

Dersin Adı: Hydrology

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Ders İçeriği

Hydrology (Hydro: means water) is the science that studies the different phases of water in the atmosphere and the earth and the relationship between these phases. As it is known, water naturally exists in three different forms: solid (ice), liquid (oceans, seas, lakes, etc.) and gas (water vapor). However, these phases can transform into each other in different ways in the atmosphere, on the earth and underground. This cycle is called the hydrological cycle. This cycle consists of water evaporating and rising to the atmosphere, falling back to the earth in the form of rainfall, some of the rainfall seeping into the ground, flowing over surfaces and rivers, and eventually reaching oceans and seas.

Within the scope of this course, the knowledge that will be used in water supply, flood control, bridge design, river regulation, drainage, dam design and similar projects are evaluated in terms of engineering. In terms of civil engineering, the most important purpose of hydrology is to calculate how much of the rainfall turns into runoff. In these calculations, the amount of infiltration and evaporation is calculated and subtracted from the measured precipitation and the remaining amount of water is calculated as the flowing water (streamflow). In order for these processes to be calculated, the laws of physics that explain this process must be expressed in the form of mathematical equations. However, because the process is extremely complex, it contains uncertainties and therefore most of the calculations are based on statistical analysis of the measured data. In this course, the equations and calculation methods proposed by scientists are covered with different examples.

Öğrenme Çıktıları

Evaporation: The methods used to calculate and measure the evaporation of water into the atmosphere are mentioned.

Infiltration: different equations and models developed to calculate the underground infiltration of water are mentioned.

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