

The subject "Water Treatment 1", describes conventional technologies for drinking water treatment. The course gives students a solid basis for recognising process units, describing their function and performing basic calculations for the preliminary design of a drinking water treatment plant. With this module, students acquire a comprehensive knowledge of the fundamentals and techniques of conventional drinking water treatment. The overall aim is to enable students to understand and effectively apply the various aspects of water treatment in practice.

1. Water compounds

Objectives: Basic understanding of the various constituents present in water and their importance in water treatment.

Contents: Characterisation of the physical, chemical and biological constituents of water; importance of these constituents with respect to water treatment processes.

2. Water in urban systems

Objectives: To understand the specific challenges and issues of water in urban environments.

Contents: Influence of urban activities on water quality; typical contaminants in urban water systems and their sources.

3. Drinking water treatment

Objectives: Knowledge of common drinking water treatment processes and techniques.

Contents: Different stages of drinking water treatment; methods of treating and improving water quality; technologies and their applications.

4. Sedimentation

Objectives: Understanding of the principles and mechanisms of sedimentation in water treatment.

Contents: Principles of sedimentation; influence of particle size and density; techniques to optimise the sedimentation process.

5. Deep bed filtration

Objectives: Knowledge of the functioning and application of deep bed filtration in water treatment.

Contents: Basics of deep bed filtration; selection of filter materials; advantages and challenges.

6. Adsorption

Objectives: Acquire technical knowledge of the adsorption process and its role in water treatment.

Contents: Theory and mechanisms of adsorption; selection and use of adsorbents; efficiency and limitations of the adsorption process.

7. Coagulation and flocculation

Objectives: To understand the principles and techniques of coagulation and flocculation as essential processes in water treatment.

Contents: Chemical and physical principles of coagulation and flocculation; use of coagulation and flocculation agents; optimisation of process parameters.