



1. General information

Course: PHYSICS II

Type: BASIC

Degree: 411 - UNDERGRADUATE DEGREE PROGRAMME IN AGRICULTURAL AND FOOD ENGINEERING

Center: 107 - E.T.S. OF AGRICULTURAL ENGINEERS OF C. REAL

Year: 1

Main language: Spanish

Use of additional languages:

Web site:

Code: 60364

ECTS credits: 6

Academic year: 2023-24

Group(s): 20

Duration: C2

Second language: English

English Friendly: Y

Bilingual: N

Lecturer: ANGEL MARIA MARTINEZ GARCIA-HOZ - Group(s): 20

Building/Office	Department	Phone number	Email	Office hours
ETSI Agrónomos / 0.1	FÍSICA APLICADA	926051999	angelmaria.martinez@uclm.es	Monday 9:30-11:30 a.m. Friday 10:30 a.m.- 2:30 p.m. or by appointment by email

Lecturer: JOSE ANGEL DE TORO SANCHEZ - Group(s): 20

Building/Office	Department	Phone number	Email	Office hours
ETSI Agrónomos / 0.1	FÍSICA APLICADA	3790	joseangel.toro@uclm.es	

2. Pre-Requisites

NO PREVIOUS REQUIREMENTS HAVE BEEN ESTABLISHED, ALTHOUGH THE MASTERY OF THE FOLLOWING MATHEMATICAL TOOLS IS RECOMMENDED:

I. Algebra and calculus at the 2nd Baccalaureate level (systems of equations, trigonometry, vector, differential and integral calculus, ...).

II. Dimensional analysis. Kinematics in one dimension.

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

The subject "Physics II" has a fundamental influence on the following subjects of subsequent courses:

Agricultural constructions, Agri-food constructions, Engines, Hydraulics,

Calculation of Structures and Electrification, Irrigation Technology, Agricultural Machinery, Topography

and Environment.

4. Degree competences achieved in this course

Course competences

Code	Description
E06	Understanding and mastery of the basic concepts of the general laws of mechanics, thermodynamics, fields and waves, and electromagnetism and their application to solve engineering problems
G03	Speaking and writing skills
G04	Analysis and synthesis capacity
G05	Organization and planning capacity
G06	Ability to manage information
G07	Problem resolution
G08	Decision-making
G10	Teamwork
G11	Interpersonal relationship skills
G13	Teamwork
G14	Autonomous Learning
G15	Adaptation to new situations
G16	Creativity
G18	Initiative and enterprising spirit
G19	Quality Motivation
G20	Environmental sensitivity
G21	Ability to apply practical knowledge
G25	Adequate knowledge of physical problems, technologies, machinery and water and energy supply systems, the limits imposed by budgetary factors and construction regulations, and the relationships between facilities or buildings and farms, agri-food industries and spaces related to the gardening and landscaping with their social and environmental environment, as well as the need to relate them with human needs and the preservation of the environment.
G30	Knowledge in basic, scientific and technological subjects that allow continuous learning, as well as an ability to adapt to new situations or changing environments

5. Objectives or Learning Outcomes

Course learning outcomes

Description

Acquire skills in solving and calculating numerical problems.

Familiarize yourself with the scientific and technical language of Physics, particularly in relation to the future performance of the profession for which this degree qualifies.

Understand the scientific method in its inductive and deductive ways through the principles of Physics.

Acquisition of skills in the use of the usual methods of experimental work in the Physics laboratory.

Know and understand the fundamentals of Physics.

Development of creativity through open statement exercises.

6. Units / Contents

Unit 1: Waves

Unit 1.1 Harmonic oscillator

Unit 1.2 Mechanical waves

Unit 1.3 Electromagnetic waves

Unit 2: Electricity

Unit 2.1 Electrostatic field and potential

Unit 2.2 Electric current

Unit 3: Magnetism

Unit 3.1 Magnetic field

Unit 3.2 Electromagnetic induction

Unit 3.3 Alternating current

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	E06 G03 G04 G05 G06 G08 G30	0.92	23	Y	N	
Workshops or seminars [ON-SITE]	Problem solving and exercises	E06 G07 G08 G10 G11 G13 G21 G25 G30 G31	0.88	22	Y	N	
Laboratory practice or sessions [ON-SITE]	Practical or hands-on activities	E06 G07 G08 G10 G11 G13 G20 G21 G25 G30 G31	0.4	10	Y	Y	
Group tutoring sessions [ON-SITE]	Group tutoring sessions	E06 G04 G05 G06 G07 G08 G10 G11 G13 G14 G15 G16 G18 G21	0.1	2.5	Y	N	
Study and Exam Preparation [OFF-SITE]	Self-study	E06 G03 G05 G06 G07 G08 G13 G14 G15 G16 G18 G19 G21	3.6	90	N	-	
Mid-term test [ON-SITE]	Assessment tests	E06	0.1	2.5	Y	Y	
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
Laboratory sessions	15.00%	0.00%	Carrying out laboratory practices: Attendance at the laboratory, carrying out the practices and preparing a report is an essential requirement to pass the subject. If a grade lower than 4.0 is obtained, in an extraordinary call the student must take an additional exam on laboratory practices.
Assessment of active participation	15.00%	0.00%	valuation activities such as questionnaires, problems,... developed or proposed in the classroom
Final test	0.00%	100.00%	Final exam for non-continuous assessment
Mid-term tests	70.00%	0.00%	Two partial exams: one in the middle of the semester that releases matter for the ordinary call if your grade is equal to or greater than 4, and another within the final exam.
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:

The final exam will consist of two differentiated partial exams, those students with a grade equal to or greater than 4 in the first partial exam may only take the second partial exam. If the final exam mark or the average of the partial exams, and the laboratory mark are both equal to or greater than 4, the course grade will be determined based on the percentages in the previous table (70% exam + 15% laboratory + 15% participation), otherwise the mark that will appear in the minutes will be that of the exam or 4 in the event that the mark of the exam is greater than 4.

Non-continuous evaluation:

In this modality, the evaluation will be carried out based on the final exam scheduled by the School, which will include a laboratory part for those students who have not passed the practicals in the last two years.

Specifications for the resit/retake exam:

There will be a global exam of all the subject. Those students with a grade of less than 4 in the laboratory must take an additional test on the contents and procedures worked on in the laboratory, which must be passed with a grade equal to or greater than 4, in order to pass the subject. The grade for the course will be 85% of the overall exam grade plus 15% of the laboratory grade.

Specifications for the second resit / retake exam:

The evaluation will be carried out exclusively with the exam programmed by the School for this purpose, which will have a laboratory part for those students who have not passed the practices.

9. Assignments, course calendar and important dates	
Not related to the syllabus/contents	
Hours	hours
Unit 1 (de 3): Waves	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	5
Workshops or seminars [PRESENCIAL][Problem solving and exercises]	4
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	3
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	20
Mid-term test [PRESENCIAL][Assessment tests]	.5
Group 20:	
Initial date: 29-01-2024	End date: 12-02-2024
Group 21:	
Initial date: 29-01-2024	End date: 12-02-2024
Unit 2 (de 3): Electricity	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	6
Workshops or seminars [PRESENCIAL][Problem solving and exercises]	6
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	4
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	1
Study and Exam Preparation [AUTÓNOMA][Self-study]	35
Mid-term test [PRESENCIAL][Assessment tests]	1
Group 20:	
Initial date: 13-02-2024	End date: 11-03-2024
Group 21:	
Initial date: 13-02-2024	End date: 11-03-2024
Unit 3 (de 3): Magnetism	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	12
Workshops or seminars [PRESENCIAL][Problem solving and exercises]	12
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	3
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	1
Study and Exam Preparation [AUTÓNOMA][Self-study]	35
Mid-term test [PRESENCIAL][Assessment tests]	1
Group 20:	
Initial date: 12-03-2024	End date: 12-05-2024
Group 21:	
Initial date: 12-03-2024	End date: 12-05-2024
Global activity	
Activities	hours
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	10
Mid-term test [PRESENCIAL][Assessment tests]	2.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	90
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	2.5
Class Attendance (theory) [PRESENCIAL][Lectures]	23
Workshops or seminars [PRESENCIAL][Problem solving and exercises]	22
Total horas: 150	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Eisberg, Robert Martin	Física : Fundamentos y aplicaciones	McGraw-Hill		968-451-634-7 (v.2)	1990	
Gettys, W. Edward	Física para ingeniería y ciencias	McGraw-Hill		970-10-4889-X (v. II	2005	
		Paraninfo,Thomson				

Lea, Susan M.	Física : la naturaleza de las cosas	Learning	84-283-2814-5 (T.II)	2001	Curso interactivo de Física
Alonso, Marcelo	Física	Addison-Wesley Iberoamericana	84-7829-027-3	1999	
Serway, Raymond A.	Física para ciencias e ingenierías	International Thomson	970-686-423-7(v.1)	2005	
Tipler, Paul Allen	Física para la ciencia y la tecnología	Reverte	84-291-4400-5 (o.c.)	2005	
Tipler, Paul Allen	Physics for scientists and engineers	W. H. Freeman	978-1-4292-0132-2 (v	2008	
Ángel Franco	Física con ordenador				
Fishbane, Paul M.	Física para ciencias e ingeniería	Prentice-Hall	968-880-456-8	1994	
Bauer, W.	Física para Ingeniería y Ciencias	McGraw-Hill	978-607-15-0545-3	2011	