

Biochemical kinetics and bioreactor

 ECTS
6 credits

 Component
INSTITUT
NATIONAL
DES SCIENCES
APPLIQUEES
TOULOUSE

 Number of
hours
69h

In brief

> **Teaching language(s):** Français, Anglais

Organisation:

Lectures, Tutorials.

Practical courses,

- 1) *Saccharomyces cerevisiae* culture. Kinetic and mathematical analysis
- 2) Enzyme reactor design

Presentation

Description

Biochemical reactions, reactors and microbial engineering

Reactors instrumentations

Microbial kinetics

Material Balances, stoichiometric and yield relationships

Thermodynamic Balances

Idealized reactors (Batch, Continuous Stirred Tank Reactor, Tubular Reactor), combinations of ideal reactors, recycling reactors and real reactors

Distribution of residence times

Modeling real reactors with combination of ideal reactors

Objectives

Understanding and implementing the biological reactions

Elements in biochemical engineering. Description of the bioreactor and its instrumentation. Mass, elementary and energetic balances. Application to ethanolic fermentation. Numerical experimental data treatment

Pre-requisites

Chemical and enzymatic kinetics / Differential and matrix calculations

Useful info

Place

➤ Toulouse