



CATALOG OF ELECTIVE DISCIPLINES  
For students in the field of study 7M073 Architecture and Construction

Brief description of elective disciplines of the educational program

EPG	EP	Form of education	The name of discipline	Code of subject	Discipline cycle	Component	Number of credits	Level of training	Cafetra	Course	Academic period	Pre-requisites	Post-requisites	Brief content of the discipline	Key learning outcomes	Name of the alternative discipline
M128 - "Land Management"	7M07314 - Technologies for geodetic and cadastral works	Full-time (master's degree 2 years) semester	Methodology of scientific research in land management	MNZ 5212	BS	E	5	Master's degree in areas (Scientific and pedagogical)	land management	1	2	History and philosophy of science	Master's research work, including internship and master's thesis	Goals, objectives and content of science. Methodology and laws of science. Science in modern society. The importance of science. Laws of scientific development. Contents of science. Methodology, technique and research process. Modern problems of land management. Research methodology. Organization of research. Contents of the analysis. Methods of analysis. Forecasting methods.	The ability to independently carry out research and development in land management using modern equipment, instruments, carry out information and analytical work and develop projects using modern geoinformation technologies and computer-aided design.	Organization of project and scientific activities in land management and cadastral
M128 - "Land Management"	7M07314 - Technologies for geodetic and cadastral works	Full-time (master's degree 2 years) semester	Organization of project and scientific activities in land management and cadastral	ONIZK 5222	BS	E	5	Master's degree in areas (Scientific and pedagogical)	land management	1	2	History and philosophy of science	Master's research work, including internship and master's thesis	Subject and methods of research and tasks of economic research. Research methodology in land management and cadastral. Research methods in economics. Philosophical and general scientific research methods. Dialectical method. Special research methods. Mathematical methods. Method of formalization. Network models. Sociological methods. Anal analysis. The principle of covariation. Methods of economic analysis	The ability to independently carry out research and development in land management using modern equipment, instruments, carry out information and analytical work and develop projects using modern geoinformation technologies and computer-aided design.	Methodology of scientific research in land management
M128 - "Land Management"	7M07314 - Technologies for geodetic and cadastral works	Full-time (master's degree 2 years) semester	Land management	UZK5207	BS	E	3	Master's degree in areas (Scientific and pedagogical)	land management	1	2	Psychology of management	Master's research work, including internship and master's thesis	Basic principles, provisions and methods of land resource management. Land Fund of the Republic of Kazakhstan as an object of land resource management. State bodies for land management, their functions. Administrative and legal mechanism of state management of land and resource resources.	"The ability to integrate legal, technical, economic, environmental knowledge and use it to solve and justify research and professional problems in the rational use of land resources, managing territorial planning projects, and conducting land cadastral work.	Urban area management



M128 - "Land Management" works	7N07314 - Technologies for geodetic and cadastral works	Full-time (master's degree 2 years) semester	Urban area management	UGR5208 BS	E	3	Master's degree in areas (Scientific and pedagogical)	land management	2	2	Psychology of management	Master's research work, including internship and master's thesis	Goals and objectives of urban area management. Legal aspects of territory management in the city. The role of the urban real estate market in a market economy. The concept of sustainable spatial development. Management and design	"The ability to integrate legal, technical, economic, environmental knowledge and use it to solve and justify research and professional problems in the rational use of land resources, managing territorial planning projects, and conducting land cadastral work.	Land management
M128 - "Land Management" works	7N07314 - Technologies for geodetic and cadastral works	Full-time (master's degree 2 years) semester	Landscape organization of rural areas. Ландшафтная организация в сельских территориях	LOST 5320 BS	E	3	Master's degree in areas (Scientific and pedagogical)	land management	1	2	Psychology of management	Master's research work, including internship and master's thesis	Study of landscape structure for land management purposes. Landscape-ecological balance. Regional features of landscape differentiation, environmental sustainability of agricultural landscapes. territorial planning of agro-landscapes on a landscape-ecological basis.	The ability to apply scientific methods and methodology of knowledge, organize and conduct scientific research, use research results when solving problems in the field of rational use and protection of land resources, cadastral activities. The ability to integrate legal, technical, economic, environmental knowledge and use them to solve and justify research and professional tasks in the rational use of land resources, project management, territorial planning, and land cadastral work. PO.5 Ability to carry out project activities based on modern methods of territory organization, use modern technologies when creating land management and land cadastral cartographic material.	Modern methods of territory organization
M128 - "Land Management" works	7N07314 - Technologies for geodetic and cadastral works	Full-time (master's degree 2 years) semester	Modern methods of territory organization	SMOT 5319 BS	E	3	Master's degree in areas (Scientific and pedagogical)	land management	1	2	Psychology of management	Master's research work, including internship and master's thesis	Basic provisions of the concept of modern land management. Economic, social and environmental essence of inter-farm land management. Features of the formation of land uses for various purposes. The main directions for improving the water and chemical plant in modern conditions. Fundamentals of the landscape approach to the on-farm organization of territory	The ability to apply scientific methods and methodology of knowledge, organize and conduct scientific research, use research results when solving problems in the field of rational use and protection of land resources, cadastral activities. The ability to integrate legal, technical, economic, environmental knowledge and use them to solve and justify research and professional tasks in the rational use of land resources, project management, territorial planning, and land cadastral work. PO.5 Ability to carry out project activities based on modern methods of territory organization, use modern technologies when creating land management and land cadastral cartographic material.	Landscape organization of rural areas



M128 - "Land Management" works	7M07314 - Technologies for geodetic and cadastral works	Full-time (master's degree 2 years) semester	Software for land management tasks	POZZ 6311	BS	E	3	Master's degree in areas (Scientific and pedagogical)	land management	2	3	Land management, urban area management	Master's research work, including internship and master's thesis	Main characteristics and purpose and classification of speakers. The concept of creation and operation of SAZPR. Databases and banks of Land management data. Application of GIS technologies in SAZPR. Land use data models. Graphic land management design on a computer: tools and methods. General technological scheme of automated land management design work.	"The ability to integrate legal, technical, economic, environmental knowledge and use it to solve and justify research and professional problems in the rational use of land resources, managing territorial planning projects, and conducting land cadastral work. Ability to carry out project activities based on modern methods of territory organization; use modern technologies when creating land management and land cadastral cartographic material.	Software for land management tasks
M128 - "Land Management" works	7M07314 - Technologies for geodetic and cadastral works	Full-time (master's degree 2 years) semester	Software for cadastral tasks	POKZ 6312	BS	E	3	Master's degree in areas (Scientific and pedagogical)	land management	2	3	Land management, urban area management	Master's research work, including internship and master's thesis	General concepts about automated design systems in land management and cadastre. Application of AIS when performing cadastral works. Regulatory and legal framework for conducting cadastral work using AIS. Review of software systems used when performing cadastral work. Designing 3D models for maintaining the state real estate cadastre material.	"The ability to independently carry out research and development and conduct professional activities in cadastral and land management using modern equipment and technologies; search, process, store and present information based on information, computer and network technologies."	Software for land management tasks
M128 - "Land Management" works	7M07314 - Technologies for geodetic and cadastral works	Full-time (master's degree 2 years) semester	Space geodesy	KG 6212	BS	E	3	Master's degree in areas (Scientific and pedagogical)	land management	2	3	научные основы геодезии и картографии	Master's research work, including internship and master's thesis	Fundamentals of higher geodesy. Geodetic networks, their purpose and methods of construction. Satellite geodetic networks. Definition of space geodesy. Tasks. Methods. Fundamental equation of space geodesy. Coordinate systems in space geodesy. Systems and time scales. AES observation methods. Earth's gravitational field.	Способность интегрировать правовые, технические, экономические, экологические знания и использовать их для решения и обоснования исследовательских и профессиональных задач при рациональном использовании земельных ресурсов, управлении проектами территориального планирования, проведении земельно-кадастровых работ. Способность самостоятельно выполнять научно-исследовательские разработки и вести профессиональную деятельность в кадастре и землестроительстве с использованием современной техники и технологий, осуществлять поиск, обработку, хранение и представление информации на основе информационных, компьютерных и сетевых технологий.	Higher Geodesy



M128 - "Land Management" Technologies for geodetic and cadastral works	7M07314 - Full-time (master's degree 2 years) semester	Higher Geodesy	VG 6211 BS	E	3	Master's degree in areas (Scientific and pedagogical)	land management	2	3	научные основы геодезии и картографии	Master's research work, including internship and master's thesis	Geod. quasi-geoid, general earth ellipsoid, reference ellipsoid, coordinate systems: Geometry of the earth's ellipsoid and rectangular Gaussian coordinates. Geodetic networks, their purpose and methods of construction. Triangulation, trilateration, polygonometry. Satellite geodetic networks. High-precision geometric leveling. Fundamentals of space geodesy.	"The ability to integrate legal, technical, economic, environmental knowledge and use it to solve and justify research and professional problems in the rational use of land resources, managing territorial planning projects, and conducting land cadastral work. The ability to independently carry out research and development and conduct professional activities in cadastre and land management using modern equipment and technologies; search, process, store and present information based on information, computer and network technologies	Space geodesy
M128 - "Land Management" Technologies for geodetic and cadastral works	7M07314 - Full-time (master's degree 2 years) semester	Territorial Information systems for land management work	TISDPZR BS 6207	E	3	Master's degree in areas (Scientific and pedagogical)	land management	2	3	Modern methods of territory organization	Master's research work, including internship and master's thesis	General concepts about geoinformatics and GIS classification. Organization of GIS databases. Methods for preparing information in GIS. Sources of initial data and their types. GIS data models. Spatial data infrastructures. Principles of creating computer land management plans and maps. Land information systems	"The ability to integrate legal, technical, economic, environmental knowledge and use it to solve and justify research and professional problems in the rational use of land resources, managing territorial planning projects, and conducting land cadastral work. Ability to carry out project activities based on modern methods of territory organization, use modern technologies when creating land management and land cadastral cartographic material. The ability to independently carry out research and development and conduct professional activities in cadastre and land management using modern equipment and technologies; search, process, store and present information based on information, computer and network technologies."	Land information systems for solving applied problems







M128 - "Land Management"	7M07314 - Technologies for geodetic and cadastral works	Full-time (master's degree 2 years) semester	Modern land monitoring technologies	STMZ 5210	B5	E	4	Master's degree in areas (Scientific and pedagogical)	land management	2	4	scientific foundations of geodesy and cartography	Master's research work, including internship and master's thesis	Conduct, tasks and content of the discipline, history of the formation of monitoring systems. Land monitoring indicator system. Modern methods of observation and information technologies. Territorial and sectoral monitoring of lands, monitoring of natural resources. Application of aerial and space survey materials in land cadastre, land management, ecology	<p>“The ability to integrate legal, technical, economic, environmental knowledge and use it to solve and justify research and professional problems in the rational use of land resources, managing territorial planning projects, and conducting land cadastral work. Ability to carry out project activities based on modern methods of territory organization; use modern technologies when creating land management and land cadastral cartographic material. The ability to independently carry out research and development and conduct professional activities in cadastre and land management using modern equipment and technologies, search, process, store and present information based on information, computer and network technologies.”</p>	Space monitoring of lands
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