UBJECTS TAUGHT AT THE DEPARTMENT

№	Subject name	Brief information about the course
1.	Irrigation and Melioration	Legislation on water use in agriculture (Law on water use, Resolutions of the Cabinet of Ministers of the RUz, Resolutions of MAWR of the RUz). Crop irrigation regime, irrigation methods, efficient use of water resources, new land development, design, construction, operation and maintenance of irrigation and drainage systems, irrigation network management, irrigation technique and technology, prevention and control of salinization of irrigated land. Water and salt balance of irrigated lands. Interpretation of meliorative condition of irrigated lands. Ameliorative measures to combat land salinization. Drainage on irrigated lands. Opportunities for reuse of drainage water.
2.	Land reclamation and recultivation	Increasing productivity of agricultural crops while maintaining ecological balance in nature, maintaining and restoring soil fertility, application of various forms and technologies of reclamation of agricultural land necessary for improvement of settlements, stages of land reclamation, chemical, forest, phytomelioration and hydraulic engineering measures necessary to improve natural conditions of lands due to land reclamation.
3.	Improvement of Natural Conditions	Teaches knowledge on the rational use of nature and its resources, management of water resources and organization of their effective use for various purposes, improvement of land reclamation, design of irrigation and reclamation systems and other water management systems.
4.	Water use in agriculture	Realizes the problems of unfavorable natural environmental conditions with the help of irrigation and drainage technologies and techniques for normal development and growth of crops. Natural-climatic conditions of Uzbekistan, water resources, irrigated lands and their reclamation, water management, principles of their use, water sources, water management system, irrigation procedures, methods and techniques, irrigation and teaches collector-drainage systems and their functions.

5.	Irrigation of Uzbekistan	History of irrigation in Uzbekistan, emergence and development of the first irrigated agriculture culture in Uzbekistan, irrigated agriculture in VII-XIV centuries, irrigated agriculture culture of Amir Temur and Temurids times, irrigation in XVI century. 19th century system, state of irrigation and land reclamation in Uzbekistan in 1917-1990, strategic objectives aimed at development of irrigation and land reclamation in Uzbekistan in 1991-2019 years of independence and their implementation.
6.	Chemical melioration	Teaches the use of chemical ameliorants to improve saline land reclamation, study the effects of salts on plants, and use chemical reclamation techniques to remove harmful salts from the soil and improve the effectiveness of leaching of saline land.
7.	Land recultivation and protection	Rehabilitation of degraded and contaminated lands in order to use them effectively in the future and improve the ecological condition of the environment, and teaching the principles of land protection.
8.	Hydrotechnical melioration of Agricultural and Operation of Hydromelioration Systems	Complete and efficient use of land, regular improvement of soil fertility, labor productivity and crop yields through irrigation, land reclamation in connection with high-yield agricultural practices, water resources, their formation, their rational use, irrigation regime. crops, modern irrigation technologies, irrigation networks and their requirements, irrigation sources, reclamation and improvement of saline lands, saline soils. Land reclamation, development of new lands, design, construction, operation and maintenance of irrigation and drainage systems, management of irrigation networks, search for technically and economically viable options of water measurement and distribution, automation of irrigation and formation of knowledge and skills to improve system performance.

Master's Degree

№	**Subject name**	**Brief information about the course**

1.	Land reclamation and recultivation	Increasing productivity of agricultural crops while maintaining ecological balance in nature, maintaining and restoring soil fertility, application of various forms and technologies of reclamation of agricultural land necessary for the improvement of human settlements reclamation and its stages, chemical, forest, phytomelioration and hydraulic engineering measures necessary to improve natural conditions of land through reclamation.
2.	Irrigation melioration	Teaches water resources management, principles of their efficient use, water-saving irrigation methods, surface irrigation and their improvement, technologies of drip, rain, subsurface, sub-irrigation and discrete irrigation, their design, construction and operation.
3.	Water measurement and instrumentation	Measuring instruments and tools for determining the optimum pre-irrigation soil moisture, groundwater level and mineralization, as well as water meters, standards and rules of their application, pre-irrigation soil moisture, technical and economic indicators of measuring instruments.
4.	Biomelioration	Preservation of balance in nature, environmental protection, improvement of reclamation of saline lands, biotechnology: biological drainage, phytomelioration, improvement of mineralization of collector-drainage water with the help of algae, improvement of land reclamation with ameliorants.

5.	Methods of scientific research in melioration	Assessment of soils of experimental plot, collection and preparation of soil samples for studying agrochemical, agrophysical and water-physical properties of soils, as well as analysis, phenological observations, field experiments on soil treatment, preparation and sowing of seeds. Agrotechnical measures for crop care, sampling of raw cotton from the experimental fields of agrotechnical direction, sending them to the laboratory to determine the properties and quality of fiber, experiments on the transfer of eroded soil and use of mathematical methods, experiments on crop fertilization in cotton-grain complex, study of groundwater levels, use of groundwater in lysimeters for evaporation from soil and transpiration through plants, depending on the amount of salt accumulation during aeration. Determination of groundwater consumption, methods of field experiments and research on saline soils, counting of weeds of cotton in the field, collection and accounting of raw cotton, mathematical processing of data on raw cotton yields to have information on detailed study of transmission methods.
6.	Soil-plant-water relationship	Teaches soils, their types, water and physical properties, groundwater and their types, plants, their water needs, the soil-plant-water complex, their optimality and impact on crop yields and soil properties.
7.	Pasture melioration	Methods of melioration of natural pastures, technologies of cultivation of irrigated pastures with close groundwater table, technologies of cultivation of irrigated pastures on saline soils, technologies of growing plants on reclaimed natural pastures and irrigated cultural pastures, use of groundwater, methods, techniques and technologies of irrigation used in irrigated cultural pastures, information about water supply to cattle in pastures.
8.	Water-saving technologies	Teaches water resources management, principles of their efficient use, water-saving irrigation methods, surface irrigation and their improvement, drip, sprinkler, subsurface, subirrigation technologies, their design, construction and operation.

9.	Methods of conducting field research	Teaches practical field experiments in reclamation and irrigated agriculture, methods approved and recognized in laboratory research, and their essence, as well as the processing of the data obtained and their validity.
10.	Landscape irrigation	The concept of geosystem teaches about landscape, landscape geography, ecosystem, natural landscape, anthropogenic landscape, cultural and anthropogenic landscapes, maintaining balance in nature, protecting the environment, using nature, and irrigated agriculture without adversely affecting ecosystems.