

Process Fundamentals

Code: 103254
ECTS Credits: 6

2025/2026

Degree	Type	Year
Food Science and Technology	OB	2

Contact

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Teaching groups languages

You can view this information at the [end](#) of this document.

Prerequisites

It is necessary to know Catalan because the classes are in this language.

Mathematics (algebraic operations, derivative, integral and simple differential equations resolution) and basic concepts of chemistry and physics.

Objectives and Contextualisation

Understand the basic principles that characterize an industrial process. Know how to solve mass and energy balance (without chemical reaction) in order to know how to design simple processes in the food industry.

Competences

- Analyse, summarise, resolve problems and make professional decisions.
- Apply knowledge of the basic sciences to food science and technology.
- Apply the scientific method to resolving problems.
- Develop individual learning strategies and planning and organisation skills.

Learning Outcomes

1. Analyse, summarise, resolve problems and make professional decisions.
2. Apply the fundamental principles of interface transport.
3. Apply the fundamental principles of matter and energy balances.
4. Apply the fundamental principles of phase equilibrium.
5. Apply the scientific method to resolving problems.
6. Develop individual learning strategies and planning and organisation skills.

Content

Students will have access to the teaching material of the subject through the Moodle platform (Virtual Campus).

Topic 1. Introduction

Topic 2.- Macroscopic mass balance in systems without chemical reaction

Topic 3.-Macroscopic energy balance

Unless the requirements enforced by the health authorities demand a prioritization or reduction of these contents

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Problems set	15	0.6	1, 5, 4, 2, 3, 6
Seminars	5	0.2	1, 5, 4, 2, 3, 6
Theory lectures	26	1.04	1, 5, 4, 2, 3, 6
Type: Supervised			
Tutoring	6	0.24	1, 5, 4, 2, 3, 6
Type: Autonomous			
Concepts study and solving problems set	92	3.68	1, 5, 4, 2, 3, 6

The development of the course is based on the following activities:

Theory lectures. Students take the scientific knowledge of subject in the presential lectures which should be complemented with personal study.

Problem sets. The scientific knowledge of the theory material is worked through problem sets.

Seminars. Cooperative activities working the scientific knowledge of the theory lectures and problems sets. The proposed teaching methodology may experience some modifications depending on the restrictions health authorities.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Assessment

Continuous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
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Cooperative evaluation activity	10%	0	0	1, 5, 4, 2, 3, 6
Partial 1 Exam (Topic 1 and 2)	45%	3	0.12	1, 5, 4, 2, 3, 6
Partial 2 (Topic 3)	45%	3	0.12	1, 5, 4, 2, 3, 6

The competences of this subject will be evaluated by means of:

Partial 1: topics 1 and 2

Partial 2: topic 3

Cooperative activity carried out in required attendance seminars.

To participate in the retake exam, the students must have previously been evaluated in a set of activities whose weight equals to a minimum of two thirds of the total grade of the subject.

Students will obtain the "Not Evaluable" qualification when the assessment activities carried out have a weighting of less than 15% in the final grade.

Retake exam: If the final qualification (weighted average) of the tests carried out of the subject is less than 5/10, students can do a second exam of partial tests that have not been passed. It is mandatory to have a minimum grade of 3,5/10 in the second partial to calculate a valid weighted average final qualification (if this minimum is not exceeded, the resulting grade will be at most 4/10).

A special distinction (MH) can be given from the 9/10 qualification with the limitation of up to 5% of MH of the total number of students enrolled.

Without prejudice to other disciplinary measures that may be considered appropriate, the irregularities (copy, plagiarism, deception, letting copy, etc.) committed by the students that may lead to a variation of the qualification of an evaluation activity will lead to suspend them with a zero.

The repeating students will have the same system of continuous evaluation.

For each evaluation activity, a place, date and time of review will be indicated. If the student does not appear, it will not be reviewed later.

Single evaluation:

Students who follow this kind of evaluation will have an unic exam, to evaluate all the subject contents, at day and hour scheduled for the partial 2.

The same retake exam system used in continued evaluation will be applied

The same grade of "Not Evaluable" used in continued evaluation will be applied

The same review qualification procedure used in continued evaluation will be applied

In the assessment activities of this subject, the use of Artificial Intelligence (AI) technologies is not allowed and will be considered a lack of academic honesty, leading to a partial or total penalty in the grade of the activity.

Student's assessment may experience some modifications depending on the restrictions health authorities

Bibliography

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Software

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Groups and Languages

Please note that this information is provisional until 30 November 2025. You can check it through this [link](#). To consult the language you will need to enter the CODE of the subject.

Name	Group	Language	Semester	Turn
(PAUL) Classroom practices	1	Catalan	first semester	morning-mixed
(PAUL) Classroom practices	2	Catalan	first semester	morning-mixed
(TE) Theory	1	Catalan	first semester	morning-mixed