



1. General information

Course: EMERGING ENERGY SYSTEMS**Type:** ELECTIVE**Degree:** 357 - UNDERGRADUATE DEGREE PROGRAMME IN ELECTRICAL ENGINEERING (TO)**Center:** 303 - E.DE INGENIERÍA INDUSTRIAL Y AEROSPOACIAL DE TOLEDO**Year:** Sin asignar**Main language:** Spanish**Use of additional languages:****Web site:****Code:** 56449**ECTS credits:** 6**Academic year:** 2022-23**Group(s):** 40**Duration:** First semester**Second language:** English**English Friendly:** Y**Bilingual:** N**Lecturer:** OCTAVIO ARMAS VERGEL - Group(s): 40

Building/Office	Department	Phone number	Email	Office hours
Sabatini/1.57	MECÁNICA ADA. E ING. PROYECTOS	926295462	octavio.armas@uclm.es	

Lecturer: MARIA REYES GARCIA CONTRERAS - Group(s): 40

Building/Office	Department	Phone number	Email	Office hours
Sabatini/1.57	MECÁNICA ADA. E ING. PROYECTOS	926052624	mariareyes.garcia@uclm.es	

Lecturer: MARIA ARANTZAZU GOMEZ ESTEBAN - Group(s): 40

Building/Office	Department	Phone number	Email	Office hours
Sabatini/1.57	MECÁNICA ADA. E ING. PROYECTOS	926051405	aranzazu.gomez@uclm.es	

2. Pre-Requisites

Not established

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

Not established

4. Degree competences achieved in this course

Course competences

Code	Description
A02	To know how to apply knowledge to work or vocation in a professional manner and possess the competences that are usually demonstrated by the formulation and defence of arguments and the resolution of problems in the field of study.
A03	To have the capability to gather and interpret relevant data (normally within the area of study) to make judgements that include a reflection on themes of a social, scientific or ethical nature.
A04	To be able to transmit information, ideas, problems and solutions to both a specialist and non-specialist audience.
A06	Command of a second foreign language at B1 level of the Common European Framework of Reference for Languages.
A08	Appropriate level of oral and written communication.
A12	Knowledge of basic materials and technologies that assist the learning of new methods and theories and enable versatility to adapt to new situations.
A19	Ability to work in a multilingual and multidisciplinary environment.
H02	Knowledge of emerging systems of electrical energy generation

5. Objectives or Learning Outcomes

Course learning outcomes

Description

6. Units / Contents

Unit 1:

Unit 1.1

Unit 1.2

Unit 1.3

Unit 2:

Unit 2.1

Unit 2.2

Unit 2.3

Unit 3:

Unit 3.1

Unit 3.2

Unit 4:

Unit 4.1
Unit 4.2
Unit 5:
Unit 5.1
Unit 5.2
Unit 5.3
Unit 6:
Unit 6.1
Unit 6.2
Unit 6.3
Unit 7:
Unit 7.1
Unit 7.2
Unit 7.3

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		0.9	22.5	N	-	
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises		0.3	7.5	N	-	
Project or Topic Presentations [ON-SITE]	Group Work		0.3	7.5	Y	N	
Progress test [ON-SITE]	Assessment tests		0.15	3.75	Y	N	
Final test [ON-SITE]	Assessment tests		0.15	3.75	Y	Y	
Study and Exam Preparation [OFF-SITE]	Self-study		3.6	90	N	-	
Group tutoring sessions [ON-SITE]			0.6	15	Y	N	
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%	100.00%	
Laboratory sessions	0.00%	0.00%	
Theoretical papers assessment	0.00%	0.00%	
Total:	0.00%	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).

9. Assignments, course calendar and important dates	
Not related to the syllabus/contents	
Hours	hours
Progress test [PRESENCIAL][Assessment tests]	3.75
Final test [PRESENCIAL][Assessment tests]	3.75
Unit 1 (de 7):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	1
Study and Exam Preparation [AUTÓNOMA][Self-study]	12
Group tutoring sessions [PRESENCIAL][]	2.5
Unit 2 (de 7):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	4
Study and Exam Preparation [AUTÓNOMA][Self-study]	12
Group tutoring sessions [PRESENCIAL][]	2.5
Unit 3 (de 7):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	1
Project or Topic Presentations [PRESENCIAL][Group Work]	2.5

Study and Exam Preparation [AUTÓNOMA][Self-study]	12
Group tutoring sessions [PRESENCIAL][I]	2.5
Unit 4 (de 7):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	4
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	14
Group tutoring sessions [PRESENCIAL][I]	2.5
Unit 5 (de 7):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	2
Project or Topic Presentations [PRESENCIAL][Group Work]	2.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	14
Group tutoring sessions [PRESENCIAL][I]	2.5
Unit 6 (de 7):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	3.5
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	1.5
Project or Topic Presentations [PRESENCIAL][Group Work]	1.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	16
Group tutoring sessions [PRESENCIAL][I]	2.5
Unit 7 (de 7):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Project or Topic Presentations [PRESENCIAL][Group Work]	1
Study and Exam Preparation [AUTÓNOMA][Self-study]	10
Global activity	
Activities	hours
Class Attendance (theory) [PRESENCIAL][Lectures]	22.5
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	7.5
Project or Topic Presentations [PRESENCIAL][Group Work]	7.5
Progress test [PRESENCIAL][Assessment tests]	3.75
Final test [PRESENCIAL][Assessment tests]	3.75
Group tutoring sessions [PRESENCIAL][I]	15
Study and Exam Preparation [AUTÓNOMA][Self-study]	90
Total horas: 150	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	City	ISBN	Year	Description
OCTAVIO ARMAS, ANGEL MORENO, JOSÉ AGÜERA	EVALUACIÓN DE SISTEMAS ENERGÉTICOS http://uclm.dmebooks.com/dcod/shop2012/user/1216918-9788484277156-Evaluacin-de-sistemas-energticos.html	SPUCLM		9788484277156	2009	EBOOK
G. BECKMANN, P.V. GILLI	THERMAL ENERGY STORAGE	SPRINGER VERLAG		3-211-81764-6	1984	
MARIO ORTEGA RODRÍGUEZ	ENERGÍAS RENOVABLES	PARANINFO	MADRID	84-283-2582-0	2002	