

Bioprocess



In brief

➤ **Course language:** English

Presentation

Prerequisites

Wastewater treatment; Bioprocesses; Process Engineering; Modelling; Mass balance

Learning objectives

- Understanding of the main constraints and challenges when sizing a reactor for wastewater treatment
 - Most commonly used biological reactions in the context of wastewater remediation
 - Sizing of a biological reactor through mass balance for batch/continuous; steady-state or dynamic processes
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Description of the programme

This class introduces the students to the basics of wastewater treatment such as wastewater constituents and their measurement, and the impact of flowrate and constituents load variations. The students are then introduced to the principles of biological reactions kinetics and are taught the sizing of bioreactors through mass balance in the broader context of biological wastewater remediation.

A project must be carried out in which the students must size a bioreactor for the remediation of wastewater of given characteristics and for a given biological activity. The project confronts the students to steady-state or dynamic mass balance solving, and lead the students to deal with the impact of a perturbation of the wastewater treatment.

Bibliography

Metcalf & Eddy, A. E. C. O. M. (2014). *Wastewater engineering treatment and resource recovery*. McGraw-Hill Education.

Teaching team

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Total des heures		24h
CM	Master class	16h
TD	Directed work	8h

Useful info

Name responsible for EU

Lead Instructor

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