

Sanitary Engineering and Water Quality Management

In the first semester, **Sanitary Engineering** and **Chemistry and Biology for Environmental Engineers** are the two subjects, which are under this department. These subjects are the key topic for sanitary engineering and sanitation of water. The base of this topic is taught here. In **Sanitary Engineering** there are two major parts. The first part is Solid Waste and in this field waste management, avoiding waste, use of biological waste, types of waste, quantity composition, collection and transportation of waste are covered. Waste recycling by composting, fermentation, incineration and landfill is also discussed including environmental aspects. The second part is the wastewater treatment part. In this part urban drainage and treatment of waste water both are discussed in a vast manner. Urban hydrology, sewer system and infiltration, treatment of sewer water, grit removal, primary sedimentation, biological treatment and sludge treatment is predominantly explained as well in this module. In **Chemistry and Biology for Environmental Engineers** comprehensive studies are made regarding different kinds of chemical composition, pH content, temperature, algae, microalgae and bacteria of water. Chemical and biological components of water are discussed in this module.

In the second semester, the module **Water Quality and Treatment** deals with water ecosystems, water quality assessment and systematic organization of different water bodies, which also includes rules and regulations followed in Germany. Mechanical pre-treatment, gas exchange, water de-acidification, iron, manganese, nitrogen removal are also reviewed here. **Urban Drainage and Design of Waste Water Treatment Plants** likewise offers similar important schemes. A total design of a sewer system and wastewater treatment plant (WWTP) is carried out. Some case studies are also executed in this module.

Sanitary engineering Practical Class provides details on ammonium, crest, plant tolerant, and water, salt, pH content etc. tests. Detection of bacteria in air and on surfaces, antibiotic tests, heavy metal tests are also conducted in these practical classes. Furthermore, you learn about neutralization or redox reaction, precipitation and flocculation, ion exchange and sorption. **Special Aspects of urban water management** discusses topics on rainwater harvesting and involves presenting a scientific paper.

Washi Binte, WAREM Student 4th semester, Generation 2017