



Universitat de Lleida

DEGREE CURRICULUM
**FUNDAMENTALS OF
BIOCHEMICAL ENGINEERING**

Coordination: GARVIN ARNES, ALFONSO

Academic year 2022-23

Subject's general information

Subject name	FUNDAMENTALS OF BIOCHEMICAL ENGINEERING			
Code	101602			
Semester	1st Q(SEMESTER) CONTINUED EVALUATION			
Typology	Degree	Course	Character	Modality
	Bachelor's Degree in Biotechnology	2	COMPULSORY	Attendance-based
Course number of credits (ECTS)	6			
Type of activity, credits, and groups	Activity type	PRALAB	PRAULA	TEORIA
	Number of credits	1	1 1.4	2.6
	Number of groups	4	1 2	1
Coordination	GARVIN ARNES, ALFONSO			
Department	FOOD TECHNOLOGY, ENGINEERING AND SCIENCE			
Teaching load distribution between lectures and independent student work	60 h attendance 90 h autonomous work			
Important information on data processing	Consult this link for more information.			
Language	Catalan: 60% Castilian: 40%			
Distribution of credits	Theory: 3 credits Practical cases resolution: 2 credits Laboratory and numerical methods: 1 credit			

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
GARVIN ARNES, ALFONSO	alfonso.garvin@udl.cat	6,6	
GARZA GARZA, SALVADOR	salvador.garza@udl.cat	3,8	

Subject's extra information

Every industrial process is build up linking basic units in which a specific property is transferred.

For every basic unit it is compulsory to know which properties are transferred. The properties transferred can be mass, energy and momentum.

This subject includes the description of the main basic units, sorted up according to the property/properties transferred. It also includes the description of the equations that describe the transfer rate for each property.

Afterwards, it deals with the application of mass and energy balances, which allows to find equations to model each basic unit. Each model will allow to design the basic unit and or to solve specific situations.

Competences

General skills

GC1 Being able to selectively search for and use sources of information necessary to achieve the training objectives.

GC2 Interpret scientific-technical information with a critical sense, and be able to make presentations based on this information.

GC3 Working in a team, with a multidisciplinary vision and with the ability to make a rational and efficient distribution of tasks among team members.

GC4 Knowing and adequately using the scientific and technical vocabulary of the different areas of Biotechnology.

GC5 Working in the laboratory applying criteria of quality and good practice.

GC6 Knowing and knowing how to use the specific software and databases in the different fields of biotechnology.

GC7 Using the scientific method to analyze data and design experimental strategies with biotechnological applications.

GC8 Being able to form a critical judgment on the ethical, legal and environmental implications of biotechnology.

GC9 Being able to carry out a professional activity in accordance with safety regulations and respect for the environment and with ethical criteria.

GC10 Transmitting strategies and technological applications to the company, based on the general foundations of business economics.

Specific skills

CE2 To know and understand the chemical fundamentals of biotechnological processes.

CE3 To know how to handle the essential instruments of a chemical laboratory.

CE4 To know the principles of physical chemistry and being able to solve problems related to the kinetics of chemical reactions.

CE5 To know the basic principles of chemical engineering.

CE9 Achieve a satisfactory command of concepts and procedures related to integral differential calculus and linear algebra.

CE10 Be able to apply mathematical procedures to scientific-technical situations necessary throughout the studies and in the future exercise of the profession.

CE11 To know how to use the basic concepts of the statistical method, being able to statistically analyze the results of studies and interpret them critically.

CE12 Understand the most important physical concepts and functions of mechanics, fluids, electricity and waves, in order to know how to apply them to solve problems in the professional field.

CE13 To know and understand the physical-mathematical foundations of biotechnological processes.

CE31 Be able to calculate, interpret and rationalize bioindustrial processes based on the relevant parameters in transport phenomena and thermodynamic balances.