

**1. General information****Course:** BASIC OPERATIONS IN THE WINE INDUSTRY I**Type:** CORE COURSE**Degree:** 400 - UNDERGRADUATE DEGREE PROGRAMME IN OENOLOGY**Center:** 107 - E.T.S. OF AGRICULTURAL ENGINEERS OF C. REAL**Year:** 2**Main language:** Spanish**Use of additional languages:****Web site:****Code:** 58514**ECTS credits:** 6**Academic year:** 2023-24**Group(s):** 20**Duration:** First semester**Second language:****English Friendly:** Y**Bilingual:** N**Lecturer:** CELIA GÓMEZ SACEDON - Group(s): 20

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**2. Pre-Requisites**

The study programme doesn't establish any prerequisites to take this subject, although it is recommended to have passed the subjects of Maths, Physics, Chemistry I and Chemistry II from the first year.

**3. Justification in the curriculum, relation to other subjects and to the profession**

This subject takes part of the specific training module called "Unit Operations and Enological Technology" in the degree program, where Unit Operations are studied and later applied in various industrial processes such as winery. This module includes the subjects as Unit Operations in the Enological Industry I and Enological Technology. In the Unit Operations in the Enological Industry I subject, the mentioned module covers general and introductory aspects, specific unit operations of engineering and processes in the agricultural and food industries. This module provides basic information to students, enabling them to develop their professional skills by understanding the operations carried out in the agricultural and food industry directly related to the wine and derivatives production.

In relation to the study programme, this subject is part of the second year and involves a detailed study of performing material and energy balances, as well as unit operations based on the transfer of movement amount and heat. In this subject, students study, design, and describe qualitatively and quantitatively the unit processes and operations in agricultural and food engineering where there is an exchange of these properties.

The Unit Operations in the Enological Industry I subject draws support from other more general and basic subjects such as maths, physics and chemistry of the first year. The subject provides the necessary calculation foundations for the design and sizing of many processes of the Agricultural and Food Industries, it is essential for the professional work in a agricultural and food sector such as is the enological.

**4. Degree competences achieved in this course****Course competences**

Code	Description
CB03	Be able to gather and process relevant information (usually within their subject area) to give opinions, including reflections on relevant social, scientific or ethical issues.
CB05	Have developed the necessary learning abilities to carry on studying autonomously
CE06	Ability to manage the obtaining of musts for winemaking and conservation, the control of the fermentation of all types of wines, their aging, and the packaging, bottling and storage of wine and derived products according to legal, hygienic and environmental provisions.
CE07	Manage and supervise the reception and control of raw materials, the winery work: cleaning, racking, conservation, clarification, filtration, stabilization and conservation of wines, applying the knowledge acquired on the composition of grapes and wine and its evolution.
CE11	Ability to select and control the equipment, facilities and processes used in the winery, in order to increase its efficiency and the quality of the obtained products.
CE12	Ability to control and organize the production, management and marketing processes of different types of special wines, grape juices, mistelas, wine aperitifs, vinegars and other derivatives of musts, wine and related products.
CG02	Manage complex technical or professional projects. Solve complex problems effectively in the field of Enology.
CG04	Work autonomously with responsibility and initiative, as well as in teams in a collaborative way and with shared responsibility.
CT02	Know and apply Information and Communication Technologies (ICT).
CT04	Know the ethical commitment and professional deontology.

**5. Objectives or Learning Outcomes****Course learning outcomes**

## Description

To have the scientific and technical knowledge necessary for the design of equipment and operation of the most applied Basic Operations in the food industry.

To understand the theoretical fundamentals of Basic Operations in the wine industry based on fluid flow, heat transmission, and simultaneous fluid flow and heat transmission.

To know the main equipment and facilities used in a winery, their characteristics, advantages, and disadvantages of each one in order to select the most suitable for each space and situation, as well as to know the innovations in enological technology available on the market.

To develop in the student the ability to initiate and solve specific problems in the wine industry and interpret the results obtained.

## 6. Units / Contents

**Unit 1: Introduction and general principles**

**Unit 2: Fundamentals. Mass and Energy balances**

**Unit 3: Rheology**

**Unit 4: Filtration**

**Unit 5: Centrifugation and Gas Clarification**

**Unit 6: Fluidization**

**Unit 7: Agitation and Mixing of Liquid. Mixing of Solids and Pastes**

**Unit 8: General Concepts of Heat Transfer**

**Unit 9: Heat Exchangers**

**Unit 10: Evaporators**

## ADDITIONAL COMMENTS, REMARKS

BLOCK I: GENERAL CONCEPT: UNIT 1, UNIT 2 AND UNIT 3

BLOCK II: UNIT OPERATIONS CONTROLLED BY THE MOVEMENT QUANTITY TRANSPORT: UNIT 4, UNIT 5, UNIT 6 AND UNIT 7

BLOCK III: UNIT OPERATIONS CONTROLLED BY HEAT TRANSFER: UNIT 8, UNIT 9 AND UNIT 10.

## 7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (theory) [ON-SITE]	Lectures	CB03 CB05 CE07 CE11	1.28	32	Y	N	This training activity is evaluated taking into account (1) The attendance with active participation in class. (2) The partial tests or corresponding exams(regular/extraordinary).
Class Attendance (practical) [ON-SITE]	Problem solving and exercises	CB03 CB05 CE07 CE11 CG02	0.6	15	Y	N	Problem-solving activities in the classroom. Active participation of the students in class. Problem-Based Learning. This training activity is evaluated taking into account (1) The attendance with active participation in class. (2) The partial tests or corresponding exams(regular/extraordinary).
Problem solving and/or case studies [ON-SITE]	Workshops and Seminars	CB03 CB05 CE07 CE11 CG02 CG04 CT02	0.24	6	Y	N	Classes where doubts regarding seminars/practical cases are resolved, which students are required to solve individually and submit periodically to the teacher for evaluation. This training activity can be recovered by completing additional practical cases/seminars. It can also be recovered through the completion of an exam, which, if passed, demonstrates that the student has achieved the required competencies for this training activity.
Mid-term test [ON-SITE]	Assessment tests	CB03 CB05 CE07 CE11 CG02 CG04 CT02 CT04	0.12	3	Y	Y	The partial tests that have not been passed can be recovered in the exams corresponding to the regular and extraordinary sessions. Two progress tests will be conducted throughout the course.
Writing of reports or projects [OFF-SITE]	Self-study	CB03 CB05 CE07 CE11 CG02 CG04 CT02	0.48	12	Y	N	This training activity is evaluated through seminars/practical cases that students must solve individually and submit periodically to the teacher.
Study and Exam Preparation [OFF-SITE]	Self-study	CB03 CE07 CE11 CG04	3.12	78	N	-	Autonomous work of the student.
Group tutoring sessions [ON-SITE]	Guided or supervised work	CB03 CB05	0.16	4	Y	N	Tutoring for solve any doubt of the subject.
<b>Total:</b>			<b>6</b>	<b>150</b>			
<b>Total credits of in-class work: 2.4</b>			<b>Total class time hours: 60</b>				

As: Assessable training activity

Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

**8. Evaluation criteria and Grading System**

Evaluation System	Continuous assessment	Non-continuous evaluation*	Description
Mid-term tests	70.00%	0.00%	There will be two mid-term tests throughout the course. Students who don't pass these exams will have the option to retake them.
Assessment of problem solving and/or case studies	20.00%	0.00%	Submission of exercises and proposed problems that will be evaluated by the teacher.
Assessment of active participation	10.00%	0.00%	Attendance with active participation in class, students must participate, answer questions asked, and solve proposed problems in certain classes.
Final test	0.00%	100.00%	Final exam covering all the content of the subject to ensure that the student achieves the competencies assigned to the different educational activities.
<b>Total:</b>	<b>100.00%</b>	<b>100.00%</b>	

According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject, an ordinary and an extraordinary one (evaluating 100% of the competences).

**Evaluation criteria for the final exam:****Continuous assessment:**

Continuous evaluation of all training processes will be considered to obtain a final grade between 0 and 10. 70% mid-term test, 30% Complementary training activities. It is necessary to have a minimum grade of 4 out of 10 in each of the partial tests to pass the subject.

**Non-continuous evaluation:**

Students who do not wish to undergo continuous evaluation must inform the teacher and sign the corresponding document before the regular/extraordinary exam (otherwise, they will be considered under continuous evaluation). These students should not participate in complementary activities or take partial tests. They will only have a final exam (different from the exam for continuous evaluation) that evaluates the theoretical/practical content covered in classes (70%) as well as the competencies assigned to the complementary training activity (30%).

**Specifications for the resit/retake exam:**

Continuous evaluation of all training processes will be considered to obtain a final grade between 0 and 10. 70% mid-term test, 30% Complementary training activities. The 20% of the problem-solving or case-based training activity can be recovered by taking an exam or following the method specified by the teacher. This ensures that the student demonstrates the acquisition of the assigned competencies in this area.

The student must notify the teacher in advance of their intention to recover this activity.

Non-continuous evaluation is similar to general exam.

**Specifications for the second resit / retake exam:**

The student can pass the subject in the special completion session if they obtain a grade equal to or higher than 5 out of 10 in the corresponding exam.

**9. Assignments, course calendar and important dates**

Not related to the syllabus/contents	
Hours	hours
Class Attendance (theory) [PRESENCIAL][Lectures]	32
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	15
Problem solving and/or case studies [PRESENCIAL][Workshops and Seminars]	6
Mid-term test [PRESENCIAL][Assessment tests]	3
Writing of reports or projects [AUTÓNOMA][Self-study]	12
Study and Exam Preparation [AUTÓNOMA][Self-study]	78
Group tutoring sessions [PRESENCIAL][Guided or supervised work]	4
Global activity	
Activities	hours
Mid-term test [PRESENCIAL][Assessment tests]	3
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	15
Writing of reports or projects [AUTÓNOMA][Self-study]	12
Study and Exam Preparation [AUTÓNOMA][Self-study]	78
Problem solving and/or case studies [PRESENCIAL][Workshops and Seminars]	6
Class Attendance (theory) [PRESENCIAL][Lectures]	32
Group tutoring sessions [PRESENCIAL][Guided or supervised work]	4
<b>Total horas: 150</b>	

**10. Bibliography and Sources**

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Calleja Pardo, G.	Introducción a la ingeniería química	Síntesis		1999
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Brennan, J.G.	Manual del procesado de los alimentos	Acribia	978-84-200-1099-1	2008