SUBJECTS TAGHT AT THE DEPARTMENT

Bachelor’s degree

	Name of subject	Short information about subject
1.	Hydrology	These include the organization of hydrological surveys and observations, analysis and evaluation of shape and size indicators of water sources, analysis and evaluation of hydrological regime of water bodies, assessment of factors affecting water bodies, use of modern hydrological instruments and devices, application of hydrological methods.
2.	Basics of geology and hydrogeology	The structure, composition, formation and various geological processes and events that take place in the Earth, as well as minerals and rocks, the formation of groundwater, the conditions of its location are studied.
3.	Engineering geology and hydrogeology	Engineer studies the regulations of distribution of geological conditions over a large area, various geological processes and phenomena are studied.
4.	Ameliorative hydrogeology	Hydrogeological substantiation of irrigated land structure, composition, formation, reclamation measures on irrigated lands suitable for groundwater are studied
5.	Geology and geomorphology	Studies the laws of formation, location, and change in the shape of the Earth's surface, the structure, composition, formation, and various geological processes and events that take place in the Earth, as well as minerals and rocks are studied
6.	Climatology	Climatic factors affecting water resources, the most important elements of the climate conditions, dangerous weather events, understanding of climate change and their identification are studied
7.	Engineering hydrology	Efficient use of water resources, statistical methods of calculation and research of river flow, hydrological quantity, determination of calculated water consumption, distribution curves and their parameters, in the presence of hydrological data, inadequate and non-annual annual flow calculation of maximum and minimum water consumption and analysis of results are learned
8.	Hydrology	Studies the efficient use of water resources, the balance of water in nature, the natural and chemical properties of water, its importance in the national economy, the factors of river flow formation, groundwater, hydrological regime of glaciers
9.	Hydrometers	Study of hydraulic structures, operation of agricultural land reclamation and hydro-ameliorative systems, water management and operation, water supply, water (complex) use, technology of land reclamation

10.	Engineering geology and hydrology	Engineer studies the laws of distribution of geological conditions over a large area, teaches various geological processes and phenomena. Factors of river flow formation, regime of rivers, lakes and reservoirs, measurement of the main hydrological parameters of water sources and water basins are studied
11.	Exploitation of water reservoirs	The main features of reservoirs, the basic conditions of reliable use of reservoirs, the use of reservoirs, their design, modern construction and theoretical substantiation of calculations are studied
12.	Hydrology of water reservoirs	Knows and analyzes available data on the correct accounting and efficient use of water resources, types, equipment and structure of water metering stations, elements of the hydrological regime of water resources - water level, water flow rate, water consumption, methods for determining turbid flow and use of technical means studied
13.	River hydrology	Hydrological properties of rivers, river water regime, water level, water consumption, temperature, freezing and hydrochemical regimes, factors influencing them, regime elements and their changes, saturation sources, river saturation characteristics, annual river flow, annual flow formation factors, annual covers issues such as the average perennial flow rate, quantitative indicators of river flow, maximum river flow, methods of calculating the maximum flow, determining the parameters of the maximum water supply curve, taking into account the maximum maximum water flow studies
14.	Hydrological statistics	Statistical analysis of hydrological data, What is the annual flow rate and errors in its determination, Random error distribution laws, perennial fluctuations of river flow and its statistical assessment, calculation of maximum water consumption, creation of various flow models, hydrological process modeling and hydrological analysis using modern computers data analysis and use processes are studied
15.	Hydrology of lakes and glaciers	Lakes, hydrological regime of rivers, water balance of lakes, inflow and outflow, water loss from lakes, lake water regime, periodic and irregular changes in water level, seasonal effects on it, lake temperature regime, freezing and thawing process, water movement in lakes, waves, the flow of water masses, the phenomena of rising and falling of water, the formation of glaciers and their types are studied
16.	Hydrography of Central Asia	The first researches on hydrography of Central Asia, the importance of hydrography as a component of hydrology in the study of water resources and laws of distribution of water in nature, the direct impact of hydrography on the development of water resources in Central Asia, collection and analysis of data on saturation sources of Central Asian rivers

17.	Applied hydrometrics	Metering and management of water in irrigation networks, measurement and management of water consumption in canals in the system in the correct distribution of water for irrigation to consumers and their groups, ensuring the use of canals and water metering devices in accordance with established technical requirements; to perform initial hydrometric observations and to process and analyze the data studied
18.	Drilling and application of water wells	Specific aspects of geological and hydrogeological conditions, drilling methods, organization and design of drilling operations, numerical methods of estimating groundwater flows, forecasting changes in hydrogeological conditions, causes of well failure and poor performance, hydrogeological measurements of aquifers and groundwater flows, standards of reinforcing pipes and their basic dimensions, hydrogeological observations, surveys and geological surveys during the drilling process, analysis and use of survey results are studied
19.	Ground water dynamics	Water movement in aquifers, laminar, turbulent, stable and unstable movement, types of wells and their calculation, hydrodynamic properties of groundwater flows, stable movement of groundwater in the same rock layers, stable movement of groundwater in different rock layers, different studies the stagnation of groundwater in lithological conditions, the movement of groundwater from reservoirs and hydraulic structures, the movement of groundwater to water intake facilities studied
20.	Regional hydrogeology	Rational use of groundwater reserves, methods of assessment of operational reserves of groundwater, efficient use of water intake wells, hydrogeological processes in the process of operation, methods of artificial groundwater saturation, groundwater protection, analysis of groundwater exploitation. Determination of filtration coefficient, step transfer and pressure transfer coefficient. The work of determining the radius of impact is studied

Master’s degree

	Name of subject	Short information about subject
1	Ameliorative hydrogeology	The science, content, areas, history of development of ameliorative hydrogeology, the distribution of groundwater and suspended groundwater on reclaimed lands, the specifics of hydrogeological and reclamation processes on irrigated lands are studied
2	Engineering hydrology	Efficient use of water resources, statistical methods of calculation and research of river flow, hydrological quantity, determination of calculated water consumption, distribution curves and their parameters, in the presence of hydrological data, inadequate and non-annual annual flow calculation of maximum and minimum water consumption and analysis of results are learned
3	Global climate change	Impact of global climate change on water resources, long-term climate forecasts, modeling of climate and hydrological processes

4	Theoretical hydrometrics	Proper accounting of land water resources and their efficient use, determination of water flow rates over time, types, equipment and structure of water metering stations, elements of hydrological regime of water sources, control of water consumption in hydro-ameliorative networks, measuring instruments and devices, hydrological phenomena and a methodological approach to processes and the formation of a scientific worldview