

**1. General information****Course:** BASIC OPERATIONS IN THE WINE INDUSTRY II**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:** 58517**ECTS credits:** 6**Academic year:** 2023-24**Group(s):** 20**Duration:** C2**Second language:****English Friendly:** Y**Bilingual:** N**Lecturer:** LUIS RODRIGUEZ ROMERO - Group(s): 20

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2. Pre-Requisites

The Study Program does not establish any prerequisite to take this subject, although it is recommended to have passed the subjects of Mathematics, Physics and Chemistry and Fundamentals of Oenology in the first year.

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

This subject is part of the "Basic Operations and Oenological Technology" Module of the degree, where Unit Operations are studied. They will later be used in the different agri-food industrial processes. This module includes the subjects of Basic Operations in the Wine Industry I and II and Wine Technology.

In the subject Basic Operations in the Oenological Industry I and II, certain unitary operations of engineering and processes of the agri-food industries are studied. It provides the student's profile with basic information that will allow them to develop their professional skills from the knowledge of the operations that are carried out in an agri-food Industry.

In relation to the study program, the subject Basic Operations in the Wine Industry II, is located in the second year and includes the detailed study of the basic operations based on mass transfer or simultaneously mass and heat transfer. Other complementary basic operations involving solid particles are also studied. In it, the processes or unit operations of Chemical Engineering where there is an exchange of these properties will be studied, designed and described qualitatively and quantitatively. The Basic Operations in the Wine Industry II subject is based on others of a more general nature and basic training, such as Mathematics, Physics and Chemistry, in the first year. The subject provides the calculation foundations necessary for the design and dimensioning of many of the processes of the agri-food industries, which is necessary for professional work in the agro-industrial sector.

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
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.
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.

Additional outcomes

To understand the theoretical foundations of the Basic Operations in the Wine Industry based on the transfer of matter and the simultaneous transfer of matter and energy, as well as others related to the management of solids

6. Units / Contents

Unit 1: Basic principle of mass transfer

Unit 2: Liquid-vapor equilibrium

Unit 3: Distillation and rectification

Unit 4: Solid-liquid extraction

Unit 5: Separation operations using membranes

Unit 6: Air humidification operations

Unit 7: Drying

Unit 8: Freeze drying. Lyophilization.

Unit 9: Complementary operations with solids

ADDITIONAL COMMENTS, REMARKS

PART I: BASIC OPERATIONS CONTROLLED BY THE MASS TRANSFER. Units 1-5.

PART II: UNIT OPERATIONS CONTROLLED BY MASS AND HEAT TRANSFER. Units 6-8.

PART III: COMPLEMENTARY OPERATIONS. Unit 9

PART IV: UNIT OPERATIONS LABORATORY.

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 activity is evaluated taking into account: (1) Attendance and participation in class; (2) the mid-term tests or the corresponding exams (ordinary/retake).
Problem solving and/or case studies [ON-SITE]	Workshops and Seminars	CB03 CB05 CE07 CE11 CG02	0.24	6	Y	N	Resolution of problems in the classroom: problem-based learning. This formative activity is evaluated taking into account: (1) Attendance with class participation; (2) The mid-term tests or the corresponding exams (ordinary/retake).
Class Attendance (practical) [ON-SITE]	Practical or hands-on activities	CB03 CB05 CE07 CE11 CG02 CG04 CT02 CT04	0.6	15	Y	Y	The Laboratory Practices are considered as a part of the subject and include the practical activities of the two subjects: Basic Operations in the Wine Industry I and Basic Operations in the Wine Industry II. Practices are mandatory.
Individual tutoring sessions [ON-SITE]	Guided or supervised work	CB03 CB05	0.16	4	Y	N	Tutorials to answer any questions about the subject.
Mid-term test [ON-SITE]	Assessment tests	CB03 CB05 CE07 CE11 CG02 CG04 CT02 CT04	0.12	3	Y	Y	Two mid-term tests will be carried out throughout the semester. The partial tests not passed can be recovered in the exams corresponding to the ordinary and retake calls. A minimum grade of 4 points out of 10 are required to eliminate the matter of the exams.
Writing of reports or projects [OFF-SITE]	Self-study	CB03 CB05 CE07 CE11 CG02 CG04 CT02 CT04	0.8	20	Y	N	This training activity is evaluated through problems/practical cases that students must solve individually and periodically delivered to the teacher.
Study and Exam Preparation [OFF-SITE]	Self-study	CB03 CE07 CE11 CG04	2.8	70	N	-	Autonomous work of the student
Total:			6	150			
Total credits of in-class work: 2.4			Total class time hours: 60				
Total credits of out of class work: 3.6			Total hours of out of class work: 90				

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
Final test	0.00%	85.00%	Final exam of all the content of the subject that ensures that the student reaches the competences assigned to the different training activities.
			Delivery of exercises and proposed problems that will be evaluated by the teacher (15%). Assistance with active

Theoretical papers assessment	25.00%	0.00%	participation in class -students must participate, answer the questions that are asked and solve the problems proposed in certain classes- (10%).
Laboratory sessions	15.00%	15.00%	Attendance at laboratory practices and delivery of the corresponding report. Attendance at Practices will be mandatory to pass the subject.
Mid-term tests	60.00%	0.00%	Two mid-term tests will be carried out throughout the semester. A minimum grade of 4 points out of 10 will be required to eliminate matter. Students who do not pass these tests will have the option to recover them in the final exams.
Total:	100.00%	100.00%	

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:

Students who do not wish to undergo continuous assessment must notify the teacher by email a few days before the ordinary/retake exam (otherwise it will be considered continuous assessment). These students should NOT carry out the complementary activities, except the laboratory practices, or take the mid-term tests. They will carry out ONE SINGLE final exam of all the subject that allows them to acquire the competences assigned to each of the training activities (with the exception of laboratory practices).

Non-continuous evaluation:

Students who do not wish to undergo continuous assessment must notify the teacher by email a few days before the ordinary/retake exam (otherwise it will be considered continuous assessment). These students should NOT carry out the complementary activities, except the laboratory practices, or take the mid-term tests. They will carry out ONE SINGLE final exam of all the subject that allows them to acquire the competences assigned to each of the training activities (with the exception of laboratory practices).

Specifications for the resit/retake exam:

Continuous assessment of all the training processes that will be weighted to obtain a final grade between 0 and 10 points. 60% partial tests, 40% complementary activities carried out during the course (assistance with class participation, problem solving, seminars and laboratory practices). In case of not passing the "Complementary Activities" during the course, they can be recovered by taking an exam (or as indicated by the teacher), so that it is reflected that the student acquires the skills assigned to said Complementary Activities. The exception to the above is constituted by laboratory practices, the performance of which is mandatory. The student must notify the teacher in advance of his intention to take the recovery tests for the complementary activities. The NON-continuous evaluation is similar to that of the Ordinary Call.

Specifications for the second resit / retake exam:

The student will be able to pass the subject in the second retake call if a grade equal to or greater than 5.0 out of 10 is obtained 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
Problem solving and/or case studies [PRESENCIAL][Workshops and Seminars]	6
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	15
Individual tutoring sessions [PRESENCIAL][Guided or supervised work]	4
Mid-term test [PRESENCIAL][Assessment tests]	3
Writing of reports or projects [AUTÓNOMA][Self-study]	20
Study and Exam Preparation [AUTÓNOMA][Self-study]	70
Global activity	
Activities	hours
Mid-term test [PRESENCIAL][Assessment tests]	3
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	15
Individual tutoring sessions [PRESENCIAL][Guided or supervised work]	4
Class Attendance (theory) [PRESENCIAL][Lectures]	32
Problem solving and/or case studies [PRESENCIAL][Workshops and Seminars]	6
Writing of reports or projects [AUTÓNOMA][Self-study]	20
Study and Exam Preparation [AUTÓNOMA][Self-study]	70
Total horas: 150	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
GEANKOPLIS, Christie J.	Transport process and units operations	Prentice-Hall		0-13-045253-X	1993	
Brennan, J.G.	Manual del procesado de los alimentos	Acribia		978-84-200-1099-1	2008	
Calleja Pardo, G	Introducción a la ingeniería Química	Síntesis			1999	
Coulson, J. M.	Ingeniería química Tomo 2: Unidades SI, operaciones básicas	Reverté		978-84-291-7136-5 (t	2003	
Coulson, J. M.	Ingeniería química Tomo I: Unidades SI, flujo de fluidos, tra	Reverté		978-84-291-7135-8	2008	
Earle, R.L.	Ingeniería de los alimentos	Acribia			1988	
	Food Processing Technology:	Boca Raton ; Cambridge ;				

Fellows, P.Peter1953-	Principles and Practice	CRC Press : Woodhead	978-1-4398-0821-4	2009
Hermida Bun, J.R	Fundamentos de ingeniería de procesos agroalimentarios	Mundi-Prensa		2000
McCabe, Warren L.	Operaciones unitarias en ingeniería química	McGraw-Hill	978-970-10-6174-9	2007
Robert H. Perry, Don W. Green, James O. Maloney	Manual del ingeniero químico	McGraw-Hill, D. L.	84-481-3008-1 (o. c.	2001
Valiente Bardenas, M.C.	Manual Del Ingeniero Químico		9789681844875	2009
Welty, J.R	Fundamentos de transferencia de momento, calor y masa	Limusa Wiley		2000
Aguado, J.	Ingeniera de la industria alimentaria /	Sntesis,	84-7738-667-6 (Obra	2009