

**1. General information****Course:** THE WORLD OF ENERGY**Type:** ELECTIVE**Degree:** 392 - BACHELOR'S DEGREE IN PRIMARY EDUCATION (AB)**Center:** 101 - FACULTY OF EDUCATION IN ALBACETE**Year:** 4**Main language:** Spanish**Use of additional languages:****Web site:****Code:** 46362**ECTS credits:** 6**Academic year:** 2023-24**Group(s):** 17**Duration:** First semester**Second language:** English**English Friendly:** Y**Bilingual:** N**Lecturer:** ROSA MARIA TOLEDANO TORRES - Group(s): 17

Building/Office	Department	Phone number	Email	Office hours
Facultad de Educación	QUÍMICA FÍSICA	2451	RosaM.Toledano@uclm.es	Consult the virtual secretary or the virtual campus of the course

2. Pre-Requisites

None required

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

Natural Sciences are fundamental for the complete training of teachers. For that the reason, a few compulsory credits are included within the degree. However, it is of interest to have a complementary training that provides the Primary Education teacher with resources, knowledge, skills and attitudes beyond the minimum level offered by the degree. This more intense course is intended for students to develop a positive attitude towards science. Furthermore, they will be able to transmit this attitude to their future students, so that their students will be more receptive and develop a critical spirit and scientific reasoning. All this can help to spread 'scientific culture', to reverse the current trend in the reduction of the number of students who decide to study science related degrees, and to have an impact on the gender gap.

According to Royal Decree 126/2014, which establishes the curriculum for primary education, one of the areas is Natural Sciences, and within its contents, block 4: Matter and Energy.

Therefore, in the training of future teachers, the acquisition of such knowledge is important. This course is also related to the subject of Environmental Education.

As is logical, due to the aforementioned, everything related to energy should be given the utmost attention due to its social, economic, and environmental implications in teacher training with the aim of understanding natural phenomena.

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

Code	Description
CB02	Apply their knowledge to their job or vocation in a professional manner and show that they have the competences to construct and justify arguments and solve problems within their subject area.
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.
CB04	Transmit information, ideas, problems and solutions for both specialist and non-specialist audiences.
CG09	Value individual and collective responsibility for a sustainable future.
CT03	Correct oral and written communication.
MCN.01	Link scientific knowledge to the child's interests
MCN.04	Utilise the scientific method to acquire knowledge.
MCN.07	Analyse critically environmental problems with scientific arguments. Make decisions based on constructive criticism.
MCN.09	Appreciate the sustainable use of the natural resources and their influence on our health.
MCN.10	Recognize the importance of the concept of Energy.

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

Description

Analyse the application of electromagnetic waves

Gather, analyse critically and summarise scientific information available in different formats and from different sources

Value the importance of the sustainable use preserving natural resources

Study a natural phenomenon from a multidisciplinary perspective

Evaluate the impact of the human action about natural resources and in health

Identify the different producer sources of energy and its environmental implications

Identify the main environmental problems, analyse the causes and take reasoned decisions

6. Units / Contents**Unit 1: Basics of Energy**

Unit 1.1 Energy. Types and properties

Unit 1.2 Didactic approach to the concept of Work

Unit 1.3 The propagation of heat and the effect it produces on bodies

Unit 2: Energy and Society

Unit 2.1 The use of energy throughout history

Unit 2.2 Energy needs of today's society

Unit 2.3 Renewable and non-renewable energy sources

Unit 2.4 Electrical energy production: power plants

Unit 2.5 Environmental impact of electrical energy production

7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Writing of reports or projects [OFF-SITE]	Self-study	CB02 CB03 CB04 CT03 MCN.01 MCN.07 MCN.09 MCN.10	0.3	7.5	Y	N	Continuous assessment students will prepare different reports related to the different topics of the second block of contents
Project or Topic Presentations [ON-SITE]	Lectures	CB02 CB03 CG09 MCN.01 MCN.04 MCN.07 MCN.09 MCN.10	1.52	38	Y	N	Students will prepare and present in class an assignment related to renewable energy sources and SDGs and their applicability to Elementary Education
Laboratory practice or sessions [ON-SITE]	Practical or hands-on activities	CB02 CB03 CB04 CT03 MCN.01 MCN.04 MCN.10	0.48	12	Y	N	Continuous assessment students will carry out different practical activities related to the first block of content. Non-attendance and participation in these activities will mean the change of the student to a non-continuous evaluation
Field work [ON-SITE]	Debates	CB03 CB04 CG09 CT03 MCN.01 MCN.09 MCN.10	0.2	5	Y	N	Visit to a nuclear, or hydroelectric power plant, or wind farm.
Problem solving and/or case studies [ON-SITE]	Project/Problem Based Learning (PBL)	CB03 CB04 CG09 CT03 MCN.04 MCN.10	0.2	5	Y	N	Students will solve mathematical problems related to different concepts of Energy, Heat, Work, etc.
Study and Exam Preparation [OFF-SITE]	Self-study	CB03 CB04 CT03 MCN.01 MCN.04 MCN.07 MCN.09 MCN.10	3	75	N		Students prepare tests and assignments for the subject both independently and cooperatively
Analysis of articles and reviews [OFF-SITE]	Reading and Analysis of Reviews and Articles	CB03 CB04 CT03 MCN.01 MCN.04 MCN.07 MCN.09 MCN.10	0.3	7.5	Y	N	Students will take mid-term and final tests related to the contents of the course
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
Theoretical papers assessment	40.00%	0.00%	Several individual and/or group assignments related to block 2 will be carried out, which will have a maximum weight of 40%.
Oral presentations assessment	10.00%	0.00%	Individual and/or Group Oral presentations related to block 2 will be done in class and will have a maximum weight of 10%
Laboratory sessions	10.00%	0.00%	Continuous assessment: attendance will be compulsory and non-retrivable (it will be established through the virtual campus of this course). The realization of the laboratory sessions will have a maximum weight of 10%
Progress Tests	30.00%	100.00%	There will be a progress test related to block 1. The test will have a maximum weight of 30%. Those students who opt for the non-continuous evaluation will take an exam related to both blocks in the ordinary and/or extraordinary call.
Practicum and practical activities reports assessment	10.00%	0.00%	Reports of laboratory sessions and activities related to the assistance and realization of these laboratory sessions will be made. They will have a maximum weight of 10%
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:

Continuous Assessment for those students who:

- Successfully pass the progress test of the studied contents that will be carried out (weight of 30%)
- Satisfactorily carry out the laboratory sessions proposed (weight 10%)
- Satisfactorily carry out the laboratory sessions reports proposed (weight 10)
- Satisfactorily carry out the theoretical assignments proposed (weight 40%)
- Satisfactorily carry out the oral presentation proposed (weight 10%)

If a fraudulent practice is detected in the evaluation test carried out by a student, the exam will result into failure, with a final grade of zero (0) in the corresponding subject.

The detection by the teacher that an assignment, essay or similar test has not been prepared by the student will result in a numerical grade of zero (0) both in the tests and in the subject in which it has been detected, regardless of the rest of the grades obtained by the student.

(See Article 8 of the UCLM Student Assessment Regulations).

Non-continuous evaluation:

Students who do not attend class regularly and opt for non-continuous evaluation will obtain the grade with a final test related to the two blocks of content (100 %)

If a fraudulent practice is detected in the evaluation test carried out by a student, the exam will result into failure, with a final grade of zero (0) in the corresponding subject.

The detection by the teacher that an assignment, essay or similar test has not been prepared by the student will result in a numerical grade of zero (0) both in the tests and in the subject in which it has been detected, regardless of the rest of the grades obtained by the student.

(See Article 8 of the UCLM Student Assessment Regulations).

Specifications for the resit/retake exam:

The same criteria specified in the ordinary call will be followed (continuous and/or non-continuous assessment)

If a fraudulent practice is detected in the evaluation test carried out by a student, the exam will result into failure, with a final grade of zero (0) in the corresponding subject.

The detection by the teacher that an assignment, essay or similar test has not been prepared by the student will result in a numerical grade of zero (0) both in the tests and in the subject in which it has been detected, regardless of the rest of the grades obtained by the student.

(See Article 8 of the UCLM Student Assessment Regulations).

Specifications for the second resit / retake exam:

Students will be assessed through a final exam

If a fraudulent practice is detected in the evaluation test carried out by a student, the exam will result into failure, with a final grade of zero (0) in the corresponding subject.

The detection by the teacher that an assignment, essay or similar test has not been prepared by the student will result in a numerical grade of zero (0) both in the tests and in the subject in which it has been detected, regardless of the rest of the grades obtained by the student.

(See Article 8 of the UCLM Student Assessment Regulations).

9. Assignments, course calendar and important dates	
Not related to the syllabus/contents	
Hours	hours
General comments about the planning: Teaching period may be slightly modified	
Unit 1 (de 2): Basics of Energy	
Activities	Hours
Writing of reports or projects [AUTÓNOMA][Self-study]	6
Project or Topic Presentations [PRESENCIAL][Lectures]	3.75
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	2.5
Field work [PRESENCIAL][Debates]	37.5
Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	19
Study and Exam Preparation [AUTÓNOMA][Self-study]	2.5
Analysis of articles and reviews [AUTÓNOMA][Reading and Analysis of Reviews and Articles]	3.75
Group 10:	
Initial date: 19-09-2023	End date: 02-11-2023
Group 17:	
Initial date: 19-09-2023	End date: 02-11-2023
Unit 2 (de 2): Energy and Society	
Activities	Hours
Writing of reports or projects [AUTÓNOMA][Self-study]	3.75
Project or Topic Presentations [PRESENCIAL][Lectures]	19
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	6
Field work [PRESENCIAL][Debates]	2.5
Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	2.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	37.5
Analysis of articles and reviews [AUTÓNOMA][Reading and Analysis of Reviews and Articles]	3.75
Group 17:	
Initial date: 07-11-2023	End date: 11-01-2024
Group 10:	
Initial date: 07-11-2023	End date: 11-01-2024
Global activity	
Activities	hours
Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	21.5
Field work [PRESENCIAL][Debates]	40
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	8.5

Analysis of articles and reviews [AUTÓNOMA][Reading and Analysis of Reviews and Articles]	7.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	40
Project or Topic Presentations [PRESENCIAL][Lectures]	22.75
Writing of reports or projects [AUTÓNOMA][Self-study]	9.75
Total horas:	150

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	City	ISBN	Year	Description
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Cortés, JM; Toledano, RM; Aragón, A; Gea, S; Villén, J; Vázquez, AM	La enseñanza de "La energía" en el Grado de Maestro en Educación Primaria en la Facultad de Educación de Albacete	Servicio de Publicaciones de la Universidad de Castilla-La Mancha		978-84-8427-873-3	2014	
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