Universitat Autònoma de Barcelona

2020/2021

Process Fundamentals

Code: 103254
ECTS Credits: 6

Degree	Type	Year	Semester
2501925 Food Science and Technology	OB	2	1

The proposed teaching and assessment methodology that appear in the guide may be subject to changes as a result of the restrictions to face-to-face class attendance imposed by the health authorities.

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

Prerequisites

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

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

Objectives and Contextualisation

Understand the basics 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.

The theoretical contents will be taught in virtual format. Classroom practices and seminars will follow a mixed virtual and face-to-face model.

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

Methodology

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

Theory lectures. Students take the scientific knowledge of subject from material provided via Moodle and personal study. Doubt resolution will be done through Moodle channels and problem classes.

Problem sets. The scientific knowledge of the theory material is worked through problem sets. It will follow a mixed virtual and face-to-face model following the course schedule.

Seminars. The scientific knowledge of the theory material and problems sets is worked. It will follow a virtual model, via Teams, following the course schedule.

The proposed teaching methodology may experience some modifications depending on the restrictions to face-to-face activities enforced by health authorities

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Theory lectures	26	1.04	1, 5, 4, 2, 3, 6
Type: Supervised			
Problems set	15	0.6	1, 5, 4, 2, 3, 6
Seminars	5	0.2	1, 5, 4, 2, 3, 6
Type: Autonomous			
Concepts study and solving problems set	98	3.92	1, 5, 4, 2, 3, 6

Assessment

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

Partial 1: topics 1 and 2

Part 2: topic 3

Continued avaluation activity

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. Therefore, students will obtain the "Not Evaluable" qualification when the assessment activities carried out have a weighting of less than 67% in the final grade.

Retake exam: If the resultant qualification of the tests carried out in part I of the subject is less than 5/10, students can do a second exam of the the partial ones that have not been passed.

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.

Student's assessment may experience some modifications depending on the restrictions to face-to-face activities enforced by health authorities

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Continued avaluation 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

Bibliography

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Aucejo A., Benaiges M.D., Berna A., Sanchotello M., Solà C. (2013). Introducció a l'Enginyeria Química. Publicacions Universitat de València, València.

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Berk, Z. (ed.) (2009). Food process engineering and technology. Elsevier Inc., Amsterdam (recurs electrònic Biblioteques UAB: http://www.sciencedirect.com/science/book/9780123736604)

Kurz, M. (ed.) (2007). Handbook of Farm, Dairy and Food Machinery. William Andrew Inc., New York (recurs electrònic Biblioteques UAB: http://www.knovel.com/web/portal/browse/display?_EXT_KNOVEL_DISPLAY_bookid=1895)

Valentas, K.J., Rotstein, E., Singh R.P. (eds.) (1997). Handbook of Food Engineering Practice. CRC Press, New York.