Specialization course: Urban sewage treatment

Urban water services, focusing on basic sewage technologies.

TU Delft
www.
Netherlands

- https://online-learning.tudelft.nl/courses/introduction-to-treatment-of-urban-sewage/
- https://www.edx.org/es/course/urban-sewage-treatment-delftx-ctb3365st

- This course will focus on basic technologies for the treatment of urban sewage. Unit processes involved in the treatment chain will be described as well as the physical, chemical and biological processes involved.
- There will be an emphasis on water quality and the functionality of each unit process within the treatment chain.
- After the course one should be able to recognise the process units, describe their function and make simple design calculations on urban sewage treatment plants

Module 1 Sewage treatment plant overview.

- In this module you will learn what major pollutants are present in the sewage and why we need to treat sewage prior to discharge to surface waters. The functional units will be briefly discussed.

Module 2 Primary treatment.

- In this module you learn how coarse material, sand & grit are removed from the sewage and how to design primary clarification tanks.

Module 3 Biological treatment.

- In this module you learn the basics of the carbon, nitrogen and phosphorous cycle and how biological processes are used to treat the main pollutants of concern.

Module 4 Activated sludge process.

- In this module you learn the design principles of conventional activated sludge processes including the secondary clarifiers and aeration demand of aeration tanks.

Module 5 Nitrogen and Phosphorous removal.

- In this module you learn the principles of biological nitrogen removal as well as phosphorus removal by biological and/or chemical means.

Module 6 Sludge treatment.

- In this module you will the design principles of sludge thickeners, digesters and dewatering facilities for the concentration and stabilisation of excess sewage sludge. Potentials for energy recovery via the produced biogas will be discussed as well as the direct anaerobic treatment of urban sewage in UASB reactors when climate conditions allow..

- Course duration : 7 weeks (8 hours per week).
- 71 Videos.

- **Main Book _ Wastewater treatment , Principles and Practices.** (TU Delft - The Netherlands).
- Jules van Lier & Merle de Kreuk.
- Department of Water Management , Section of Sanitary Engineering
- 78 pages, www.sanitaryengineering.tudelft.nl