

**1. General information****Course:** RENEWABLE ENERGY TECHNOLOGIES**Type:** CORE COURSE**Degree:** 357 - UNDERGRADUATE DEGREE PROGRAMME IN ELECTRICAL ENGINEERING (TO)**Center:** 303 - E.DE INGENIERÍA INDUSTRIAL Y AEROSPOACIAL DE TOLEDO**Year:** 3**Main language:** Spanish**Use of additional languages:****Web site:****Code:** 56414**ECTS credits:** 6**Academic year:** 2023-24**Group(s):** 40**Duration:** First semester**Second language:** English**English Friendly:** N**Bilingual:** N**Lecturer:** MIGUEL CARRION RUIZ PEINADO - Group(s): 40

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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
A15	Ability to work to specifications and comply with obligatory rules and regulations.
A16	Ability to analyse and evaluate the social and environmental impact of technical solutions.
D10	Applied knowledge of renewable energy.

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

Description

Knowledge of the useful aspects of installations allocated to the production of electrical energy

Knowledge of the energy framework of renewable energies

Ability to use specifications, common mandatory rules and regulations (Regulations)

Applied knowledge of the different renewable energy technologies

Ability to interpret and design protection systems in a power station

Ability to apply mandatory legislation and regulations that regulate the design and construction of power stations

Knowledge of the technical and economic management mechanisms in a power station

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 2.4

Unit 2.5

Unit 2.6

Unit 2.7

Unit 2.8

Unit 3:

Unit 3.1

Unit 3.2

Unit 3.3

Unit 3.4

Unit 3.5

Unit 3.6

Unit 3.7

Unit 3.8

Unit 4:

Unit 4.1

Unit 4.2

Unit 4.3

Unit 4.4

Unit 4.5

Unit 4.6

Unit 4.7

Unit 4.8

Unit 5:

Unit 5.1

Unit 5.2

Unit 5.3

Unit 5.4

Unit 5.5

Unit 6:

Unit 6.1

Unit 6.2

Unit 6.3

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	A15 A16 D10	0.92	23	N	-	
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises	A15 A16 D10	0.32	8	N	-	
Other off-site activity [OFF-SITE]	Problem solving and exercises	A15 A16 D10	0.4	10	N	-	
Study and Exam Preparation [OFF-SITE]	Self-study	A15 A16 D10	2.56	64	N	-	
Computer room practice [ON-SITE]		A15 A16 D10	0.28	7	N	-	
Writing of reports or projects [OFF-SITE]	Group Work	A15 A16 D10	0.64	16	Y	Y	
Final test [ON-SITE]		A15 A16 D10	0.12	3	Y	Y	
Group tutoring sessions [ON-SITE]		A15 A16 D10	0.6	15	N	-	
Project or Topic Presentations [ON-SITE]		A15 A16 D10	0.16	4	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
Theoretical papers assessment	0.00%	0.00%	
Test	0.00%	100.00%	
Practicum and practical activities reports 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
Computer room practice [PRESENCIAL][]	7
Writing of reports or projects [AUTÓNOMA][Group Work]	16
Final test [PRESENCIAL][]	3
Group tutoring sessions [PRESENCIAL][]	15

Project or Topic Presentations [PRESENCIAL][]	4
Unit 1 (de 6):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	6
Unit 2 (de 6):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	4
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	2
Other off-site activity [AUTÓNOMA][Problem solving and exercises]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	11.5
Unit 3 (de 6):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	5
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	2
Other off-site activity [AUTÓNOMA][Problem solving and exercises]	3
Study and Exam Preparation [AUTÓNOMA][Self-study]	14.5
Unit 4 (de 6):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	5
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	2
Other off-site activity [AUTÓNOMA][Problem solving and exercises]	3
Study and Exam Preparation [AUTÓNOMA][Self-study]	14.5
Unit 5 (de 6):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	4
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	2
Other off-site activity [AUTÓNOMA][Problem solving and exercises]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	11.5
Unit 6 (de 6):	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Study and Exam Preparation [AUTÓNOMA][Self-study]	6
Global activity	
Activities	hours
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	8
Class Attendance (theory) [PRESENCIAL][Lectures]	23
Other off-site activity [AUTÓNOMA][Problem solving and exercises]	10
Computer room practice [PRESENCIAL][]	7
Writing of reports or projects [AUTÓNOMA][Group Work]	16
Final test [PRESENCIAL][]	3
Group tutoring sessions [PRESENCIAL][]	15
Project or Topic Presentations [PRESENCIAL][]	4
Study and Exam Preparation [AUTÓNOMA][Self-study]	64
Total horas: 150	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Burton, Tony (1947-)	Wind energy handbook	John Wiley & Sons		978-0-470-69975-1	2011	
Bent Sorensen	Renewable energy: its physics, engineering, use, environmental impacts, economy and planning aspects	Academic Press		0126561532	2004	
José Antonio Carta González y Roque Calero Pérez	CENTRALES DE ENERGÍAS RENOVABLES	Pearson		9788483226001		
Orille Fernández, A. L.	Centrales eléctricas	UPC		84-89636-52-4 (T.III)	1997	
	Sistemas eólicos de producción de energía eléctrica	Editorial Rueda		84-7202-139-1	2003	