

**MINISTRY OF AGRICULTURE OF THE REPUBLIC OF KAZAKHSTAN
"NJSC "S. SEIFULLIN KAZAKH AGROTECHNICAL UNIVERSITY"**

Approve
NJSC "Saken Seifullin Kazakh
Deputy Chairman of the Management
Board Academic Activity-Rector
_____ A.M Abdyrov.
« _____ » _____ 2021.

CATALOG OF ELECTIVE COURSES

For students in groups of educational programs

B075 Cadastre

Nur-Sultan, 2021

**MINISTRY OF AGRICULTURE OF THE REPUBLIC OF KAZAKHSTAN
"NJSC "S. SEIFULLIN KAZAKH AGROTECHNICAL UNIVERSITY"**

Brief description of elective disciplines of the educational program

Veterinary control at the border and transport

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| 1 | Name of course | Ecology and life safety |
| 2 | Code of course | EOBZh 1118 |
| 3 | Cycle of course | OOD |
| 4 | Amount of credits | 5 |
| 5 | Level of preparation | Undergraduate studies |
| 6 | Department | ecology |
| 7 | Year | 1 |
| 8 | Prerequisites | Chemistry, physics, geography in the scope of the school course |
| 9 | Postrequisites | Land management, soil science, land monitoring |
| 10 | Course summary | The concept of ecology as a theoretical basis for the protection of society and nature. Fundamentals of ecology and a brief overview of its development. Ecosystem and environmental factors. Population as an element of the ecosystem. The biosphere and the modern noosphere. Global environmental problems of our time. Socio-ecological problems of our time. vital activity. The role of civil defense in ensuring the safety of the population. Environmental safety as an aspect of life safety. |
| 11 | Learning outcomes | To know the main provisions in the field of ecology as a theoretical basis for the protection of society and nature, the ecosystem and environmental factors, populations as an element of the ecosystem, global environmental problems of our time, environmental safety requirements as an aspect of life safety. |

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Brief description of elective disciplines of the educational program

Veterinary obstetrics and gynecology

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| 1 | Name of course | Professionally oriented foreign language |
| 2 | Code of course | POIYa 3210 |
| 3 | Cycle of course | VK |
| 4 | Amount of credits | 3 |
| 5 | Level of preparation | Undergraduate studies |
| 6 | Department | cadastre and assessment |
| 7 | Year | 3 |
| 8 | Prerequisites | Foreign language |
| 9 | Postrequisites | land law, state registration and accounting of land and real estate, cadastral zoning, assessment and taxation of land and real estate. |
| 10 | Course summary | Vocabulary: word-formation models, contextual meanings of polysemous words, terms and lexical constructions of a sublanguage corresponding to the profile of the specialty being studied. Grammar: the most frequent specific grammatical phenomena of the basic and natural-humanitarian and technical sublanguages. Reading texts with a dictionary and without a dictionary in the specialty, finding the specified information, remembering the content of what you read. |
| 11 | Learning outcomes | know word-formation models, contextual meanings of polysemous words, terms and lexical constructions of a sublanguage corresponding to the profile of the specialty being studied, specific grammatical phenomena of basic and natural-humanitarian and technical sublanguages in a foreign language, theoretical and methodological foundations of professional Russian (Kazakh) language in a market environment for understanding professional terms in the field of cadastre and regulation of land relations, have a vocabulary in a foreign language, academic reading, writing and speaking skills, master monological and dialogical speech, perceive academic listening; conduct discussions on business topics, have communication skills: presentation of presentations, negotiations with representatives of foreign countries, meetings with business partners in order to prepare for future professional activities; |

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| 1 | Name of course | Professional Kazakh (Russian) language |
| 2 | Code of course | PKRYa 3211 |
| 3 | Cycle of course | VK |
| 4 | Amount of credits | 3 |
| 5 | Level of preparation | Undergraduate studies |
| 6 | Department | cadastre and assessment |
| 7 | Year | 3 |
| 8 | Prerequisites | kazak tili, land resources management, cadastre basics, land monitoring |
| 9 | Postrequisites | State registration and accounting of land and real estate, etc. special subjects |
| 10 | Course summary | Theoretical and methodological foundations of the professional Russian (Kazakh) language in the market environment. The lexical and grammatical minimum of the specialty language, specific verbal turns, phraseological units characteristic of the written and oral professional speech of a specialist. Basic concepts and definitions in the Russian (Kazakh) languages in the field of cadastre. |
| 11 | Learning outcomes | know word-formation models, contextual meanings of polysemous words, terms and lexical constructions of a sublanguage corresponding to the profile of the specialty being studied, specific grammatical phenomena of basic and natural-humanitarian and technical sublanguages in a foreign language, theoretical and methodological foundations of professional Russian (Kazakh) language in a market environment for understanding professional terms in the field of cadastre and regulation of land relations, have a vocabulary in a foreign language, academic reading, writing and speaking skills, master monological and dialogical speech, perceive academic listening; conduct discussions on business topics, have communication skills: presentation of presentations, negotiations with representatives of foreign countries, meetings with business partners in order to prepare for future professional activities; |

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| 1 | Name of course | Basics of the cadastre |
| 2 | Code of course | OK 2206 |
| 3 | Cycle of course | VK |
| 4 | Amount of credits | 5 |
| 5 | Level of preparation | Undergraduate studies |
| 6 | Department | cadastre and assessment |
| 7 | Year | 2 |
| 8 | Prerequisites | Ecology and the basics of life safety |
| 9 | Postrequisites | Soil bonitization, land monitoring, state registration and land accounting |
| 10 | Course summary | Theoretical foundations of the cadastre. Studying the process of development of land relations, land management and land cadastre in order to conduct scientific research in the field of cadastre. Types of cadastral systems, their characteristics. Legal support of the cadastre. Accounting for the quantity and quality of natural objects and territories. Establishing the concepts and essence of land relations, land cadastre. Land cadastre systems abroad. |
| 11 | Learning outcomes | know the content, methodology, methodology and process of scientific research, methodological foundations, empirical and theoretical levels of scientific knowledge, be able to organize research work of students, conduct scientific research in the field of cadastre, regulation of land relations and implement their results in production and educational process; to know the theoretical provisions and methods of land resources management, organization, planning of land cadastral works and quality management of land management production, to know the organizational, legal and economic mechanism of land resources management, as well as information support; to know the concept and sources of land law, land process and land procedural norms, their types, the legal regime of land by categories of land fund; the legislative and regulatory framework regulating valuation activities, types of values, principles of property valuation: based on the views of the owner; related to the operation of property; due to the action of the market environment; legislative and regulatory framework in the field of cadastre, land management, real estate valuation, registration of rights to immovable property, be able to apply the provisions of legal, economic and administrative regulation of land and property relations, as well as when conducting an assessment, monitoring, inventory, accounting for the quantity and quality of land, registration of rights to immovable property; know the tasks, principles and purpose of state registration and land accounting, types and methods of accounting, methods of performing the main types of land cadastral works on land accounting and registration, be able to assign cadastral numbers, carry out state registration of rights to real estate in the electronic government system, keep records of the quantity and quality of land, know the goals, objectives and grounds for technical inventory, be able to determine the wear of buildings, make inventory records for real estate objects, technical passports in the AUTO CAD program, to form the infrastructure of e-government, to know the information and communication technologies of the Republic of Kazakhstan, a unified system of electronic document management of state bodies, a mobile application "e.gov.kz". |

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| 1 | Name of course | Fundamentals of scientific research |
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| 2 | Code of course | ONI 2207 |
| 3 | Cycle of course | VK |
| 4 | Amount of credits | 5 |
| 5 | Level of preparation | Undergraduate studies |
| 6 | Department | cadastre and assessment |
| 7 | Year | 2 |
| 8 | Prerequisites | fundamentals of the cadastre, modern history of Kazakhstan, philosophy |
| 9 | Postrequisites | completion of a thesis in the specialty |
| 10 | Course summary | The concept of science. The content of science. Methodology, methodology and research process. General information about science. Methodological foundations of scientific knowledge. Empirical and theoretical levels of scientific knowledge. Organization of research and development. General information about R & D. Organization of research work of students. Experimental research in economics. Processing of experimental data. |
| 11 | Learning outcomes | know the content, methodology, methodology and process of scientific research, methodological foundations, empirical and theoretical levels of scientific knowledge, be able to organize research work of students, conduct scientific research in the field of cadastre, regulation of land relations and implement their results in production and educational process; |

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| 1 | Name of course | Management of land management and cadastral works |
| 2 | Code of course | MZKR 2208 |
| 3 | Cycle of course | VK |
| 4 | Amount of credits | 5 |

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| 5 | Level of preparation | Undergraduate studies |
| 6 | Department | cadastre and assessment |
| 7 | Year | 2 |
| 8 | Prerequisites | Fundamentals of cadastre, geodesy, economics of enterprise entrepreneurship, soil science, cadastre of natural resources |
| 9 | Postrequisites | Land law, land monitoring, planning of the use of land resources, urban planning cadastre |
| 10 | Course summary | Theoretical foundations of the organization and planning of land cadastral works. The procedure for conducting work on the land cadastre. Organizational and economic features of the organization of land management and cadastral production. The content of land cadastral works. Labor rationing of works on the land cadastre and land management. Organization of quality management of land management production. Financial planning at enterprises according to the land cadastre. |
| 11 | Learning outcomes | know the content, methodology, methodology and process of scientific research, methodological foundations, empirical and theoretical levels of scientific knowledge, be able to organize research work of students, conduct scientific research in the field of cadastre, regulation of land relations and implement their results in production and educational process; know the basics of geodesy, have an idea of the shape and size of the Earth, coordinate systems and heights, be able to solve direct and inverse geodetic problems, know the methods and methods of measurements used in geodesy and GPS technology; know the physical basics of mechanics, molecular physics and thermodynamics, transport phenomena, electricity and magnetism, optics, atomic and nuclear physics; basic technologies for remote sensing of the Earth, the basics of color image processing, be able to process remote sensing data, create orthophotoplans; know the types of geodetic works on land use, analytical, graphical and mechanical methods of volumetric calculation, be able to transfer the land management project in nature. know the tasks of computer graphics, the functionality in various fields of its application; be able to work in COREL DRAW programs, create basic shapes and conventional signs; know the basics of map design, cartographic signs, methods of their construction, the font load of maps and the placement of inscriptions on maps, be able to design the topographic basis of thematic maps; know land management and land cadastral actions in the formation of non-agricultural land use, components of the land allotment project; know the concept, tasks, forms, principles and types of land management, the content and procedure for the development and economic justification of inter-farm and intra-farm land management projects and their methodology, be able to draw up and design land management projects using computer graphics elements, know the basics of planning and use of land resources, methodology, methods, methods and reliability of forecasts and organization of forecasting, be able to draw up schemes for the use of land resources. |

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| 1 | Name of course | Geodesy |
| 2 | Code of course | Geo 1204 |
| 3 | Cycle of course | VK |
| 4 | Amount of credits | 4 |
| 5 | Level of preparation | Undergraduate studies |
| 6 | Department | land management and geodesy |
| 7 | Year | 1 |
| 8 | Prerequisites | Ecology and life safety, information and communication technologies |
| 9 | Postrequisites | Land monitoring, geodetic works in land management and cadastre |

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| 10 | Course summary | Geodesy as a science and its tasks. The concept of the shape and size of the Earth and methods for determining them. Coordinate systems and heights. Elements of orientation. Direct and inverse geodesic problems. Geodetic measurements, the concept of errors of measured values and characteristics, measurement accuracy. Geodetic instruments and instruments. Methods and methods of measurement used in geodesy. Topographic surveys. Planned and high-altitude condensation networks. GPS technology. |
| 11 | Learning outcomes | know the basics of geodesy, have an understanding of the shape and size of the Earth, coordinate systems and heights, be able to solve direct and inverse geodetic problems, know the methods and methods of measurements used in geodesy and GPS technology; know the physical basics of mechanics, molecular physics and thermodynamics, transport phenomena, electricity and magnetism, optics, atomic and nuclear physics; basic technologies of remote sensing of the Earth, the basics of color image processing, be able to process remote sensing data, create orthophotoplanes; know the types of geodetic works on land use, analytical, graphical and mechanical methods of volumetric calculation, be able to transfer the land management project in kind. know the tasks and principles of soil bonitization, be able to make a bonitization scale; know the tasks, principles, structure and scientific and technical support of land monitoring, be able to conduct a comprehensive inventory of land; know the main provisions of state control over the use and protection of land using remote sensing and GIS technologies, types, methods and classification of GKIOZ; have a concept of soil and its significance in agricultural production, soil formation factors, classification and characteristics of the main types of soils; to know the basics of the landscape as a natural-territorial complex, the main laws of landscape differentiation for the rational use of natural resources. |

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| 1 | Name of course | Soil bonitization |
| 2 | Code of course | BP 3212 |
| 3 | Cycle of course | VK |
| 4 | Amount of credits | 5 |
| 5 | Level of preparation | Undergraduate studies |
| 6 | Department | cadastre and assessment |
| 7 | Year | 3 |
| 8 | Prerequisites | soil science, ecology and the basics of life safety. |
| 9 | Postrequisites | land monitoring, cadastre of natural resources, cadastral assessment and zoning |
| 10 | Course summary | The concept, tasks and principles of soil bonitization. The history of the development of soil bonitization in the Republic of Kazakhstan. Soil bonitization and land quality assessment according to the method of V. V. Dokuchaev. General and private assessment of soils, their characteristics. Compilation of a bonus scale based on statistical data on the yield of agricultural crops. |

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| 11 | Learning outcomes | know the tasks and principles of soil bonitization, be able to make a bonitization scale; know the tasks, principles, structure and scientific and technical support of land monitoring, be able to conduct a comprehensive inventory of land; know the main provisions of state control over the use and protection of land using remote sensing and GIS technologies, types, methods and classification of GKIOZ; have a concept of soil and its significance in agricultural production, factors of soil formation, classification and characteristics of the main types of soils; to know the basics of the landscape as a natural-territorial complex, the main laws of landscape differentiation for the rational use of natural resources |
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| 1 | Name of course | Land law |
| 2 | Code of course | ZP 4217 |
| 3 | Cycle of course | VK |
| 4 | Amount of credits | 5 |
| 5 | Level of preparation | Undergraduate studies |
| 6 | Department | cadastre and assessment |
| 7 | Year | 4 |
| 8 | Prerequisites | State registration and registration of land, the basics of the cadastre, land monitoring |
| 9 | Postrequisites | Writing a thesis |
| 10 | Course summary | The concept and sources of land law. Land legal relations, the right of ownership of land, the right of land use. The concept of the land process, land procedural norms and their types. Legal liability for land offenses. Resolution of land disputes. The legal regime of lands by categories of the land fund. |
| 11 | Learning outcomes | know the concept and sources of land law, land process and land procedural norms, their types, the legal regime of land by categories of land fund; the legislative and regulatory framework governing valuation activities, types of values, principles of property valuation: based on the views of the owner; related to the operation of property; due to the action of the market environment; legislative and regulatory framework in the field of cadastre, land management, real estate valuation, registration of rights to immovable property, be able to apply the provisions of legal, economic and administrative regulation of land and property relations, as well as when conducting an assessment, monitoring, inventory, accounting for the quantity and quality of land, registration of rights to immovable property; |

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| 1 | Name of course | Land monitoring |
| 2 | Code of course | MZ 3214 |
| 3 | Cycle of course | VL |
| 4 | Amount of credits | 5 |
| 5 | Level of preparation | Undergraduate studies |
| 6 | Department | cadastre and assessment |
| 7 | Year | 3 |
| 8 | Prerequisites | soil science, ecology and obzh, fundamentals of the cadastre, land management design. |
| 9 | Postrequisites | certification of land plots, urban planning cadastre |
| 10 | Course summary | Basic concepts, goals, objectives and principles of land monitoring. The structure of land monitoring. Monitoring studies. Comprehensive land inventory. Environmental pollution. Regional land monitoring system. Scientific and technical support of land monitoring. Monitoring of land abroad. |
| 11 | Learning outcomes | know the tasks and principles of soil bonitization, be able to make a bonitization scale; know the tasks, principles, structure and scientific and technical support of land monitoring, be able to conduct a comprehensive inventory of land; know the main provisions of state control over the use and protection of land using remote sensing and GIS technologies, types, methods and classification of GKIOZ; have a concept of soil and its significance in agricultural production, factors of soil formation, classification and characteristics of the main types of soils; to know the basics of the landscape as a natural-territorial complex, the main laws of landscape differentiation for the rational use of natural resources. |

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| 1 | Name of course | State control over the use and protection of land |
| 2 | Code of course | GKZIOZ 4216 |
| 3 | Cycle of course | VK |
| 4 | Amount of credits | 5 |
| 5 | Level of preparation | Undergraduate studies |
| 6 | Department | cadastre and assessment |
| 7 | Year | 4 |
| 8 | Prerequisites | Land monitoring, the basics of the cadastre, state registration and land accounting |
| 9 | Postrequisites | Writing a diploma work |
| 10 | Course summary | The concept and content of state control over the use and protection of land (GKIOZ). Types and methods of GKIOZ. Classification of GKIOZ. The role and functions of the land management service in the implementation of GKIOZ. Control over the use and protection of land. The system of bodies for the implementation of GKIOZ. The place, role and competence of the land inspection bodies. |
| 11 | Learning outcomes | know the tasks and principles of soil bonitization, be able to make a bonitization scale; know the tasks, principles, structure and scientific and technical support of land monitoring, be able to conduct a comprehensive inventory of land; know the main provisions of state control over the use and protection of land using remote sensing and GIS technologies, types, methods and classification of GKIOZ; have a concept of soil and its significance in agricultural production, soil formation factors, classification and characteristics of the main types of soils; to know the basics of the landscape as a natural-territorial complex, the main laws of landscape differentiation for the rational use of natural resources. |

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| 1 | Name of course | Soil science |
| 2 | Code of course | Poch 1202 |
| 3 | Cycle of course | VK |
| 4 | Amount of credits | 4 |
| 5 | Level of preparation | Undergraduate studies |
| 6 | Department | Soil science |
| 7 | Year | 1 |
| 8 | Prerequisites | chemistry, physics, mathematics, natural science, geography, biology. |
| 9 | Postrequisites | Land management planning, fundamentals of landscape science, fundamentals of cadastre, soil bonitization |
| 10 | Course summary | Понятие о почве и ее значение в с/х производстве. Факторы почвообразования. Состав и свойства почв. Классификация и характеристика основных типов почв. Факторы жизни растений и законы земледелия. Воспроизводство плодородия почв. Сорные растения и борьба с ними. Научные основы севооборотов. Обработка почв. |
| 11 | Learning outcomes | know the tasks and principles of soil bonitization, be able to make a bonitization scale; know the tasks, principles, structure and scientific and technical support of land monitoring, be able to conduct a comprehensive inventory of land; know the main provisions of state control over the use and protection of land using remote sensing and GIS technologies, types, methods and classification of GKIOZ; have a concept of soil and its significance in agricultural production, soil formation factors, classification and characteristics of the main types of soils; to know the basics of the landscape as a natural-territorial complex, the main laws of landscape differentiation for the rational use of natural resources. |

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| 1 | Name of course | Fundamentals of landscape science |
| 2 | Code of course | OL 3213 |
| 3 | Cycle of course | VK |
| 4 | Amount of credits | 4 |
| 5 | Level of preparation | Undergraduate studies |
| 6 | Department | land management and geodesy |
| 7 | Year | 3 |
| 8 | Prerequisites | soil science, ecology, geodesy |
| 9 | Postrequisites | Land management design, forecasting the use of land resources |
| 10 | Course summary | The concept of the landscape sphere. Landscape as a natural-territorial complex. A systematic approach to the study of landscapes. Landscape-ecological balance. The main patterns of landscape differentiation. Morphological units of the landscape. Landscape components, their interrelation. Anthropogenic landscapes. Landscape-typological mapping for the purposes of land management. Ecological bases of nature management. Rational use of natural resources. Modern concepts of environmental management. Types of environmental management. |
| 11 | Learning outcomes | know the tasks and principles of soil bonitization, be able to make a bonitization scale; know the tasks, principles, structure and scientific and technical support of land monitoring, be able to conduct a comprehensive inventory of land; know the main provisions of state control over the use and protection of land using remote sensing and GIS technologies, types, methods and classification of GKIOZ; have a concept of soil and its significance in agricultural production, factors of soil formation, classification and characteristics of the main types of soils; to know the basics of the landscape as a natural-territorial complex, the main laws of landscape differentiation for the rational use of natural resources. |

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| 1 | Name of course | Cadastre of natural resources |
| 2 | Code of course | KPR 2219 |

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| 3 | Cycle of course | VK |
| 4 | Amount of credits | 5 |
| 5 | Level of preparation | Undergraduate studies |
| 6 | Department | cadastre and assessment |
| 7 | Year | 2 |
| 8 | Prerequisites | geodesy, land management design, land monitoring, ecology, soil science |
| 9 | Postrequisites | Gradostrelny cadastre, registration and inventory of real estate, e-government |
| 10 | Course summary | Classification and brief description of natural resources. Types and concept of cadastres. Tasks and principles of the cadastre of natural resources. Land cadastre. Water cadastre; Forest cadastre; Cadastre of specially protected natural territories; Cadastre of mineral deposits. Development of the cadastre of natural resources abroad. |
| 11 | Learning outcomes | know the theoretical foundations, types and legal support of the cadastre, the process of development of land relations, land management and land cadastre, be able to take into account the quantity and quality of natural objects and territories; know the basics of organization, planning, content and procedure for conducting land cadastral works, labor rationing of land cadastre and land management, financial planning at land cadastre enterprises; classification of natural resources, types, concept and principles of the cadastre of natural resources; have a concept of geoinformatics, know the typology, functions and main directions of development of modern GIS, be able to create digital electronic maps using Arc GIS; know the goals and objectives of AIS WK, the basics of automation of land cadastral works, have a concept of GIS, types of geodata databases, a class of spatial objects, be able to edit the data of attribute tables; know the basics, composition, content, regulations and procedure for conducting urban cadastre, be able to conduct zoning of land settlements and create databases of urban cadastre; have an understanding of cadastral activity, know the role and place of the real estate cadastre in the management of territories, methods of processing and studying cadastral information, problems and prospects of creating a real estate cadastre in the Republic of Kazakhstan. |

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| 1 | Name of course | Land resources management |
| 2 | Code of course | UZR 4227 |
| 3 | Cycle of course | KV |
| 4 | Amount of credits | 5 |
| 5 | Level of preparation | Undergraduate studies |
| 6 | Department | cadastre and assessment |

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| 7 | Year | 4 |
| 8 | Prerequisites | fundamentals of the cadastre, state registration and accounting of land and real estate, management of land and cad works. |
| 9 | Postrequisites | regulatory documents in the field of land cadastre and real estate valuation, inventory and registration of real estate, writing a thesis |
| 10 | Course summary | Основные теоретические положения системы управления. Теоретические основы управления земельными ресурсами. Земельный фонд РК как объект управления. Основные методы управления земельными ресурсами. Организационно-правовой механизм управления земельными ресурсами. Экономический механизм управления земельными ресурсами. Информационное обеспечение управления земельными ресурсами. |
| 11 | Learning outcomes | to know the theoretical provisions and methods of land resources management, organization, planning of land cadastral works and quality management of land management production, to know the organizational, legal and economic mechanism of land resources management, as well as information support; |

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| 1 | Name of course | Digital mapping |
| 2 | Code of course | CK 2220 |
| 3 | Cycle of course | KV |
| 4 | Amount of credits | 5 |
| 5 | Level of preparation | Undergraduate studies |
| 6 | Department | Land management and geodesy |
| 7 | Year | 2 |
| 8 | Prerequisites | geodesy |
| 9 | Postrequisites | writing a thesis |

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| 10 | Course summary | Theoretical foundations of digital cartography. Terms and definitions (digital cartography, digital mapping, digital cartographic products, digital cartographic production). Formation and use of cartographic data banks, input-output devices for cartographic information and remote sensing materials. Digitization of cartographic and aerospace images, logical and mathematical processing of information, the use of standard software |
| 11 | Learning outcomes | know the basics of digital cartography, be able to form and use a cartographic data bank, input-output devices for cartographic information and remote sensing materials, perform digitization of cartographic and aerospace images; know the theory of cartographic projections, modern software tools for processing cartographic information, the basics of automation in mathematical cartography, be able to compile, update and design topographic maps; Know the principles and tasks of photogrammetry, coordinate systems used in photogrammetry, methods of indirect and direct positioning, technology for building a photogrammetric network |

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| 1 | Name of course | Geoinformation systems in land management and cadastre |
| 2 | Code of course | GSZK 3226 |
| 3 | Cycle of course | KV |
| 4 | Amount of credits | 5 |
| 5 | Level of preparation | Undergraduate studies |
| 6 | Department | cadastre and assessment |
| 7 | Year | 3 |
| 8 | Prerequisites | mathematics, soil science, land monitoring, basic cadastre |
| 9 | Postrequisites | Cadastral zoning and land valuation, real estate register and inventory, land monitoring, land management, writing a thesis |
| 10 | Course summary | Introduction to geoinformatics. General terminology. GIS typology. GIS functions. Data formats. Historical aspects of the development of geoinformatics and GIS technologies. The main directions of development of modern GIS. Modeling in the GIS system. Creation of digital electronic maps using the Arc GIS software product. |

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| 11 | Learning outcomes | know the theoretical foundations, types and legal support of the cadastre, the process of development of land relations, land management and land cadastre, be able to take into account the quantity and quality of natural objects and territories; know the basics of organization, planning, content and procedure for conducting land cadastral works, labor rationing of land cadastre and land management, financial planning at land cadastre enterprises; classification of natural resources, types, concept and principles of the cadastre of natural resources; have a concept of geoinformatics, know the typology, functions and main directions of development of modern GIS, be able to create digital electronic maps using Arc GIS; know the goals and objectives of AIS WK, the basics of automation of land cadastral works, have a concept of GIS, types of geodata databases, a class of spatial objects, be able to edit the data of attribute tables; know the basics, composition, content, regulations and procedure for conducting urban cadastre, be able to conduct zoning of land settlements and create databases of urban cadastre; have an understanding of cadastral activity, know the role and place of the real estate cadastre in the management of territories, methods of processing and studying cadastral information, problems and prospects of creating a real estate cadastre in the Republic of Kazakhstan. |
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| 1 | Name of course | Computer graphics |
| 2 | Code of course | KG 3224 |
| 3 | Cycle of course | KV |
| 4 | Amount of credits | 4 |
| 5 | Level of preparation | Undergraduate studies |
| 6 | Department | cadastre and assessment |
| 7 | Year | 3 |
| 8 | Prerequisites | information and communication technologies", "mathematics", "drawing" (school course). |
| 9 | Postrequisites | "Geoinformation systems in land management and cadastre", "Registration and inventory of real estate", as well as for writing a thesis |
| 10 | Course summary | Tasks of computer graphics, functional capabilities in various fields of its application; algorithmic support of graphics. Preparing and getting started in COREL DRAW. The Corel Draw interface. Document and page management. Rulers, grids and guides. Using the COREL DRAW toolkit. Zooming and viewing documents. Creating basic shapes. Conditional characters in COREL DRAW. |
| 11 | Learning outcomes | know the tasks of computer graphics, functionality in various areas of its application; be able to work in COREL DRAW programs, create basic shapes and conventional signs; know the basics of map design, cartographic signs, methods of their construction, the font load of maps and the placement of inscriptions on maps, be able to design the topographic basis of thematic maps; know land management and land cadastral actions in the formation of non-agricultural land use, components of the land allotment project; know the concept, tasks, forms, principles and types of land management, the content and procedure for the development and economic justification of inter-farm and intra-farm land management projects and their methodology, be able to draw up and design land management projects using computer graphics elements, know the basics of planning and use of land resources, methodology, methods, methods and reliability of forecasts and organization of forecasting, be able to draw up schemes for the use of land resources. |

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| 1 | Name of course | Geo-works in land management and cadastre |
| 2 | Code of course | GRZK 2221 |
| 3 | Cycle of course | KV |
| 4 | Amount of credits | 5 |
| 5 | Level of preparation | Undergraduate studies |
| 6 | Department | cadastre and assessment. Land management and geodesy |
| 7 | Year | 2 |
| 8 | Prerequisites | mathematics, geodesy, fundamentals of the cadastre |
| 9 | Postrequisites | management of land management and cadastral works, land management design, writing a diploma work |
| 10 | Course summary | Determining the areas and designing the plots in various ways, preparing geodetic data and applying various methods of transferring projects to nature. The role of geodesy in land planning and cadastre. Types of geodetic works on land use. Analytical, graphical and mechanical methods of volumetric calculation. Analytical design and its accuracy. Transfer of the land management project to nature. |
| 11 | Learning outcomes | know the basics of geodesy, have an understanding of the shape and size of the Earth, coordinate systems and heights, be able to solve direct and inverse geodetic problems, know the methods and methods of measurements used in geodesy and GPS technology; know the physical basics of mechanics, molecular physics and thermodynamics, transport phenomena, electricity and magnetism, optics, atomic and nuclear physics; basic technologies of remote sensing of the Earth, the basics of color image processing, be able to process remote sensing data, create orthophotoplanes; know the types of geodetic works on land use, analytical, graphical and mechanical methods of volumetric calculation, be able to transfer the land management project in kind. |

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| 1 | Name of course | Photogrammetry |
| 2 | Code of course | Fot 3225 |
| 3 | Cycle of course | KV |
| 4 | Amount of credits | 5 |
| 5 | Level of preparation | Undergraduate studies |
| 6 | Department | Land management and geodesy |
| 7 | Year | 3 |
| 8 | Prerequisites | geodesy |
| 9 | Postrequisites | Writing a diplomathesis |
| 10 | Course summary | Principles and main tasks of photogrammetry. Working with photogrammetric devices. Key features of photogrammetric digital cameras. Coordinate systems used in photogrammetry. Indirect and direct positioning methods. Photogrammetric network construction technology. Programs for constructing and equalizing spatial phototriangulation networks. |
| 11 | Learning outcomes | know the basics of digital cartography, be able to form and use a cartographic data bank, input-output devices for cartographic information and remote sensing materials, perform digitization of cartographic and aerospace images; know the theory of cartographic projections, modern software tools for processing cartographic information, the basics of automation in mathematical cartography, be able to compile, update and design topographic maps; Know the principles and tasks of photogrammetry, coordinate systems used in photogrammetry, methods of indirect and direct positioning, technology for building a photogrammetric network. |

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| 1 | Name of course | Land management design Land management design |
| 2 | Code of course | ZP 2222 |
| 3 | Cycle of course | KV |
| 4 | Amount of credits | 5 |
| 5 | Level of preparation | Undergraduate studies |
| 6 | Department | Land management and geodesy |
| 7 | Year | 2 |
| 8 | Prerequisites | fundamentals of landscape science, mathematics, computer graphics. |
| 9 | Postrequisites | soil bonitirovka, geodetic works in land management and cadastre. |
| 10 | Course summary | Concept, tasks, forms, principles and types of land management. Land management process, its content and procedure. Land use and land ownership in the Republic of Kazakhstan. Concept, tasks, content, types of inter-economic land management. ержание, разновидности межхозяйя Content and procedure of development and economic justification of inter-farm land management projects. Methodology for the development of the project of internaleconomicland management. Organization of land plots and arrangement of their territory. Efficiency проектовof land management projects. |
| 11 | Learning outcomes | know the tasks of computer graphics, functionality in various areas of its application; be able to work in COREL DRAW programs, create basic shapes and conventional signs; know the basics of map design, cartographic signs, methods of their construction, the font load of maps and the placement of inscriptions on maps, be able to design the topographic basis of thematic maps; know land management and land cadastral actions in the formation of non-agricultural land use, components of the land allotment project; know the concept, tasks, forms, principles and types of land management, the content and procedure for the development and economic justification of inter-farm and intra-farm land management projects and their methodology, be able to draw up and design land management projects using computer graphics elements, know the basics of planning and use of land resources, methodology, methods, methods and reliability of forecasts and organization of forecasting, be able to draw up schemes for the use of land resources. |