

SYLLABUS

1. COURSE DESCRIPTION

Degree:	Biotechnology
Course:	Basic Operations
Module:	Bioengineering and Biotechnological Processes. Biotechnological Processes
Department:	Molecular Biology and Biochemical Engineering
Academic Year:	2017-18
Term:	First
ECTS credits:	4,5
Year:	3rd year
Type:	Compulsory
Language:	Spanish

Course Model:	C1	
a. Basic learning (EB):		50%
b. Practical learning (EPD):		50%

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2. LECTURERS

Coordinator	
Name:	M^a Jesús de la Torre Molina
School:	School of Experimental Sciences
Department:	Molecular Biology and Biochemical Engineering
Area:	Chemical Engineering
Office Hours:	Mondays, Tuesdays: 15.00 – 18.00 (Please contact previously through e-mail)
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3. TOPICS

- Unit 1. HEAT EXCHANGERS. Introduction. Main types of heat exchangers. Heat transfer coefficients. Heat transfer between moving fluids, at variable temperature, through a wall. Correction of Logarithmic Mean Temperature Difference. Heat exchangers effectiveness.
- Unit 2. EVAPORATORS. Basic information. Calculations for a simple evaporator. Multiple-effect evaporators. Calculations for a multiple-effect evaporator.
- Unit 3. HUMIDIFICATION. Basic concepts. Psychrometric Diagram. Humidification methods.
- Unit 4. FLUID MECHANICS. Basic equations of fluid flow. Bernoulli's Equation. Energy loss due to friction. Necessary condition for power flow.
- Unit 5. FLUIDIZATION. Necessary conditions for fluidization. Fluidized bed description. Minimum velocity.