

Basic Bioprocesses Engineering

Code: 100960
ECTS Credits: 6

Degree	Type	Year	Semester
2500253 Biotechnology	OB	2	1

Contact

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Use of languages

Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: Yes
Some groups entirely in Spanish: No

Teachers

Antonio Javier Moral Vico

Prerequisites

There are no incompatibilities.

Objectives and Contextualisation

The general objective of this course is to learn the principles that govern the biotechnological processes carried out at full-scale.

Specific objectives include:

1. Perform the balances of energy and mass involved in these processes.
2. Use the phenomena of heat and mass transport associated with these processes.
3. Interpret the flow diagrams in which these processes are represented.
4. Use properly the units used in mathematical expressions.

Content

1. Introduction.
 - 1.1. Units systems
 - 1.2. The international system of units
 - 1.3. Numerical methods
 - 1.3.1. Search zeros in nonlinear equations

- 1.3.2. Differential equations
- 1.3.3. Numerical integration
- 1.3.4. Numerical derivation
- 1.3.5. Interpolation and adjust
- 2. Mass balance without chemical reaction
 - 2.1. General systems. Simple cases
 - 2.2. Calculation basis. Complex systems
 - 2.3. Non steady state
- 3. Systems with chemical reaction
 - 3.1. Concept of conversion and yield
 - 3.2. Isothermal chemical reactors
- 4. Energy balance
 - 4.1. Global Balance
 - 4.2. Heat energy
 - 4.3. Energy in chemical reactors
- 5. Transport phenomena
 - 5.1. Bases
 - 5.2. Transport coefficients