

**Module Handbook on the degree program
MSc 7810601-Land Use and Management**

Module designation	ITM5102- Research methodology
Semester(s) in which the module is taught	1 semester
Responsible teacher of the module/subject, full name, degree and title	Yangiev Asror Abdikhamidovich, doctor of technical sciences, professor
language to be taught	Uzbek, Russian, English
place in the curriculum	Mandatory
Teaching methods	Lecture, practical works, SAW(Student autonomus work)
Study load (by types of classroom hours and independent study hours)	Total load: 60 Auditorium Hours: Lecture - 20 hours; Practical works-10 hours SAW(Student autonomus work)-30 hours
Number of credits allocated to science	2 credits
list of prerequisite subjects	Soil mechanics, Grounds and foundations, Irrigation and melioration, Use of hydromelioration systems, Water-saving irrigation technologies, Hydrometry, Hydraulics, Construction mechanics, Engineering construction, Hydrotechnical constructions.
Expected Learning Objectives	<p>Knowing and understanding: knowledge such as determining the unique features of the scientific research method and methodology, the proportionality of the scientist's intellectual, capabilities and socio-economic conditions, the creative process of setting a problem in scientific creativity and finding its solution to have insights about.</p> <p>To be able to: to have the ability to scientifically analyze philosophical categories such as scientific research, explanation and understanding, problems and problematic situations, which are the main factors of the methodology of scientific creativity.</p> <p>Formation of competences: to carry out scientific research and research in the field of science and to have an idea about scientific creativity; to carry out scientific research and research in the field of science and to have and be able to use different conceptual approaches in the field of scientific creativity; to conduct scientific research and research in the field of science and to have the skills of scientific creativity;</p>

The content of science	<p>Subjects and tasks of the science of scientific research methodology. Science and creativity. Science is one of the oldest objects of philosophy. The concept of creativity. Difficulty level: 2</p> <p>Scientific research methods, Theoretical research methodology, Experimental research methodology, Field research methodology. Difficulty level: 2</p> <p>Modeling problems in scientific creation. Concept of "modeling". Modeling problems in scientific cognition. The role of modeling and analogy in cognition. Similarity theory. Newton's law of similarity. Geometric similarity. Kitematic and dynamic similarity terms. Difficulty level: 3</p> <p>Analogy of hydrodynamic processes. From the Nave-Stokes equation to the criteria Fr, Re, Sh, Ei. Dimensional theory: basic concepts and principles, dimensional formulas. Difficulty level: 4</p> <p>Experiment planning: purpose, factors, types of experiments, randomization. Analysis of experimental data, tasks, differentiation and integration of obtained functions, comparison. finding functional relationships, tables, graphs, interpolation and extrapolation. Difficulty level: 5</p>
Exams and assessment format	In one midterm control, 3 questions (20 minutes each) and a final exam (40 minutes) will take 60 minutes to complete 30 test questions on the computer.
Study and exam requirements	Requirements for passing the course: The total maximum marks for the final exam 40, Midterm exam 20, homework 10 and classroom activity 10. In order to successfully pass the subject, the student must score 60 or more of the allotted points.
references	<p>1.Maidanov A.S. "Methodology of scientific creation", TIIM 2008 ear.</p> <p>2.Зимняя И.А. "Научно-исследовательская работа": методологий, теорий, практисал организатион анд имплементатион, 2000 ear.</p> <p>3.Rahmatullaev Sh. "Fundamental va ilmiy tadqiqotlar" 2002 ear.</p> <p>6.Сабитов Р.А. "Фундаментальные научные исследования". Учебное пособие. - Челябинск, 2002.</p> <p>7.Bakiev M., Majidov I., Nosirov B., Khojakulov R., Rahmatov M., Yangiev A. Hydrotechnical facilities. Tashkent, Intellect publishing house, 2022. 506 pages.</p>

Module designation	YFB 5108- Integrated in land use management
Semester(s) in which the module is taught	1,2 semesters
Person responsible for the module	associate professor Babajanov A.R. professor Chertovitskiy A. S.
Language	Uzbek, Russian
Relation to curriculum	Main
Teaching methods	Lecture, practical works, course project
Workload (incl. contact hours, self-study hours)	Total load: 240 hours Auditorium hours: 120 hours Lecture - 60 hours; Practical works-60 hours Independent education-120 hours
Credit points	8 credits
Required and recommended prerequisites for joining the module	Land cadastre Land monitoring Management of land resources
Module objectives/intended learning outcomes	<p>To know and understand:</p> <p>content and essence of integrated land use management; interdependence of organizational, legal, economic systems in land use; laws of land distribution in the categories of the republican land fund; to have an idea about the distribution of land by administrative territorial units;</p> <p>To be able to:</p> <p>theoretical and methodological foundations of integrated land use management; improving the economic principles of integrated management, its organizational and economic mechanisms in the conditions of the market economy; methodology and methods of formation of land plots; know and be able to use the basic principles of the basic and rapid land use management process;</p> <p>To form competences in:</p> <p>application of data collection, analysis and use methods for integrated land use management; must have the skills to implement legal and organizational mechanisms related to land use management;</p>

<p>Content: The discipline includes the following topics.</p>	<p>Introduction to the discipline. The concept of integrated management of land resources. System management. Basic principles of management. System management. The importance of integration management of the use of the republic's land fund for the economy. The land fund of the republic is a management object. Main categories of lands of the unified land fund of the republic .Level of difficulty:2.</p> <p>Integration management of agricultural lands. Integration management of lands of settlements. State of land management in the country. Conceptual framework for managing the use of land resources. The land use system in the country and the main directions for its improvement. Level of difficulty: 4.</p> <p>Basic aspects of land use management. Basic principles of integrated land resources management. The essence and content of land reform in the republic. Basic functions of land use management. Land management - as one of the main functions of land resources management. Level of difficulty: 3.</p> <p>State land cadastre - as a function of land resources management. Land monitoring - as a function of the land resources management of the republic. Legislation - as a function of land resources management. State supervision over the use of land - as a function of land resources management. Land reproduction - as a function of land resources management. Level of difficulty: 4.</p> <p>Foreign experience in managing the use of land resources. Problems of integrated land resources management. Level of difficulty: 5.</p>
<p>Exams and assessment formats</p>	<p>In one midterm control, 3 questions (20 minutes each) and a final exam (40 minutes) will take 60 minutes to complete 30 test questions on the computer..</p>
<p>Study and examination requirements</p>	<p>The total maximum score will be the sum of the points allocated to the final exam (40%), Midterm (40%), homework (10%) and classroom activity (10%). For teeth, a student must score 60% or more of the allotted points.</p>
<p>Reading list</p>	<ol style="list-style-type: none"> 1. John Randolph/ Environmental Land Use Planning and Management/ Island Press, Washington, Cavelo, London, 2013, 664p 2. Babajanov A.R. Yer resurslaridan foydalanishni boshqarish (darslik). Toshkent, TIQXMMI MTU, 2022, 424b. 3. Babajanov A. R., Muqumov A. M., Xafizova Z. X. Yer resurslaridan foydalanishda integratsion boshqaruv. Toshkent, TIMI, 2017, 374b. 4. Чертовичкий А.С., Базаров А.К. Управление землепользованием. Ташкент, 2010, 376\стр. 5. O'zbekiston Respublikasi Milliy yer hisoboti. T. , O'zbekiston Respublikasi yer resurslari davlat qo'mitasi. , 2012- 2020yy

Module designation	HR5108-Development of territories
Semester(s) in which the module is taught	1,2 semesters
Person responsible for the module	Abdurashid Altiyev, Professor
Language	Uzbek/Russian
Relation to curriculum	elective
Teaching methods	Lecture, practical works, SAW (Student autonomous work)
Workload (incl. contact hours, self-study hours)	Total workload – 240 hours; Auditorium hours: 120 hours Lecture – 60 hours Practical works – 60 hours SAW (Student autonomous work) – 120 hours
Credit points	8 credits
Required and recommended prerequisites for joining the module	land use planning, land use economics and management, land management, land law
Module objectives/intended learning outcomes	<p>To know and understand: Understand the development of the population settlement system and its role in providing socio-economic conditions for the population's living.</p> <p>To be able to: Know and be able to apply the purpose, tasks, structure, significance, and principles of territories planning and development.</p> <p>To form competences in: Provide practical and methodological recommendations for the territories planning and development.</p>
Content	<p>The course “Territories planning and development” takes into account development of projects aimed at constantly increasing the level of socio-economic use of the territory in order to ensure a high quality level of the population's livelihood, taking into account the rational and effective use of natural resources and the permissible anthropogenic effects on the natural environment and explores development issues. Level of difficulty: 5.</p> <p>General principles of regional development. Private principles of development of urban areas. The principle of regional development forecasting and planning. The principle of liberating the life of rural communities. Level of difficulty: 2</p> <p>The concept of forecasting the development of regions and the main mechanisms for ensuring the sustainable development of regions. Tasks of regional development forecasting. Concept of regional development. Level of difficulty: 3</p> <p>Distribution and redistribution of land - as a function of state management of the land fund. Distribution of the land fund by category. Redistribution of the land fund to farms that are being reorganized. Level of difficulty: 4</p>

Exams and assessment formats	In one midterm control, 3 questions (20 minutes each) and a final exam (40 minutes) will take 60 minutes to complete 30 test questions on the computer.
Study and examination requirements	The total maximum score will be the sum of the points allocated to the final exam (60%), Midterm (20%), homework (10%) and classroom activity (10%). To successfully pass the subject, a student must score 60% or more of the allotted points.
Reading list	<p>1. Altiyev A.S. “Yerdan foydalanish iqtisodiyoti”. T.: 2019;</p> <p>2. Altiyev A.S. “Yer resurslaridan foydalanish tizimini tartibga solish muammolari” (monografiya). -T.: “Fan”, 2018;</p> <p>3. Babajanov A.R., Muqumov A.M., Sharipov S.R. “Hududlarni rivojlantirish” T.: 2018;</p> <p>4. Territorial development. A new approach to development processes for the economies of the developing countries.</p> <p>5. Planning for sustainable territorial development in Latin America and the Caribbean Copyright United Nations, 2019 All rights reserved Printed at United Nations, Santiago S.19-00438</p>

Module designation	YFI 5108-Economics of land use
Semester(s) in which the module is taught	1,2 semesters
Person responsible for the module	Abdurashid Altiyev, Professor
Language	Uzbek/Russian
Relation to curriculum	Compulsory (Mandatory disciplines)
Teaching methods	Lecture, practical works, SAW (Student autonomous work)
Workload (incl. contact hours, self-study hours)	Total workload – 240 hours; Auditorium hours: 120 Lecture – 60 hours Practical works – 60 hours SAW (Student autonomous work) – 120 hours
Credit points	8 credits
Required and recommended prerequisites for joining the module	land management, land law, land management design, basics of land use.
Module objectives/intended learning outcomes	<p>To know and understand: Develop the ability to plan and predict the improvement of land use efficiency in various economic sectors. Acquire relevant skills in addressing economic issues related to land use.;</p> <p>To be able to: To have an idea about the concept and foundations of global economic development, factors of economic development, theories of economic development</p> <p>To form competences in: Student should have the skills to apply the methods of analysis of global economic development processes, to adopt solutions to the problems of economic development.</p>
Content	<p>The course “Land use economics” studies deepening innovative structural, institutional and investment changes in the system of land use in order to ensure the processes of further development of the economy of our country; Level of difficulty: 4. consistent development of production through effective and balanced distribution and redistribution of land resources among economic sectors, and regions; Level of difficulty: 3. issues such as continuous supply of food products to the population, raw materials to the processing industry, expansion of the production of ecologically clean products, and further strengthening of the food security of our country; Level of difficulty: 5. land use composition optimization - land use composition. The political-economic significance of the composition of the land use system. The goal of the task of optimal land allocation. Economic nature and importance of land use optimization; Level of difficulty: 2.</p>
Exams and assessment formats	In one midterm control, 3 questions (20 minutes each) and a final exam (40 minutes) will take 60 minutes to complete 30 test questions on the computer.

Study and examination requirements	The total maximum score will be the sum of the points allocated to the final exam (60%), Midterm (20%), homework (10%) and classroom activity (10%). To successfully pass the subject, a student must score 60% or more of the allotted points.
Reading list	<ol style="list-style-type: none"> 1. Altiyev A.S. “Yerdan foydalanish iqtisodiyoti”. T.: 2019. 2. Altiyev A.S. “Yerdan foydalanish iqtisodiyoti va boshqarish”. T.: 2022; 3. Altiyev A.S. “Yer resurslaridan foydalanish tizimini tartibga solish muammolari” (monografiya). -T.: “Fan”, 2018; 4. Babajanov A.R., Raxmonov Q.R., G‘ofirov A.J. “Yer kadastr” (darslik). T.: TIMI, 2012; 5. By Ian W. Hardie, Peter J. Parks. Copyright 2003 The Economics of Land Use.

Module designation	YBA 6104 -Legal basis of land resource management
Semester(s) in which the module is taught	3 semesters
Person responsible for the module	Shokhnazar Bobokulov, associate professor
Language	Uzbek/Russian
Relation to curriculum	Compulsory (Mandatory disciplines)
Teaching methods	Lecture, practical works, SAW (Student autonomous work)
Workload (incl. contact hours, self-study hours)	Total workload – 120 hours; Auditorium hours: 60 hours Lecture – 30 hours Practical works – 30 hours SAW (Student autonomous work) – 90 hours
Credit points	4 credits
Required and recommended prerequisites for joining the module	land law, principles of land use, land management
Module objectives/intended learning outcomes	<p>To know and understand: Analyse the scope of land-legal relations. Evaluate and find legal solutions to problematic situations within these relations. Analyse normative legal documents related to land. Prepare procedural document samples related to land-legal relations. Instruct others in the use of scientific-theoretical and practical-legal sources of land law.</p> <p>To be able to: Comprehend the interdependence of organizational, legal, and economic systems in land management. Gain knowledge about the distribution of land resources by territorial units. Interdependence of organizational, legal, economic systems of land resource management; It is necessary to have an idea about the distribution of land resources by territorial units.</p>

Content	<p>It is aimed at students to acquire knowledge about the theory of the legal basis of land resources management, to get acquainted with the land legislation of the Republic of Uzbekistan and to have the skills to apply them in practice, and to educate a person with sufficient knowledge and skills about them. .</p> <p>Concept of legal basis of state management of land fund. Forms of land fund state management. Principles and methods of land fund state management. The system and powers of state management bodies of the Land Fund. Legal basis of state land cadastre and land monitoring. (difficulty level 1)</p> <p>State ownership and private ownership of land in the Republic of Uzbekistan. System and powers of state management bodies in the field of land privatization. Methods and types of protection of property rights to land. (difficulty level 2)</p> <p>The concept and essence of state management in the field of land use and protection. Bodies implementing general management over land use and protection. Powers of specially authorized state bodies in the field of land relations regulation. The concept, system and importance of land formation. Concept and procedure of state land cadastre. The concept, purpose, system and function of state control in the field of land use and protection. The concept and procedure of land monitoring. (difficulty level 3)</p> <p>The concept, purpose and main directions of the economic mechanism of land use and protection. State management bodies that provide the economic mechanism of land use and protection. The concept of payment for land and its features. General description of land tax, rates, calculation and payment procedure. Land tax incentives and economic incentives for users. Rent and its payment procedure. (difficulty level 4)</p> <p>Promotion of rational use of lands and their protection. The concept of liability for violations of land law. Land offenses and their types. Types of liability for violation of land legislation. (difficulty level 5)</p> <p>The procedure for putting agricultural land to use. Rights and obligations of users of agricultural land (difficulty level 5)</p> <p>Issues of privatization of land plots in settlements. The procedure for seizing and reselling land plots for public needs in exchange for compensation (difficulty level 4)</p> <p>The concept and types of lands of protected natural areas, the procedure for their use. Legal status of lands intended for rehabilitation purposes. Legal status and characteristics of recreational and historical-culturally important lands. (difficulty level 5)</p>
Exams and assessment formats	In one midterm control, 3 questions (20 minutes each) and a final exam (40 minutes) will take 60 minutes to complete 30 test questions on the computer.

Study and examination requirements	The total maximum points will be the sum of the points allocated to the final exam (40%), and Midterm control (60%). In order to successfully pass the subject, the student must score 60% or more of the allocated points.
Reading list	<ol style="list-style-type: none"> 1.Mirzaabdullaeva M.R., Muqumov A.M., Hamidov F.R., G.Uzoqova. Yer huquqi. darslik. -T.:TIQXMMI, 2020, – 204 b. 2.Ben McFarlane, Nicholas Hopkins. Land Law: Text, Cases, and Materials. OUP Oxford, 2012 3.Xolmo‘minov J.T., Safarov J.I. Xorijiy mamlakatlarda tabiiy resurslar xuquqi: qiyosiy tahlil va qonunchilikni takomillashtirish. Monografiya. Toshkent. TDYuI, 2012, 39-57 bet. 4.Yer huquqi. O‘quv-uslubiy qo‘llanma. –Toshkent: TDYuU, 2018. –Toshkent: TDYuU, 2018. 6-10 b. 5.Yer huquqi. Darslik //Xolmo‘minov J. T., Jo‘raev Y.O., Usmonov M.B., Fayziev Sh.X. va boshqalar. Mas’ul muharrir yu.f.d., prof. J.T.Xolmo‘minov.–T: TDYuU, 2018. 11-36 b 6.Aruna Nair. Textbook on Land Law Nineteenth Edition. 04 September 2023 T.

Module designation	MFO6102-Methodology of teaching special subjects
Semester(s) in which the module is taught	3 semesters
Person responsible for the module	Ismailova Zukhra Karabaevna - Doctor of Pedagogical Sciences Mustafaeva Durdona Asilovna - Candidate of Pedagogical Sciences, Associate Professor
Language	Uzbek/Russian
Relation to curriculum	Compulsory (Mandatory disciplines)
Teaching methods	Lecture, practical works, SAW (Student autonomous work)
Workload (incl. contact hours, self-study hours)	Total workload: 60 Auditorium Hours: Lecture - 10, Practical works – 20, SAW (Student autonomous work) – 30 hours
Credit points	2 credits
Required and recommended prerequisites for joining the module	Vocational education methodology Pedagogical technologies and pedagogical skills
Module objectives/intended learning outcomes	<p>As a result of technical training, the student:</p> <p>to have an idea about the educational normative documents and methodical works of a special subject teacher, their planning, organization, implementation methodology; the structure, laws and principles of the teaching process of special subjects, the tasks of the professor and the organization of students' educational activities in the process of teaching special subjects, the methods and means of attracting students' attention and increasing the effectiveness of training, the forms of teaching special subjects (lecture, seminar, practical, laboratory, independent education, course work, graduate qualification work, learning practice and know and be able to use methods of increasing production efficiency; ability to develop didactic support of special subjects, prepare and implement training programs; to have knowledge and skills in the development of educational and methodological complexes of special subjects, the use of the rating system in the process of teaching special subjects; drawing up the plan and technology of training in the teaching of special subjects, preparing the text of the lecture, the rules for preparing demonstration materials and multimedia, developing projects and cases related to the specialty, methods of conducting open training and formalizing documents, fully mastering the theoretical and practical concepts of the subject, correctly reflecting the results of analysis should have the skills of independent thinking about the studied processes.</p>

Content	<p>It is the formation of methodical professional knowledge, skills and qualifications that will help masters to overcome the difficulties that arise in the process of education and upbringing of students during their future activities in the educational system, and to conduct general engineering, special technology and production education classes.</p> <p>Formation of basic knowledge necessary for successful mastering of specialized subjects, "Pedagogical technologies and pedagogical skills", "Methodology of professional education", "Methodology of scientific-pedagogical research" and similar subjects, education based on the methodology of teaching subjects related to their field in masters conveying to the recipients, monitoring and analyzing the pedagogical process, using interactive methods in place, forming the skills of preparing the technological developments of classes, developing the ability to think analytically, work with information and systematize it.</p>
Exams and assessment formats	<p>In one midterm control, 3 questions (20 minutes each) and a final exam (40 minutes) will take 60 minutes to complete 30 test questions on the computer.</p>
Study and examination requirements	<p>Students who successfully pass the science. The total maximum points will be the sum of the points allocated to the final exam (60%), Midterm control (20%), homework (10%) and activity in classroom activities (10%). To pass the subject, the student will be allocated 60% of points and above. should collect the amount.</p>
Reading list	<p>1. Ismailova Z.K., Maksudov P.M. Ergashev O.K., Matkarimov K.J. Methodology of teaching special subjects. Study guide, T.: "Navroz", 2019.</p> <p>2. Акимова О.Б., Исмаилова З.К., Максудов П.М. Уткина С.Н. Методика профессионального обучения. Учебное пособие. Т. "Наврз", 2020.</p> <p>3. Ismailova Z.K., Makhsudov P.M., Ergashev O. Methodology of teaching special subjects. Textbook. "Lesson Press" 2021. 228 pages</p>

Module designation	PLS5204-Patent studies licensing and certification
Semester(s) in which the module is taught	1semester
Person responsible for the module	Turkmenov Kh.I., Shermukhamedov Kh.P., Tashpolatov Q.B.
Language	Uzbek/Russian
Relation to curriculum	Elective
Teaching methods	Lecture, practical work, independent learning
Workload (incl. contact hours, self-study hours)	Total workload: 120 Contact hours: Lecture – 30 hours Practical work – 30 hours Independent learning – 60 hours
Credit points	4 credits
Required and recommended prerequisites for joining the module	Basic elements of elementary mathematics, Physics, Chemistry, Metrology, standardization and certification
Module objectives/intended learning outcomes	<p>Knowing and understanding: "Patentology, Licensing and Certification" discipline develops the student's intellect and logical thinking ability; imparting solid fundamental knowledge, teaching to apply the acquired knowledge to solve modern practical problems; is to develop the skills of the student to apply the knowledge acquired in the mastering of specialization and general professional subjects in the curriculum of "Patentology, Licensing and Certification".</p> <p>To be able to: He knows how to make a comparative analysis of new technical solutions with analogues and a description and formulation of the invention; Knows and can apply procedures for patenting industrial design and registration of trademarks, registration of programs and databases for Electronic Accounting Mechanism;</p> <p>Formation of competences: Knows the main types of patent information search and analysis, drawing up international applications and foreign patenting, license agreements and how to use them; He has experience in concluding various types of license agreements and knows how to develop, agree and approve regulatory documents, and prepare documents for testing.</p>

Content	<p>It is necessary to have knowledge of the history of the development of patent law, the absolute rights and obligations of patent owners under the legislation of Uzbekistan, and the issues of legal protection of copyright and related rights;. (Difficulty level: 2)</p> <p>It is necessary to have knowledge of the methods of examination of the patentability of inventions, the features of patent legislation in leading industrial countries;. (Difficulty level: 3)</p> <p>It is necessary to have knowledge of drawing up and using the main types of license agreements; (Difficulty level: 5)</p> <p>Composition of agricultural land. The procedure for granting agricultural land. Procedure for use of agricultural land by non-agricultural industries. (Difficulty level: 4)</p> <p>It is necessary to have a systematic approach to solving quality management problems on the basis of standardization, to have knowledge of the main features of effective product quality management;. (Difficulty level: 4)</p>
Exams and assessment formats	To fully master the theoretical and methodological concepts related to science, be able to correctly reflect the results of the analysis, independently observe about the processes being studied and carry out tasks and tasks assigned in intermediate forms of control, submit a written work on final control.
Study and examination requirements	Requirements for successfully passing the module: The maximum points to be summed will consist of the final exam (40%), the interval control (60%), the sum of the points to be separated. In order to successfully pass the subject, the student must score 60% of the allocated points and collect a high score in it.
Reading list	<ol style="list-style-type: none"> 1. Djumaxodjaev A.Z. Patentshunoslik – T.: «Mehnat», 2001 yil – 290 b. 2. Джумаходжаев А.З. Патентоведение: – Т.: «Мехнат», 2001 йил – 272 б.. 3. А.А. Абдувалиев, В.Б. Латипов и др. Standartlashtirish, metrologiya, sertifikatlashtirish, sifat – Т., SMSITI, 2008y 4. А.А. Абдувалиев, В.Б. Латипов и др. Стандартизация метрология, сертификатсия, качество – Т., НИИСМС, 2007й. 5. Alonso-Fradejas, Alberto, et al. "Food sovereignty: convergence and contradictions, conditions and challenges." Third World Quarterly 2015.

Module designation	GK5204-Geoinformation cartography (ES №1)
Semester(s) in which the module is taught	1-semester
Person responsible for the module	Associate professor, PhD Rustam Oymatov
Language	Uzbek, Russian
Relation to curriculum	Elective
Teaching methods	Lecture, practical works, SAW(Student autonomus work)
Workload (incl. contact hours, self-study hours)	Total workload: 120 Contact hours: Lecture – 30 hours Practical work – 30 hours SAW(Student autonomus work)– 60 hours
Credit points	4 credits
Required and recommended prerequisites for joining the module	Geoinformation systems and technologies
Module objectives/intended learning outcomes	<p>After mastering the subject, the student:</p> <p>will have an idea of the mastered cartographic concepts, confirmations from the geodetic-cartographic and geoinformation point of view;</p> <p>knows and can explain about the special important role of geodetic research methods in modern science and technology;</p> <p>understands the features of using remotely obtained materials, automatic and mathematical methods in drawing up maps;</p> <p>can apply geographical maps and their types, the principles of creating their legends, the methodology and technology of creating maps;</p> <p>using space pictures and mathematical methods, developing the content of the maps,</p> <p>to master the use of modern GIS software for mapping remote sensing materials, to know how to put their solutions into practice and to have the ability to use them;</p> <p>performs an independent search for the location of events and events and their interrelationships, changes in electronic maps;</p> <p>GIS software can be used to organize the practical task of creating maps.</p>

<p>Content</p>	<p>Geoinformatics in the earth science system. Geoinformatics and GIS — phrases and annotations. Geomatics. Geoinformatics in the earth science system. GIS and telecommunication networks. Level of difficulty: 1</p> <p>Geoinformation mapping. Development of geoinformatics as scientific science, technology and production. The integration of the theoretical concepts of cartography and the emergence of a new geoinformational cartographic modeling and geoinformational concept based on the knowledge of geosystems. Introduction of many new types and types of maps - electronic map, photo map, cosmophoto map, three-dimensional cartographic images, etc. into scientific and practical circulation. Level of difficulty: 2</p> <p>Geoinformational concept in the theory of cartography. The concept of model cognition. Communicative concept. Level of difficulty: 3</p> <p>Geoimages - as a graphical model of the planet. Flat geodesics. Geomaps of regions. Photographic geoimages. Thematic geoimages. Television geoimages. Scanned geoimages. Typographic and display geoimages. Level of difficulty: 2</p> <p>Understanding digital maps. technological (electronic) methods of creating maps. Digital methods of organizing banks and databases. Geoinformation mapping technologies. Formation of maps in computer networks. development of virtual mapping. Level of difficulty: 2</p> <p>System of geoimages. Volumetric geoimages. Large themed geoimages. Stereoscopic geoimages. Blocked Geoimages. Holographic geoimages. Dynamic (moving) geoimages. Level of difficulty: 5</p> <p>Theory of geoimages. Combined Geoimages. Features of geoimages as a model of reality. Content matching. Abstractness and precision. Selectivity and synthetics. Classification of geoimages. "Square" of geodescription. Hypergeoimages. Problems of coordination of geoimages. Geoiconics as a connective science. The project of a new scientific direction. Level of difficulty: 4</p> <p>Space and time ranges. their relations in geoimaging. The relationship between the scales of maps, aerial and space photographs. Scales of geoimages. Temporal relations. Level of difficulty: 4</p> <p>The relationship between the scales of maps, aerial and space photographs. Space photography. Area plan. Geographic map. Classification of aerial photographs by scale. Classification of space images by spatial dimensions. Level of difficulty: 1</p> <p>Scales of geoimages. Scales of geoimages. Experience using geospatial imagery. Geospatial scale field. Temporal relations. Certain scale-information (geoinformation) levels of geoimages. Level of difficulty: 3</p> <p>Generalization of geoimages. Epistemological aspects. Types of generalizations. Cartographic generalization. Distance generalization. Dynamic generalization. Level of difficulty: 2</p>
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	The uniqueness of the graphic form (image). Definition of a graphic image. Model. Cartographic images. An effective tool for creating cartographic images. Recognize graphic images. Reading geospatial images as an information acquisition process. Level of difficulty: 4.
Exams and assessment formats	In one midterm control, 3 questions (20 minutes each) and a final exam (40 minutes) will take 60 minutes to complete 30 test questions on the computer.
Study and examination requirements	Requirements for successfully passing the module: The maximum points to be summed will consist of the final exam (40%), the interval control (60%), the sum of the points to be separated. In order to successfully pass the subject, the student must score 60% of the allocated points and collect a high score in it.
Reading list	<p>1. E. Safarov, X. Abduraxmonov, R. Oymatov. "Geoinformatsion kartografiya". O'quv qo'llanma. Universitet. – 2012 y. -179 b.</p> <p>2. Лурье И.К.: Геоинформационное картографирование. - М.: КДУ, 2010</p> <p>3. O'.Muxtorov, A.Inamov, J.Lapasov. "Geoaxborot tizim va texnologiyalar" fanidan amaliy mashg'ulotlarni bajarish bo'yicha o'quv qo'llanma. T.: TIQXMMI, 2017.</p> <p>4. Шипулин В. Д. Основные принципы геоинформационных систем: учебн. пособие / Шипулин В. Д.; Харьк. нац. акад. гор. хоз-ва. – Х.: ХНАГХ, 2010. – 337 с</p> <p>5. Чепелев О.А.: Прикладное применение ГИС. - Белгород: ИПК НИУ "БелГУ", 2011</p>

Module designation	GK5204-Database and architecture
Semester(s) in which the module is taught	1 semester
Person responsible for the module	Associate professor, PhD Shukhrat Shokirov
Language	Uzbek/Russian
Relation to curriculum	Elective
Teaching methods	Lecture, practical works, SAW (Student autonomous work)
Workload (incl. contact hours, self-study hours)	Total workload – 120 hours; Auditorium Hours: Lecture – 30 hours Practical works – 30 hours SAW (Student autonomous work) – 60 hours
Credit points	4 credits
Required and recommended prerequisites for joining the module	Geoinformation systems and technologies
Module objectives/intended learning outcomes	<p>Design and implement geospatial databases: develop the ability to design and implement geospatial databases, considering spatial data modeling, structure, and optimization.</p> <p>Apply architectural concepts to GIS: apply architectural principles to the design and development of geospatial information systems, considering scalability, interoperability, and performance.</p> <p>Integrate remote sensing data: demonstrate proficiency in integrating and processing remote sensing data within a geospatial database framework.</p> <p>Utilize spatial analysis techniques: apply spatial analysis techniques to extract meaningful information from geospatial databases, including geoprocessing and spatial querying.</p> <p>Ensure data quality and integrity: implement strategies to ensure the quality and integrity of geospatial data throughout its lifecycle within the database.</p> <p>Implement metadata standards: understand and implement metadata standards to document and manage geospatial datasets effectively.</p> <p>Optimize spatial queries: develop skills in optimizing spatial queries for efficient retrieval and analysis of geospatial information from the database.</p> <p>Understand cloud-based GIS architectures: explore and comprehend cloud-based GIS architectures, considering the advantages and challenges associated with cloud computing in geospatial applications.</p>
Content	<p>Explore the foundational principles and concepts that underlie Geospatial information systems, develop a solid understanding of database design principles specific to geospatial information. Examine architectural principles essential for designing and implementing effective Geospatial Information Systems. Level of difficulty: 2.</p> <p>Demonstrate proficiency in integrating and processing remote sensing data within a geospatial database framework.</p>

	<p>Develop skills in optimizing spatial queries for efficient retrieval and analysis of geospatial information. Level of difficulty: 3.</p> <p>Explore the advantages and challenges associated with cloud computing in the context of geospatial applications. Stay updated on the latest advancements in geospatial technology, including innovations in database management and spatial analytics. Level of difficulty: 3.</p> <p>Discuss the integration of geospatial information into land use management, emphasizing systems thinking. Explore the role of geospatial information in forecasting, planning, and inter-sectoral distribution of land use. Level of difficulty: 4.</p> <p>Delve into the architecture and functionality of Land Information Systems. Understand the role of geospatial information in land monitoring and control as critical functions of land use management. Investigate advanced functions of land use management, including land regeneration and efficiency assessment. Level of difficulty: 4.</p> <p>Delve into the architecture and functionality of Land Information Systems within the context of geospatial databases. Explore the application of geospatial information in land monitoring and control for effective land use management. Apply acquired knowledge to real-world scenarios, with a focus on practical implementations and case studies. Level of difficulty: 5.</p>
Exams and assessment formats	To attain a comprehensive mastery of the theoretical and methodological foundations of the discipline, to proficiently articulate the outcomes of analytical endeavours, to autonomously oversee the examined phenomena, and to adeptly fulfil assignments and assessments inherent in interim evaluation formats. Additionally, to demonstrate the culmination of acquired knowledge and skills through the submission of a scholarly document for the final assessment.
Study and examination requirements	Requirements for passing the course. The total maximum marks will be the sum of the final exam (40%), Midterm (60%). To successfully pass the subject, the student must score 60% or more of the allotted points.
Reading list	<ol style="list-style-type: none"> 1. E.Y. Safarov, X.A. Abdurahimov, R.Q. Oymatov. Geoinformatsion kartografiy. T, 2012. 2. Gerardus Blokdyk. Spatial Data Infrastructure A Complete Guide - 2020 Edition 3. M. Zeiler. Modeling Our World: The ESRI Guide to Geodatabase Design, ESRI Press, 2010. 4. I. Masser. GIS Worlds: Creating Spatial Data Infrastructures, ESRI Press, 2005. 5. Vandenbroucke D. Olijslagers M. Architectures and Standards for Spatial Data Infrastructures and Digital Government. Luxembourg: Publications Office of the European Union, 2020

Module designation	PTM5202- Pedagogical technologies and pedagogical skills
Semester(s) in which the module is taught	1 semester
Person responsible for the module	Professor, PhD Muqumova Dilrabo
Language	Uzbek,
Relation to curriculum	Elective
Teaching methods	Lecture, practical works, SAW (Student autonomous work)
Workload (incl. contact hours, self-study hours)	Total workload: 60 Contact hours: Lecture – 10 hours Practical work – 20 hours Independent learning – 30 hours
Credit points	2 credits
Required and recommended prerequisites for joining the module	Pedagogical skill

<p>Module objectives/intended learning outcomes</p>	<p>Know and understand: Methods of adaptation of students ' specialist activities to the requirements of the time; High level of Organization of the talim jaryon with the introduction of elements of professional skill into the Talim process; Formation of competencies of creativity in pedagogical abilities in students; Improving the ability to correctly selectively apply pedagogical skill methods in practice;</p> <p>Having the skills to: The essence of the content of methods of pedagogical skill in the process of Professional education and the ability to put into practice the requirements for it; Having to master the peculiarities of pedagogical methods of skill on the basis of modern requirements; Being able to use methods correctly independently</p> <p>Formation of competences: the peculiarities of the implementation of professional educational programs based on the methods of pedagogical skill and the principles of muxim are the formation of the ability to have imagination and increase; The evolution of being able to create a model of a person who has mastered the secrets of pedagogical skill in the process of Professional education and be able to put into practice the essence of the content of the organization of education and the requirements for it; The fact that a professional education teacher on the basis of modern requirements has its own characteristics;- Acquaintance with the latest literature on the direction of pedagogical skill and in-depth study; When preparing training developments, teaching pedagogical skill science, it is necessary to know how to draw up a plan and technological project of training and be able to use them; Formation of competencies of students of the direction of Professional education based on worldskills standards</p>
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Content	<p>Methods of adaptation of students ' professional activity to the requirements of the time, high Organization of the learning process with the introduction of elements of professional training into the learning process, formation of competencies on professional training in students improve the ability of pedagogical master's science to correctly selectively apply methodologies in practice. Level of difficulty: 1</p> <p>One of the tools to increase the investment attractiveness and competitiveness of regions by training workers who meet the requirements of high-tech production is the science of pedagogical skill, the advantage of which is the coordinated interaction of the educational and production areas in the training of specialists, as well as the high level of employment of graduates. Difficulty level: 2</p> <p>Directions of Professional education, their activities, educational and educational documents. The ability to put into practice the rules of meiry documents and their maxim, which are muxim in the implementation of pedagogical skill science. Difficulty level: 3.</p> <p>Correct absorption of pedagogical skill science and pedagogical techniques into the process of training by studying the advanced experiences of foreign countries and foreign literature. Difficulty level: 4</p> <p>Development of a methodology for improving the preparation of students for professional activities through the science of pedagogical skill. Development of a model for improving professional training based on the development and justification of the theoretical foundations for the use of pedagogical techniques in professional activities. Difficulty level: 5.</p>
Exams and assessment formats	To fully master the theoretical and methodological concepts of science, to be able to accurately reflect the results of analysis, to independently observe the studied processes and to fulfill the assignments and assignments given in the interim control forms, to submit a written work for the final control.
Study and examination requirements	Students of successful transition from science.The maximum points to be summed will consist of the final exam (40%), the interval control (60%), the sum of the points to be separated. In order to successfully pass the subject, the student must score 60% of the allocated points and collect a high score in it.

Reading list	<ol style="list-style-type: none">1.U. Saidov. Management and oratory. – T., G‘afur G‘ulom nomidagi nashriyot matbaa-ijodiy uyi. 2011.2. V. Karimova. Psychological methods of propaganda. – T., «Ma‘naviyat» 2001.3.E. Sattorov. Psychology of achieving good luck.– T., G‘afur G‘ulom publishing house named after. 2014.4.Axborot manbaalari<ol style="list-style-type: none">1. http://planetadisser.com2. http://www.bestdissertation.com3. http://www.edu.uz4. www.gov.uz5. http://www.press-service.uz
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Module designation	NUM5202-Speech culture
Semester(s) in which the module is taught	1 semester
Person responsible for the module	Jurayeva Gulbakhor
Language	Uzbek
Relation to curriculum	Elective
Teaching methods	Lecture, practical works, SAW (Student autonomous work)
Workload (incl. contact hours, self-study hours)	Total workload – 60 hours; Auditorium hours: 30 hours Lecture – 10 hours Practical works – 20 hours SAW (Student autonomous work) – 30 hours
Credit points	2 credits
Required and recommended prerequisites for joining the module	New history of Uzbekistan

<p>Module objectives/intended learning outcomes</p>	<p>Know and understand: Mastering scientific facts, socio-pedagogical concepts, ideas, in the future they should not only be able to interpret and explain existing problems in life, but also to predict their further development; they should know how to apply scientific research methods in practice; To increase general theoretical and practical knowledge of pedagogic skills and culture, to develop sectoral speech culture, to develop them into competitive personnel, to find their professional place in society, to increase the economic and cultural potential of society, the relevant field of science or social life to have an imagination to develop some aspect; It is important to know how to use the advanced and modern methods of teaching, the implementation of new informational and pedagogical technologies in mastering the science of "speech culture".</p> <p>Having the skills to: Professional activity - being able to apply one's own experiences and the processes of understanding the world; One should have skills and competence in using textbooks, educational and methodical manuals, lecture texts, handouts, and technical tools in mastering the subject; Students should have the skills to use the methods of analyzing pedagogical skills; Transition from a destructive state to a constructive state; Accepting correct (compromise) solutions in conflict situations.</p> <p>Formation of competences: Knows the motivations of cocktail activities, the methods of motivating educational activities; Fully mastering the theoretical and practical concepts of science, able to correctly reflect the results of analysis, knows how to independently determine about the studied processes; The history of speech culture and the art of oratory; Cultivation of speech culture and types of speech art; Expressive means of speech and literary heritage; Must be able to explain the content and essence of communicative and other qualities of speech; The ability to work in mutual cooperation; The main directions and methods of developing the communicative ability of speech.</p>
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Content	<p>The goal of teaching science is to form and develop high-level speech culture and communication quality in students.</p> <p>The tasks of teaching the subject are the history of oratory, the views of great thinkers on the importance of oratory culture, the oratory of famous preachers, the art of using words by famous artists of words, the use of words in the world modern intellectual world, create an idea about the secrets of public speaking, views on the culture of communication, scientific and practical directions; to introduce the linguistic and non-linguistic norms and rules of speech; includes the formation of cultural speech skills, the development of skills.</p> <p>Difficulty level: 2</p> <p>As part of the issues to be implemented in the process of mastering the science of "speech culture":</p> <p>integral connection of speech logic; history of oratory; ancient orators; the views of our ancestors on the culture of speech, the art of preaching, the purity and elegance of the language, their thoughts on the beauty of speech, the art of using words; should have an idea about the use of words, the secrets of public speaking, the views and practical directions related to the culture of communication in the modern intellectual world of the world;</p> <p>forms and characteristics of speech; it is necessary to know and be able to use pronunciation, lexical, morphological, syntactic, punctuational, methodological, pragmatic, social, ethnic, sectoral standards of cultural speech;</p> <p>ensuring correctness and accuracy of speech; be able to structure it on a logical basis and identify logical errors; achieve purity of speech; to become richer, to achieve fluency and expressiveness of speech; being able to organize speech strategy and tactics harmoniously; adapt the speech to the pragmatic situation; to be able to get out of problematic situations based on speech skills; must have the skills to understand the thoughts of others.</p> <p>Difficulty level: 5</p>
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	<p>"Speech culture" is considered a general methodological subject and is taught in the 3rd semester. Acquiring knowledge and skills in the "Speech Culture" program requires having sufficient knowledge and skills regarding the problems studied in "Psychology", "Logic", "Ethics", "Aesthetics" and "Cultural Studies".</p> <p>Difficulty level: 2</p> <p>The requirements are to increase general theoretical and practical knowledge of speech culture, to develop sectoral speech culture in order to develop them into competitive personnel, to find their professional place in society, to increase the economic and cultural potential of society, to develop a relevant field of science or any aspect of social life. plays an important role in development.</p> <p>Difficulty level: 2</p> <p>It is important to use advanced and modern methods of teaching and to implement new informational and pedagogical technologies in mastering the science of "speech culture". The topics indicated in the program are conducted in the form of lectures, practical training, and seminar training, as well as current issues of the science are given to masters for mastering as independent education. Textbooks, educational and methodical manuals, lecture texts, handouts, and technical tools are used in mastering the subject. Lectures, practical and laboratory trainings are conducted using methods of modern pedagogical technology such as "Cluster", "Case-study", "Boomerang", "Press conference" and with slides and multimedia presentations.</p> <p>Difficulty level: 3</p>
Exams and assessment formats	Full mastery of theoretical and methodological concepts related to science, ability to accurately reflect the results of analysis, independently observe the studied processes and fulfill the tasks given in the interim control forms, submit a written work for the final control.
Study and examination requirements	<p>Students who successfully pass the science.</p> <p>The total maximum points will be the sum of the points allocated to the final exam (40%), the midterm (60%). To pass the subject successfully, the student must score 60% or more of the allotted points.</p>
Reading list	<p style="text-align: center;">Basic textbooks and manuals</p> <p>1.U. Saidov. Boshqaruv va notiqlik san'ati. – T., G'afur G'ulom nomidagi nashriyot matbaa-ijodiy uyi. 2011.</p> <p>2.E. Sattorov. Omadga erishishi psixologiyasi. – T., G'afur G'ulom nomidagi nashriyot matbaa-ijodiy uyi. 2014.</p> <p>3. R. Jumaniyozov. Nutqiy mahorat. – T., "Adolat", 2005.</p> <p style="text-align: center;">Additional literature</p> <p>1. Mirziyoev Sh.M. "Tanqidiy tahlil, qat'iy tartib-intizom va shaxsiy javobgarlik – har bir rahbar faoliyatining kundalik qoidasi bo'lishi kerak". O'zbekiston Respublikasi Vazirlar Mahkamasining 2016 yil yakunlari va 2017 yil istiqbollari bag'ishlangan majlisidagi O'zbekiston Respublikasi Prezidenti nutqi. G'G' "Xalq so'zi" gazetasi, 2017.16 yanvar, №11</p> <p>2.Mirziyoev Sh.M. "Buyuk kelajagimizni mard va oliyjanob xalqimiz bilan birga quramiz". "O'zbekiston", 2017.</p>

Module designation	ATZ5202-Information systems
Semester(s) in which the module is taught	1 semester
Person responsible for the module	Associate professor, Candidate of Technical Sciences Sayibdjan Mirzayev
Language	Uzbek, Russian, English
Relation to curriculum	Elective
Teaching methods	Lecture, practical works, SAW (Student autonomous work)
Workload (incl. contact hours, self-study hours)	Total workload: 60 Contact hours: lectures - 10, practical works – 20, SAW (Student autonomous work) – 30 hours
Credit points	2 credits
Required and recommended prerequisites for joining the module	Higher Mathematics , Information Technologies

Module objectives/intended learning outcomes	<p>To know and understand:</p> <ul style="list-style-type: none"> - information systems and their application in various fields, - data types, - data processing algorithms, - algorithms for working with different data structures, - main information processes occurring in various information systems. <p>To be able to:</p> <ul style="list-style-type: none"> - use information systems components, - formation of information systems structure, - process management in information systems, - use the capabilities of software of various information systems. <p>To form competences in:</p> <ul style="list-style-type: none"> - organization and management of information systems, - work with applications of information systems and office applications, - create database objects, - application of information technologies in information systems.
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Content	<p>Information of society. Process of Information of society. Processes of formation of an informed society. The purpose and main tasks of training in the subject "Information Systems." The legal framework for the formation of the national information system of the Republic of Uzbekistan. Concept of construction of unified electronic information systems in Uzbekistan. Level of difficulty: 2</p> <p>The concept of information systems. Stages of development of information systems. Processes in information systems. The role of the management system in the information system. Composition of the information system. Classifications of information systems. Information support. Technical support. Mathematical and software. Organizational support. Strategic Information Systems. Firm information systems. Level of difficulty: 2</p> <p>Information products and services. Information products and services market. Information Products and Services Market Structure. The concept of information technology (IT). Interaction between information technology and information systems. Components of information technology. Stages of information technology development. Problems with the use of information technology. Level of difficulty: 2</p> <p>Databases. Database management systems. Database models. Hierarchical, network, and relational databases. Level of difficulty: 3</p> <p>Types of computer networks. Telecommunications. Global Computer Network - Internet. Advantages and disadvantages of the Internet. Working online. Level of difficulty: 2</p> <p>Information security in today's information society. Information security systems. Computer viruses and their species. Description of virus protection software. Use of biometric information security methods. Level of difficulty: 3</p> <p>The concept of artificial intelligence. History of the development of artificial intelligence. Directions of development of artificial intelligence. Knowledge and information. Intelligent programming systems. Generalized composition of expert systems. Classification of expert systems. Expert Systems Development Tools. Main stages of expert systems development. Level of difficulty: 4</p>
Exams and assessment formats	To fully master the theoretical and methodological concepts related to science, be able to correctly reflect the results of the analysis, independently observe about the processes being studied and carry out tasks and tasks assigned in intermediate forms of control, submit a written work on final control.
Study and examination requirements	Students of successful transition from science. The maximum points to be summed will consist of the final exam (40%), the interval control (60%), the sum of the points to be separated. In order to successfully pass the subject, the student must score 60% of the allocated points and collect a high score in it.

Reading list	<ol style="list-style-type: none">1. Abdullayev Z.S., Mirzayev S.S. Axborot texnologiyalari va jarayonlarni matematik modellashtirish. Toshkent, TIQXMMI, 2019. -332 b.2. Қосимов С.С. Аxbорот тизимлари. Тошкент, Алоқачи. 2006. - 369 б.3. Abdullayev Z.S., Mirzayev S.S., Shodmonova G., Shamsiddinov N.B. Informatika va axborot texnologiyalari. – T.: A.Navoiy nomidagi O`zbekiston Milliy kutubxonasi nashriyoti, 2012. – 444 b.4. Шадманова Г., Каримова Х.Х., Кенжаева Д. Информационные технологии и математическое моделирование процессов. Т., ТИИИМСХ, 2020.5. Р.Х.Алимов, Ў.Т.Хайитматов ва бошқалар. Аxbорот тизимлари.- Т.:ТДИУ, 2013.
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Module designation	EUS5204-Formation of land plots
Semester(s) in which the module is taught	2 semesters
Person responsible for the module	PhD, associate professor Babajanov A.R. Professor Chertovitsky A.S.
Language	Uzbek, Russian
Relation to curriculum	Elective
Teaching methods	Lecture, practical works, SAW (Student autonomous work)
Workload (incl. contact hours, self-study hours)	Total workload – 120 hours; Auditorium hours: 30 hours Lecture – 30 hours Practical works – 30 hours SAW (Student autonomous work) – 60 hours
Credit points	4 credits
Required and recommended prerequisites for joining the module	Land cadastre Land information Management of land resources
Module objectives/intended learning outcomes	<p>To know and understand: the information system necessary for the information about land, the formation of land plots, their legal status;</p> <p>To be able to: use the basic principles of the process of formation of land plots in different regions from legal, technical and economic aspects;</p> <p>To form competences in: must have the skills to apply the legal and organizational mechanisms of the formation of each plot of land in a way that allows effective use of land and its effective organization;</p>

<p>Content: The discipline includes the following topics. The level of difficulty: (1 – low, 5 high):</p>	<p>The concept of a land plot, the essence and content of the formation of a land plot on the territory. Formation of a land plot in the zone of irrigated agriculture. Legal, technical, environmental and economic aspects of the formation of a land plot on the territory. Level of difficulty: 2.</p> <p>The procedure and methodology for the formation of a land plot according to the land code of the Republic of Uzbekistan. Features of land plot formation in the regions. Rights and obligations of landowners and land users in the field of ensuring the stability of land plots. Level of difficulty: 3.</p> <p>Registration of rights to land plots - the main event is the formation of land plots on the ground, its content and significance. Basic geodetic work performed during the formation and ensuring the stability of land plots, their types and varieties, as well as maintenance. Registration of the results of registration of rights to land plots associated with the formation of land plots in various territorial conditions. Level of difficulty: 4.</p> <p>Features of the formation of land plots of various categories of land included in the unified land fund of the republic. Features and procedure for the formation of land plots in populated areas of the republic, their main contents and work procedure. Urgent problems related to the formation of land plots and ensuring their stability. Level of difficulty: 4.</p>
<p>Exams and assessment formats</p>	<p>There is one mid-term examination (80 minutes) and a final written exam (80 minutes) based on pre-made options with 3 questions each.</p>
<p>Study and examination requirements</p>	<p>The total maximum score will be the sum of the points allocated to the final exam (40%), Midterm (40%), homework (10%) and classroom activity (10%). For teeth, a student must score 60% or more of the allotted points.</p>
<p>Reading list</p>	<ol style="list-style-type: none"> 1. Babajanov A.R., Roziboev S.B. Yer resurslarini boshqarishning axborot ta'minoti. O'quv qo'llanma. Toshkent, "TIQXMMI" MTU, 2023, 124b. 2. Babajanov A.R. Yer resurslaridan foydalanishni boshqarish (darslik). Toshkent, TIQXMMI MTU, 2022, 424b. 3. Babajanov A. R. Yer kadastrini nazariyasi. Darslik, Toshkent, "TIQXMMI" MTU, 2023, 447b. 4. Чертовицкий А.С., Базаров А.К. Управление землепользованием. Ташкент, 2010, 376стр. 5. O'zbekiston Respublikasi Milliy yer hisoboti. T. , O'zbekiston Respublikasi yer resurslari davlat qo'mitasi. , 2012- 2020yy

Module designation	YMS5204-Regulation of land relations
Semester(s) in which the module is taught	2 semesters
Person responsible for the module	Shokhnazar Bobokulov, associate professor
Language	Uzbek/Russian
Relation to curriculum	elective course
Teaching methods	Lecture, practical works, SAW (Student autonomous work)
Workload (incl. contact hours, self-study hours)	Total workload – 120 hours; Auditorium hours: 60 hours Lecture – 30 hours Practical works – 30 hours SAW (Student autonomous work) – 60 hours
Credit points	4 credits
Required and recommended prerequisites for joining the module	land law, land management principles, land monitoring, land management design
Module objectives/intended learning outcomes	Understand the regulation of land relations, rational land use, land protection, and the organization of land management works. Comprehend the processes involved in land management. Grasp the principles of substantiating fees paid for land and the assessment of economic activities. Justify the economic, social, and legal importance of regulating land relations. Solve problematic issues related to the regulation of land relations.
Content	The subject, tools and scientific-practical problems of the science "Legal regulation of land relations". (difficulty level 1) Fundamentals of land ownership law, current and contemporary problems. (difficulty level 2) Mechanism and problems of regulation of land relations. (difficulty level 3) The mechanism and methodological and practical problems of the regulation of the right to load from the land of the restoration of agriculture. (difficulty level 4) Mechanism of legal regulation and methodological and practical problems of viewing from settlements and lands intended for industrial production. (difficulty level 5) Mechanism of legal regulation of cargo transportation from forest and water fund lands and methodological and practical problems. (difficulty level 5) Dangers of violation of land legislation and problems of its implementation. (difficulty level 5) Scientific and practical problems of ensuring land legislation. (difficulty level 5)
Exams and assessment formats	There are two midterms (40 minutes each) and a final oral exam (40 minutes), a short computerized test and written homework.

Study and examination requirements	The total maximum score will be the sum of the points allocated to the final exam (60%), Midterm (20%), homework (10%) and classroom activity (10%). To successfully pass the subject, a student must score 60% or more of the allotted points.
Reading list	<p>1.Usmonov. M.Mirzaabdullayeva. G.Uzakova. Yer huquqining nazariy muammolari. Monografiya. –Toshkent.: MCHJ “Geo poligraf”, 2011. 186-240 b.</p> <p>2.Paulino D. Ungos, Jr. & Paulino Q. Ungos III. Agrarian Law and Social Legislation, 2011. – 214 p.</p> <p>3.Б.В.Ерофеев. Земельное право. / Учебник. 3-е изд., перераб. и доп. – М.: ИД ФОРУМ: НИЦ ИНФРА-М, 2013. – 416 с.</p> <p>3.Uzakova G.Sh. Aholi punktlarida tabiiy resurslardan foydalanish va ularni muhofaza qilishning huquqiy masalalari. Monografiya. –Т.:TDYUU, 2021. –268 b.</p> <p>4.Altiyev A.S. Yer resurslaridan foydalanish tizimini tartibga solish muammolari. Monografiya. Toshkent, Fan, 2018 y.</p> <p>5.Uzakova G.Sh. O‘zbekiston Respublikasida yer uchastkalarini xususiylashtirish jarayonini huquqiy tartibga solish. Monografiya. – Toshkent: TDYuU. 2020</p>

Module designation	HLR5204-Planning and development of territories
Semester(s) in which the module is taught	2 semesters
Person responsible for the module	Altiyev A.S. doctor of economics, professor
Language	Uzbek, Russian
Relation to curriculum	Elective
Teaching methods	Lecture, practical works, SAW (Student autonomous work)
Workload (incl. contact hours, self-study hours)	Total workload-120 hours Auditorium hours: 60 hours Lecture – 30 hours; Practical works - 30 hours; SAW (Student autonomous work) - 60 hours.
Credit points	4 credits
Required and recommended prerequisites for joining the module	Land use planning, land use economics and management, land resource management, land right.
Module objectives/intended learning outcomes	Student: to have an idea about the development of the population settlement system, provided that it ensures the socio-economic conditions of the population's living; to know and be able to use the purpose, tasks, composition, importance and principles of planning and development of regions; should have the skills to give practical and methodological recommendations on the design and development of regions.

Content	<p>The science of planning and development of territories takes into account the rational and efficient use of natural resources and the permissible anthropogenic effects on the natural environment, and the constant level of socio-economic use of the territory in order to provide the population with a high level of quality of life and life activities. studies the issues of development and development of projects aimed at increasing the level of difficulty: 1.</p> <p>Concept of regional planning and development. Systems management. The land fund of the country as an object of management. Integrated management of agricultural and water management land use. Integrated land use management of settlements. Level of difficulty: 2.</p> <p>State of land use management in the country and current problems. Conceptual foundations of systematic land use and land use system. Forms of land availability in society and methods of its use. Level of difficulty: 3.</p> <p>Aspects of land use. Wise and efficient use of land. Principles of land use management. State participation and state coordination of land relations. Content of land reforms in Uzbekistan. The art of land law is a function of land use management. Difficulty level: 3.</p> <p>Main issues of water resources management. The role of water user associations. Management of irrigation and reclamation networks. Land and water management. Land use land-information supply-integrated management function. Level of difficulty: 4.</p> <p>Land use forecasting and planning and their intersectoral distribution-land use management function. The economic mechanism of land use is the function of its management. Land Information System. Land monitoring and land use control as functions of land use management. Level of difficulty: 4.</p> <p>Land reclamation is a function of land use management. Land use efficiency assessment-land use management function. Solving land relations, land protection, promoting effective use of land resources - functions of land use management. Foreign experiences in integrated land use management. Level of difficulty: 5.</p>
Exams and assessment formats	There are two midterms (20 minutes each) and a final oral exam (40 minutes), a short computerized test and written homework.
Study and examination requirements	The total maximum points awarded will be the sum of the points allocated to the final exam (60%), Midterm (20%), homework (10%) and classroom activity (10%). In order to successfully pass the subject, a student must score 60% or more of the allotted points.

Reading list	<ol style="list-style-type: none">1. Babajanov A.R., Muqumov A.M., Sharipov S.R. “Hududlarni rivojlantirish” T.: 2018;2. Altiyev A.S. “Yerdan foydalanish iqtisodiyoti”. T.: 2019;3. Altiyev A.S. “Yer resurslaridan foydalanish tizimini tartibga solish muammolari” (monografiya). -T.:“Fan”, 2018;4. Marina Parente. Carla Sadini. Design for Territories, 2016.5. Grazia Brunetta. Smart Evaluation and Integrated Design in Regional Development Territorial Scenarios in Trentino, Italy, 2017
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Module designation	YAT 5204 Land information system
Semester(s) in which the module is taught	2 semesters
Person responsible for the module	Rakhmanov Kosimdjon, DSc
Language	Uzbek, Russian
Relation to curriculum	Elective
Teaching methods	Lecture, practical works, SAW (Student autonomous work)
Workload (incl. contact hours, self-study hours)	Total load: 120 Auditorium Hours: Lecture - 30 hours; Practical work-30 hours SAW(Student autonomous work) 60 hours
Credit points	4 credits
Required and recommended prerequisites for joining the module	Geodesy, Introduction to state cadastres, Information technologies and mathematical modeling of processes, Geoinformation system and technologies, Land Use Economics and Management

<p>Module objectives/intended learning outcomes</p>	<p>After mastering the discipline, the student:</p> <p>knows and can explain actions related to the collection, storage and processing of all information and data related to land;</p> <p>can widely use special programs, aerial and space images, information on geoportals in the Internet system;</p> <p>knows and can perform the methods of determining the area of agricultural land in an automated way with the help of special programs and entering data, periodically updating them;</p> <p>can independently use special GIS programs, CAD, MAPPING, ArcView, AtlasGIS program, MapInfo, ArcCAD System, Panorama programs to form a land information system;</p> <p>can perform operations such as digital image processing, data vectorization, generalization, buffering, and topology;</p> <p>database, database management system (DBMS). Knows the types of database management software, DBMS and can use it to form a land information system;</p> <p>knows and can perform operations such as geospatial analysis, geospatial analysis methods (database query, vector data query, raster data query), geospatial measurements, Overlay operation;</p> <p>knows and can explain geodescription methods, classification, reclassification, map comparison, graphic and report views, map representation, three-dimensional representation methods;</p> <p>knows and can use management in the land information system, software and its types, requirements for installing geographic information programs, computer technologies used in the system and their management, expert systems.</p>
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Content	<p>Concept and tasks of land information systems science. General information on GIS ball. The main used terms and terms. Areas of application of the system. The concept of geomatics and its place in the system. Geographic and attribute data. Geocoding. Level of difficulty 2</p> <p>Information and understanding of information. Data collection methods. Stages of data collection. Types of basic geographic information. Get Raster and Vector information. Obtaining auxiliary or secondary geographic information. Obtaining information through digital photogrammetry. Getting information through a GPS device. Obtaining information from external sources. Geographic information formats. Level of difficulty 2</p> <p>Information and tasks of special GIS programs. (CAD, MAPPING, ArcView, AtlasGIS software, MapInfo, ArcCAD System, Panorama) Understanding of digitization. Rules of digital imaging Special scanners. Raster and rasterization. Digital image processing. Vector and vectorization. Data generalization. Buffering. Topology. Level of difficulty 2</p> <p>Understanding of database. Database Management System (MBBT). Database management programs. Types of MBBT. Advantages of MBBT. Tasks of MBBT. Placing information in MBBT tables. Database design. Understanding of SQL. The importance of indexing in the query process. Level of difficulty 3</p> <p>A concept in a geodatabase. Photogrammetric data analysis. Modeling and models. Spatial modeling in GAT. Spatial data formats. Level of difficulty 3</p> <p>Role and tasks of management in land information system. Software and its types. Study of requirements for installation of geographic information programs. Computer technologies used in the system and their management. Concepts of expert systems. Level of difficulty 3</p> <p>The role of multimedia tools in using the land information system. Studying land information system programs and data through the Internet. The role of three-dimensional models. Study of the mobilized geographic information system. Level of difficulty 4</p> <p>Methods of obtaining space velocities. Problems with remote access. Information on the characteristics of various space images (IKONOS, Quickbird, WorldView, EROS V, IRS satellites). Global Positioning System and its application. Information on GRS-receivers hub. Level of difficulty 5</p>
Exams and assessment formats	<p>To fully master the theoretical and methodological concepts related to science, be able to correctly reflect the results of the analysis, independently observe about the processes being studied and carry out tasks and tasks assigned in intermediate forms of control, submit a written work on final control.</p>

Study and examination requirements	<p>Students of successful transition from science</p> <p>The maximum points to be summed will consist of the final exam (40%), the interval control (60%), the sum of the points to be separated. In order to successfully pass the subject, the student must score 60% of the allocated points and collect a high score in it.</p>
Reading list	<ol style="list-style-type: none"> 1.Сафаров Э., Мусаев И., Абдурахманов Х. Географик ахборот тизимлари ва технологиялари. –Тошкент, 2008. ТИМИ, -160 б. 2.Чертовицкий А.С., Базаров А.К. Ердан фойдаланишни бошқариш. Тошкент, 2009. 3.Бабажанов А.Р., Рахмонов Қ., Ғофуров А.Ж. Ер кадастри. Дарслик, Т.: 2008. – 211 б. 4.Чертовицкий А.С., Земелние кадастр. Учебное пособие.-Т.ТИИМ Типография, 2012 г.-296 с. 5.Рахмонов Қ., Успанкулов Б.М. Давлат кадастрлар асослари Дарслик. “ТИҚХММИ” МТУ Т.: Т.:2023.-216 б.

Module designation	GTA5204- Scientific basis of geoinformation systems
Semester(s) in which the module is taught	2 semesters
Person responsible for the module	Associate professor, PhD Inamov Aziz
Language	Uzbek, Russian
Relation to curriculum	Elective
Teaching methods	Lecture, practical works, SAW (Student autonomous work)
Workload (incl. contact hours, self-study hours)	Total workload: 120 Lecture – 30 hours Practical works – 30 hours SAW (Student autonomous work) - 60 hours.
Credit points	4 credits
Required and recommended prerequisites for joining the module	Geodesy , Remote sensing of land , Geoinformation systems and technologies.
Module objectives/intended learning outcomes	<p>After mastering the subject, the student:</p> <ul style="list-style-type: none"> - can freely explain the concepts of GIS and digital cartography, hardware platform of GIS, typology of GIS, history of geoinformation system; - Can perform tasks of obtaining information through digital photogrammetry, obtaining information through GPS (Global Positioning Systems), and obtaining information from external sources; - Digitization, Digital imaging rules, Raster, Rasterization, Digital image processing, Vector practice; - Will have the practice of manual digitization, controlled digitization and vectorization; - will acquire the skills of information organization in the geographic information system, database management system in GIS, data analysis in the geographic information system; - The selection of a geographic information system, the skills of GIS requirements; - The importance of space images in GIS and work on them, can perform geostatistical analysis; - Can perform geodetic measurement and topographic map creation;
Content	<p>Preparation of initial data for GIS, Raster images, working with rasters in the ArcMAP utility, ways to start mapping in ArcGIS. Level of difficulty: 2</p> <p>Assign conditional symbols to thematic layers and create a database of conditional symbols, connect attribute tables to an excel table, combine tables by attribute, check the compatibility of thematic layers from the topological point of view. Level of difficulty: 3</p> <p>Import and vectorize data from GoogleEarth software into the ArcMap utility of ArcGIS software. Level of difficulty: 4</p> <p>The ArcScene utility of ArcGIS software and its functions. Level of difficulty:4</p>

Exams and assessment formats	To fully master the theoretical and methodological concepts related to science, be able to correctly reflect the results of the analysis, independently observe about the processes being studied and carry out tasks and tasks assigned in intermediate forms of control, submit a written work on final control.
Study and examination requirements	Requirements for successfully passing the module: The maximum points to be summed will consist of the final exam (40%), the interval control (60%), the sum of the points to be separated. In order to successfully pass the subject, the student must score 60% of the allocated points and collect a high score in it.
Reading list	<ol style="list-style-type: none"> 1. Yer huquqi. Darslik // Xolmo‘minov J. T., Jo‘rayev Y.O., Usmonov M.B., Fayziyev Sh.X. va boshqalar. Mas’ul muharrir yu.f.d., prof. J.T.Xolmo‘minov. – T: TDYu, 2018. 148-162 b. 2. Uzakova G.Sh. Aholi punktlarida tabiiy resurslardan foydalanish va ularni muhofaza qilishning huquqiy masalalari. Monografiya. –T.:TDYUU, 2021. –268 b. 3. M.Usmonov. M.Mirzaabdullayeva. G.Uzakova. Yer huquqining nazariy muammolari. Monografiya. –Toshkent.: MCHJ “Geo poligraf”, 2011. 186-240 b. 4. Geographic Information Systems and Science. Edited by Jorge Rocha and Patricia Abrantes. 2019 by Intech Open

Module designation	GTT 5204 Geoinformation system and technologies
Semester(s) in which the module is taught	2 semesters
Person responsible for the module	Associate professor, PhD Mukhtorov Uzbekkhan
Language	Uzbek, Russian
Relation to curriculum	Mandatory
Teaching methods	Lecture, practical works, SAW (Student autonomous work)
Workload (incl. contact hours, self-study hours)	Total workload: 120 Contact hours: lecture - 30, practical work – 30, SAW (Student autonomous work) – 60, hours
Credit points	4 credits
Required and recommended prerequisites for joining the module	Geodesy, Cartography, Information technologies and process modeling
Module objectives/intended learning outcomes	<p>After mastering the discipline, the student knows and can explain information systems and technologies, their basic components, software, database, hardware platforms, raster and vector formats;</p> <p>knows and can create shape files in GIS software, gnospatial linking of rasters, work with gnographic world coordinate systems;</p> <p>knows and is able to convert text coordinates of points in files of different formats into vector format, vectorization of rasters;</p> <p>can independently perform the tasks of creating thematic layers, placing data in attribute tables, and at the same time combining tables into attributes;</p> <p>knows and can perform geographic database formation, database management and data visualization methods;</p> <p>can perform the tasks of displaying data in the geographic information system, geo-imaging, classification and re-classification, comparing maps, developing a map composition and preparing it for publication, and placing a map.</p>

Content	<p>Introduction to Geoinformation Technologies. Development history of GIS. Basic concepts and terms. Evolution of GIS. Fields of application of GIS. Basic components of GIS. Geographical and attributive data. GIS and digital cartography. GIS hardware platform. GIS typology. Level of difficulty: 2</p> <p>Land shape and dimensions, used models. Understanding the card. Geodetic basis of cards. Geographic coordinate systems. Geodetic coordinate system. Rectangular coordinate system. Polar coordinate system. Zonal coordinate system. Errors in cartographic projections. Classification of cartographic projections. Gauss-Kruger equiangular cross-cylindrical projection. Decoding of topographic maps and plans and their nomenclature. Level of difficulty: 2</p> <p>Types of spatial objects in GATs. Understanding of spatial data models. Raster models of data. Regular-cell representation of data. Quadrotomic model of data. Vector models of data. "Vector-to-raster" and "raster-to-vector" transformations. Models of surfaces (geofields). Level of difficulty: 2</p> <p>Special GIS programs. Digitization. Raster. Vector. Generalization of cartographic data. Buffering. Topology. Data collection methods. Stages of data collection. Types of basic geographic information. Get raster information. Get vector information. Obtaining auxiliary or secondary geographic information. Obtaining information through digital photogrammetry. Getting information through a GPS device. Getting information from external sources. Geographic information formats. Level of difficulty: 3</p> <p>Stages in keeping cadastres. The role of the land cadastre in the general system and procedure. Nature and tasks of water cadastre. Tasks and procedures of the cadastre of mineral deposits and man-made products. Cadastre of specially protected natural areas. Cadastre of areas with high man-made risk. Level of difficulty: 3</p> <p>General principles of spatial data visualization. Vector data visualization. Thematic cards. Raster data visualization. The question of generalization. Visualization of geofields. Measurement operations. Analysis of spatial object relations. Spatial queries. Overlay operations. Cutting and shearing operations. Aggregation and disaggregation of object attributes. Buffer zones. Proximity zones. Analysis of engineering fields. Analysis of geofields. Restore geofields. Level of difficulty: 3</p> <p>Digital relief models. Creation of digital relief model (DRM). Application of digital relief model (DRM). Database Management System. Database management programs. Designing DB. Understanding of SQL. Indexing. Geodescription. Classify. Compare card. Three-dimensional imaging. Electronic cards. Plotter or graphing device. Getting digital cards over basic paper cards. Acquisition of maps based on remote sensing data. Obtaining maps based on data from ground measurements and data from satellite systems. Level of difficulty: 4</p>
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	<p>Requirements for installing GIS programs. Management of GIS. Companies producing GIS programs. Expert systems. Level of difficulty:4</p> <p>Software of universal vector GIS. Software of universal raster GIS. Internet- GIS systems. Cartographic software modules. GIS applications. Level of difficulty:5</p> <p>GIS and multimedia tools. Web GIS. Three-dimensional (3D) GIS. Mobilized GIS. Level of difficulty:5</p> <p>Application of Ghats. GATs of production significance. Application of GATs in geology and use of underground resources. GATs in state and administrative management bodies. Level of difficulty: 5</p>
Exams and assessment formats	To fully master the theoretical and methodological concepts related to science, be able to correctly reflect the results of the analysis, independently observe about the processes being studied and carry out tasks and tasks assigned in intermediate forms of control, submit a written work on final control.
Study and examination requirements	Students of successful transition from science. The maximum points to be summed will consist of the final exam (40%), the interval control (60%), the sum of the points to be separated. In order to successfully pass the subject, the student must score 60% of the allocated points and collect a high score in it.
Reading list	<ol style="list-style-type: none"> 1. O'.Mukhtorov, A. Inamov - "Geoinformation system and technologies". - Tashkent, TIAME NRU, 2022 ear 2.O'.Mukhtorov, A. Inamov, J. Lapasov. Instructional manual for practical training in "Geoinformation systems and technologies". T. TIIM, 2017. 3.B.Markus, O'. Mukhtorov, Z. Mamatkulov, Z. Abdurakhmonov, Sh. Sattorov - "Three-dimensional modeling in geoinformation systems". - Tashkent: TIAME printing, 2021 4.Geographic Information Systems and Science. Edited by Jorge Rocha and Patrícia Abrantes. 2019 by Intech Open 5.Научные основы геоинформационных систем.

Module designation	YFG6204-GIS in management and use of land resources
Semester(s) in which the module is taught	3 semester
Person responsible for the module	Sh.Narbayev, PhD
Language	Uzbek, Russian
Relation to curriculum	Elective
Teaching methods	Lecture, practical works, SAW (Student autonomous work)
Workload (incl. contact hours, self-study hours)	Total load: 120 Auditorium Hours: Lecture - 30 hours; Practical work -30 hours Independent education -60 hours
Credit points	4 credits
Required and recommended prerequisites for joining the module	Integrated in land use management, Development of territories, Geoinformation cartography, Database and architecture, Information systems, Land information system

<p>Module objectives/intended learning outcomes</p>	<p>After mastering the discipline, the student:</p> <ul style="list-style-type: none">- to have an idea about the content and essence of GIS in the management and use of land resources, the interdependence of organizational, legal, economic systems in land use, the laws of land distribution in the categories of the republic's land fund, land distribution by administrative territorial units;- to know the theoretical-methodological foundations of GIS in the management and use of land resources, the economic principles of GIS in the management and use of land resources in the conditions of the market economy, the improvement of its organizational and economic mechanisms, the methodology and methods of forming land plots, the basic principles of the basic and rapid land use management process and can use;- must have the skills to collect, analyze, and use methods related to GIS in the management and use of land resources, apply legal and organizational mechanisms related to GIS in the management and use of land resources.
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Content	<p>Introduction to Geoinformation Technologies. Development history of GIS. Basic concepts and terms. Evolution of GIS. Fields of application of GIS. Basic components of GIS. Geographical and attributive data. GIS and digital cartography. GIS hardware platform. GIS typology. Level of difficulty: 2</p> <p>Land shape and dimensions, used models. Understanding the card. Geodetic basis of cards. Geographic coordinate systems. Geodetic coordinate system. Rectangular coordinate system. Polar coordinate system. Zonal coordinate system. Errors in cartographic projections. Classification of cartographic projections. Gauss-Kruger equiangular cross-cylindrical projection. Decoding of topographic maps and plans and their nomenclature. Level of difficulty: 2</p> <p>Types of spatial objects in GATs. Understanding of spatial data models. Raster models of data. Regular-cell representation of data. Quadrotomic model of data. Vector models of data. "Vector-to-raster" and "raster-to-vector" transformations. Models of surfaces (geofields). Level of difficulty: 2</p> <p>Special GIS programs. Digitization. Raster. Vector. Generalization of cartographic data. Buffering. Topology. Data collection methods. Stages of data collection. Types of basic geographic information. Get raster information. Get vector information. Obtaining auxiliary or secondary geographic information. Obtaining information through digital photogrammetry. Getting information through a GPS device. Getting information from external sources. Geographic information formats. Level of difficulty: 3</p> <p>Stages in keeping cadastres. The role of the land cadastre in the general system and procedure. Nature and tasks of water cadastre. Tasks and procedures of the cadastre of mineral deposits and man-made products. Cadastre of specially protected natural areas. Cadastre of areas with high man-made risk. Level of difficulty: 3</p> <p>General principles of spatial data visualization. Vector data visualization. Thematic cards. Raster data visualization. The question of generalization. Visualization of geofields. Measurement operations. Analysis of spatial object relations. Spatial queries. Overlay operations. Cutting and shearing operations. Aggregation and disaggregation of object attributes. Buffer zones. Proximity zones. Analysis of engineering fields. Analysis of geofields. Restore geofields. Level of difficulty: 3</p> <p>Digital relief models. Creation of digital relief model (DRM). Application of digital relief model (DRM). Database Management System. Database management programs. Designing DB. Understanding of SQL. Indexing. Geodescription. Classify. Compare card. Three-dimensional imaging. Electronic cards. Plotter or graphing device. Getting digital cards over basic paper cards. Acquisition of maps based on remote sensing data. Obtaining maps based</p>
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	<p>on data from ground measurements and data from satellite systems. Level of difficulty: 4</p> <p>Requirements for installing GIS programs. Management of GIS. Companies producing GIS programs. Expert systems. Level of difficulty:4</p> <p>Software of universal vector GIS. Software of universal raster GIS. Internet- GIS systems. Cartographic software modules. GIS applications. Level of difficulty:5</p> <p>GIS and multimedia tools. Web GIS. Three-dimensional (3D) GIS. Mobilized GIS. Level of difficulty:5</p> <p>– Application of Ghats. GATs of production significance. Application of GATs in geology and use of underground resources. GATs in state and administrative management bodies. Level of difficulty: 5</p>
Exams and assessment formats	To fully master the theoretical and methodological concepts related to science, be able to correctly reflect the results of the analysis, independently observe about the processes being studied and carry out tasks and tasks assigned in intermediate forms of control, submit a written work on final control.
Study and examination requirements	Students of successful transition from science The maximum points to be summed will consist of the final exam (40%), the interval control (60%), the sum of the points to be separated. In order to successfully pass the subject, the student must score 60% of the allocated points and collect a high score in it.
Reading list	<ol style="list-style-type: none"> 1.Paul Longley et al. Geographic Information Systems and Science.-UK 2nd Edition “Joxn wiley & Sons Ltd., 2005. – 517 p 2.John Randolph. Enveronmental Land Use Planning and Management. Island Press, Washington, Cavelo, London, 2003, 664p. 3.Бабажанов А.Р.,Мукумов А.М.,Хафизова З.Х. Ер ресурсларидан фойдаланишда интеграцион бошқарув. Тошкент, ТИМИ, 2017,370б. 4.Чертовицкий А.С., Базаров А.К. Управление землепользованием. Тошкент, 2009, 376б. 5.Варламов А.А., Гальченко С.А.Управление земельными ресурса-ми. Учебное пособие. М. ГУЗ, 2008. – 240 с. 6.Полат Расбергенович Реймов, Яхшимурад Гулимбаевич Худайбергенов, Маманбек Полатович Реймов. Фазовий маълумотлар моделлари. Ўқув қўлланма. Тошкент, ТИМИ, 2015, 120 б. 7. Толмасбек Хасанович Болтаев, Қосимжон Рахмонов, Мухитдин Садритдинович Акбаров. Геоахборот тизимининг илмий асослари. Ўқув қўлланма. Тошкент, ТИМИ, 2015, 230 б.

Module designation	YRH6204-Assessment of land resources
Semester(s) in which the module is taught	3 semesters
Person responsible for the module	Rakhmanov Kosimdjon, DSc
Language	Uzbek, Russian
Relation to curriculum	Elective
Teaching methods	Lecture, practical works, SAW (Student autonomous work)
Workload (incl. contact hours, self-study hours)	Total load: 120 Auditorium Hours: Lecture - 30 hours; Practical work-30 hours Independent education-60 hours
Credit points	4 credits
Required and recommended prerequisites for joining the module	Integrated in land use management, Development of territories, Economics of land use, Legal basis of land resources management.

Module objectives/intended learning outcomes	<ul style="list-style-type: none"> – After mastering the discipline, the student: <ul style="list-style-type: none"> – has an idea and can explain the structure of land resource assessment, its organization and management, the formation of information resources of the territorial cadastre system ; – the law on land resources, the regulation on the procedure for maintaining the state cadastre of territories, the regulation on maintaining the USSC, the economic basis of the state cadastre, the system of infrastructures providing the USSC, the necessary information on the objects of the USSC knows and can use data collection techniques; – organization of land valuation works, conducting them on the basis of a single methodology, bringing valuation data into a single system, being able to perform the service system and tasks of the state cadastre, being able to ensure interdependence and sequence in the management of cadastral directions, natural will have the skills to maintain resources and line-type cadastres.
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Content	<p>Land resources as an object of assessment. Factors forming the value of land resources. Types and purpose of assessment of the value of land resources. Level of difficulty 2</p> <p>Normative and legal provision of assessment of the value of land resources. Cadastre assessment of agricultural land. Level of difficulty 2</p> <p>A cost approach to assessing the market value of land. A profitable approach to assessing the market value of land. Level of difficulty 3</p> <p>A comparative approach to the assessment of the market value of land. Cadastre assessment of settlement lands. Level of difficulty 3</p> <p>Assessment of forest fund lands. Evaluation of lands occupied by historical cultural objects. Assessment of water fund lands. Level of difficulty 4</p>
Exams and assessment formats	To fully master the theoretical and methodological concepts related to science, be able to correctly reflect the results of the analysis, independently observe about the processes being studied and carry out tasks and tasks assigned in intermediate forms of control, submit a written work on final control.
Study and examination requirements	Students of successful transition from science. The maximum points to be summed will consist of the final exam (40%), the interval control (60%), the sum of the points to be separated. In order to successfully pass the subject, the student must score 60% of the allocated points and collect a high score in it.

Reading list	<ol style="list-style-type: none">1. Alimov R.X., Berkinov B.B., Kravchenko A.N., Xodiyev B.Y. Ko'chmas mulkni baholash, Toshkent 2018 y.2. Velta Parsova, Virginija Gurskiene, Madis Kaing. "Real property cadastre in 55ortal countries" Textbook. Jelgava – 2012.;3. Babajanov A.R., Raxmonov Q.R., G'ofirov A. Yer kadastr. Darslik.- T., TIMI nashryoti, 2013y.- 208 b.4. Чертовичкий А.С., Земельный кадастр. Учебное пособие.-Т.ТИИМ типография, 2012 г.-296 с.5. Бабажанов А.Р. Розибоев С.Б. Аҳоли яшаш жойлари кадастри. Тошкент. 2013 й. 137 б.
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Module designation	YMZ6204 – Remote Sensing of Land
Semester(s) in which the module is taught	3 semesters
Person responsible for the module	Assistant professor, Ilhomjon Aslanov Assistant professor, Nozimjon Teshaeв
Language	Uzbek, Russian, English
Relation to curriculum	Mandatory
Teaching methods	Lecture, practical work, Laboratory
Workload (incl. contact hours, self-study hours)	Total workload: 120 Contact hours: lecture - 30 hours practical work – 30 hours Independent work- 60 hours
Credit points	4 credits
Required and recommended prerequisites for joining the module	Geography, Astronomy, Informatics (school subjects) Geodesy
Module objectives/intended learning outcomes	<p>After mastering the subject, the student:</p> <ul style="list-style-type: none"> - general principles of remote sensing, - existing methods and classification of remote sensing, - scientific and technological bases of remote sensing, - use remote sensing of the earth to monitor land areas, - monitor, and evaluate agricultural crops, - The student should be able to download, process and analyze spatial images; - To have the skills to notice changes based on the analysis of spatial images, to evaluate the dynamics of change; - The student will have the ability to monitor the processes taking place on the surface of the Earth based on the analysis of land cover changes; - An ability to independently carry out investigation and development work to solve real life geospatial problems. - the technique comprises assessing ground data acquired from remote sensing data and then producing maps based on the results of this analysis, - the main directions and methods of scientific and technical development in the field of remote sensing technologies, - to study the existing methods analyzing of remote sensing data, - to have an idea about the main directions of scientific and research work on the development of methods of using remote sensing data; - methods of calculating remote sensing images,

Content	<p>Understanding the content and principles of remote sensing, familiarizing oneself with the remote sensing processes and methodologies, gaining insights into energy sources and electromagnetic waves, and developing proficiency in computational techniques are essential components of this field. Level of difficulty: 2</p> <p>The topics encompassed in the study of remote sensing include passive and active sensors, atmospheric correlation, spatial remote sensing, land cover, land use, land cover change, the production of land cover maps, agriculture, and the mapping of various crop types. Level of difficulty: 2</p> <p>Analyzing images involves several key components, including the interpretation of the image, understanding the elements of visual interpretation, utilizing interpretation keys, and generating thematic maps. Image classification is a crucial process within this domain, driven by principles guiding image classification, the step-by-step image classification process, controlled and uncontrolled grading, the application of classification algorithms, the verification of results, and addressing challenges encountered during image classification. Level of difficulty: 3</p> <p>Examining agricultural land parcels through the utilization of remote sensing data and land area surveillance, and assessing forested regions based on remote sensing resources, incorporating tree condition monitoring techniques, are key components of this study. Level of difficulty: 3</p> <p>The various types of remote sensing materials and their respective applications across diverse fields, along with the associated application technologies, constitute the focal points of investigation in this study. Level of difficulty: 4</p> <p>The research involves an analysis of forested regions using remote sensing data, with a focus on the technology employed for monitoring tree conditions within these forested areas. Level of difficulty: 5</p>
Exams and assessment formats	To fully master the theoretical and methodological concepts related to science, be able to correctly reflect the results of the analysis, independently observe about the processes being studied and carry out tasks and tasks assigned in intermediate forms of control, submit a written work on final control.
Study and examination requirements	Requirements for successfully passing the module: The maximum points to be summed will consist of the final exam (40%), the interval control (60%), the sum of the points to be separated. In order to successfully pass the subject, the student must score 60% of the allocated points and collect a high score in it
Reading list	<ol style="list-style-type: none"> 1. Ш.Шокиров, И.М.Мусаев, М.С.Акбаров. Масофадан зондлаш. Тошкент, Иқтисод-молия, 2015. 2. J. Guo and P. J. Mason, Image processing and GIS for remote Sensing. John Wiley & Sons, Ltd., 2016. 3. Rafael C. Gonzalez, Richard E. Woods. Digital Image Processing. 4th Edition, 2017. 4. Берлянт А.М. Геоиконика-М.: МГУ, АЭН РФ, «Астрей», 2011 г.

Module designation	PR6330 -Scientific practice (internship)
Semester(s) in which the module is taught	4 semesters
Person responsible for the module	Scientific practice (internship) Altiev Abdurashid Sultanovich, Doctor of economics, professor
Language	Uzbek, Russian
Relation to curriculum	Compulsory (Mandatory disciplines)
Teaching methods	Experience, project,
Workload (incl. contact hours, self-study hours)	Total workload : 900 hours Practical work -900 hours
Credit points	30 credits
Required and recommended prerequisites for joining the module	Integrated land use management Land Use Economics Development of territories Formation of land plots
Module objectives/intended learning outcomes	Student: About integrated land use management, land use economics, territorial development, formation of land plots, land reform, land relations to have an imagination; Integrated management of land use, land use economy, development of territories, formation of land parcels, to know the legislation on land and the legal status of land and be able to use them in practice; Integrated land use management, land use economy, development of territories, formation of land plots must have the skills to work with laws and regulatory documents, apply methods of analyzing the state and quality of land resources, distribute and redistribute the land fund, and adopt practical solutions for land protection and increasing productivity
Content	Integrated land use management, land use economy, development of territories, formation of land plots working with laws and regulatory documents, applying methods of analyzing the state and quality of land resources use, distribution and redistribution of land fund, knowing its essence, revealing the role and importance of land resources in the economy by shaping social relations in relation to land resources consists of
Exams and assessment formats	Information on this scientific practice is submitted in the form of a report, 20 minutes is given for the defense of the report
Study and examination requirements	The maximum number of points collected for the qualification practice is 100 points, consisting of the sum of the points allocated to the acquired information (40%) and practical experience (60 %).

Reading list	<ol style="list-style-type: none">1. Altiyev A.S. “Yerdan foydalanish iqtisodiyoti”. T.: 2019.2. Altiyev A.S. “Yerdan foydalanish iqtisodiyoti va boshqarish”. T.: 2022;3. Altiyev A.S. “Yer resurslaridan foydalanish tizimini tartibga solish muammolari” (monografiya). -T.:“Fan”, 2018;4. Babajanov A.R., Raxmonov Q.R.,G‘ofirov A.J. “Yer kadastrı” (darslik). T.:TIMI, 2012;
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