	85	5,0									
8	кадастровый	ПД	ВК	SPZK 5320	Современные проблемы земельного кадастра	5	2					150,0	45,0	15	30	0	20	85		5,0								
9		ПД	ВК	IYKMZ 6319	Информационное обеспечение кадастра и мониторинга земель	6	3					180,0	60,0	30	30	0	24	96										
10		БД	КВ	TKD 6214	Технология кадастровой деятельности		3						45,0	15	30	0	20	85										
11		БД	КВ	TISDPZR 6214	Территориальные информационные системы для проведения землеустроительных работ	5	3					150,0	45,0	15	30	0	20	85										
12	Научно-исследовательской	ПД	ВК	IP 6317	Исследовательская практика	16				480		480,0	0	0	0	0	0	0										
13		БД	КВ	MMNI 5213	Методология и методика научных исследований	5	1					150,0	45,0	15	30	0	20	85	5,0									
14		БД	КВ	OPNDZK 5213	Организация проектной и научной деятельности в землеустройстве и кадастре	5	1					150,0	45,0	15	30	0	20	85										
15	регулирование земельных	ПД	ВК	SZO 6301	Совершенствование земельных отношений	6	3					180,0	60,0	30	30	0	24	96										
16		ПД	ВК	PPSIZR 6313	Проблемы и пути совершенствования использования земельных ресурсов	5	3					150,0	45,0	15	30	0	20	85										
Модули по выбору																												
17	Управленческий	ПД	ВК	UNPT 5315	Управление недвижимостью и планирование территории	5	2					150,0	45,0	15	30	0	20	85		5,0								
18		БД	КВ	EMUZR 5212	Экономический механизм управления земельными ресурсами	5	2					150,0	45,0	15	30	0	20	85										
19		БД	КВ	EEZ 5212	Экономика и экология землепользования	5	2					150,0	45,0	15	30	0	20	85										
Научно-исследовательская работа (НИР)																												
20	исследовательская практика	НИР	ВК	NIRM/VMD 5512	Научно-исследовательская работа магистранта, включая выполнение магистерской диссертации.	5				150		150,0		0	0	0	0	0	5,0									
21		НИР	ВК	NIRM/VMD 5513	Научно-исследовательская работа магистранта, включая выполнение магистерской диссертации.	5				150		150,0		0	0	0	0	0	5,0									
22		НИР	ВК	NIRM/VMD 6514	Научно-исследовательская работа магистранта, включая выполнение магистерской диссертации.	8				240		240,0		0	0	0	0	0	8,0									
23		НИР	ВК	NIRM/VMD 6515	Научно-исследовательская работа магистранта, включая выполнение магистерской диссертации.	6				180		180,0		0	0	0	0	0	6,0									
Итого теоретического обучения						112	14	0	0	1260	0	3360	645	225	420	0	283	1172	30,0	30,0	30,0	22,0						
ДВО Дополнительные виды обучения																												
ИА Итоговая аттестация						8																						
Оформление и защита магистерской диссертации						16																						
Итого						120																						

Директор Департамента по академическим вопросам
 Заместитель директора по академическим вопросам
 Декан факультета
 Заведующий кафедрой

Журенов Жалилбай С. Арсенбаевич
 Топубекова Жанат Эсенбековна
 Абишева Кулмыш Бакытжанович

Matrix of achievability of the generated learning outcomes in educational program using academic disciplines

№	Name of discipline	Short description of discipline	Credits	Formed learning outcomes					
				ON 1	ON 2	ON 3	ON 4	ON 5	ON 6
Cycle of basic disciplines University component									
1	Foreign language (professional).	Forms foreign language communicative competence as a significant component of professional competence and a culture of scientific writing in students, allowing them to integrate into international scientific activities, allows them to freely operate with the scientific and conceptual apparatus of their specialty, expand the scientific information base, master broad scientific knowledge, identify promising areas of professional and scientific activity.		+					
2	History and philosophy of science	Forms the skills of a methodological and dialectical approach to research, generalizes philosophical knowledge, studies issues of historical development, its structure, analyzes the patterns and trends of scientific knowledge, systematizes the effectiveness of scientific research work.				+			
3	Higher education pedagogy	Allows master's students studying in the scientific and pedagogical direction to understand general problems, methodological and theoretical foundations of higher education pedagogy, skills in analyzing training and education, elements of modern planning and organization technologies.		+					
4	Psychology of management	Forms skills in managing the organized activities of people through the study of psychological laws and patterns of management and quality of work, develops the ability to make scientifically based decisions, structure the actions of other people, and manage an organization.		+					
5	Methodology and methodology of scientific research	The concept of the method of scientific research. Methods and forms of scientific research. Logic and language of scientific research. Structure of scientific research, technology of its implementation.				+			
	Organization of	Application of modern scientific and technical information in land management and cadastre. Project activities. Its essence and purpose.				+			

design and scientific activities in land management and cadastre	Stages of scientific research. Fundamentals of industry design (land management, urban planning). Information support for scientific and project activities. Use of results in scientific and project activities.								
Territorial information systems for land management work	Organization and interaction of the functionality of territorial information systems and their use in the creation and use of cartographic works. Formation of ideas about modern information technologies in land management and cadastre, their structure, composition, functionality and requirements for information technologies.						+		
Technology of cadastral activities	Regulatory support in the field of cadastral activities. Forms of carrying out cadastral activities. Technology for performing cadastral works. Economics of cadastral activities. Organization and maintenance of complex cadastral works. Efficiency of conducting cadastral works.						+		
Economics and ecology of land use	Fundamentals of ecology and economics of land use. Ensuring environmental sustainability of land use in the soil erosion zone. Fundamentals of territory organization in conditions of soil erosion. basic theoretical principles of environmental land management. Taking into account environmental requirements in off-farm and on-farm land management projects. Ecological and economic feasibility study of land management projects			+					
Economic mechanism of land management	Scientific foundations of land management in the Republic of Kazakhstan. Reforming land and property relations. The system of economic regulators of land management, their types and characteristics. Problems and ways to improve the economic mechanism of land management in the Republic of Kazakhstan			+					
Земельная политика в АПК	Main directions and problems of land policy in the Republic of Kazakhstan. The role of agribusiness in the land policy of the Republic of Kazakhstan. Goals, principles and information support of state regulatory bodies. Legal support of land policy of the Republic of Kazakhstan. Formation of an economic mechanism for regulating agrarian relations							+	
Information support	The role of cadastre and monitoring in the e-government system						+		

for cadastre and land monitoring	when maintaining a unified state real estate cadastre. Software products and tools for cadastre maintenance and land monitoring								
Problems and ways to improve the use of land resources	Characteristics of the current state and use of the land fund. Goals, objectives, criteria for the rational use of land resources. Programs for rational use and protection of lands. Priority modern directions for the use of earth resources. The role and tasks of land management in organizing the use and protection of land.								+
Development of the land market in the Republic of Kazakhstan	Concept and features of the land market in the Republic of Kazakhstan. Types of market transactions with land. The formation of the land market in the Republic of Kazakhstan. Dynamics of land sales by category. State regulation of the development of the land market. Legal support of the land market.							+	
Improving land relations	General characteristics and specifics of land relations in the Republic of Kazakhstan. The basis of land relations (land ownership, land use rights). The main stages of development of land relations and their characteristics. The impact of the agrarian crisis and agrarian reform on land relations. Prospects for the development of land relations in the Republic of Kazakhstan.								+
Modern problems of land cadastre	Modern problems of using agricultural lands, settlements, reserve lands and other categories. Rational land use program. Ways to improve the rational use of lands of all categories of the land fund. Ways to improve the solution of tasks in land management design, cadastral activities and use of land resources. design, cadastral activities and use of land resources.						+		
Property management and territory planning	Concepts and goals of property management. Real estate management as a type of business activity. Features of real estate as an investment object. Risks of investing in real estate. Territorial planning. Development projects (master plan) of the city territory and real estate objects.			+					

