



## 1. General information

**Course:** POWER STATIONS**Type:** CORE COURSE**Degree:** 413 - UNDERGRADUATE DEGREE PROGRAMME IN ELECTRICAL ENGINEERING**Center:** 605 - SCHOOL OF INDUSTRIAL ENGINEERS. AB**Year:** 4**Main language:** Spanish**Use of additional languages:****Web site:****Code:** 56413**ECTS credits:** 6**Academic year:** 2023-24**Group(s):** 10**Duration:** First semester**Second language:****English Friendly:** Y**Bilingual:** N**Lecturer:** SERGIO MARTIN MARTINEZ - Group(s): 10

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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
CB01	Prove that they have acquired and understood knowledge in a subject area that derives from general secondary education and is appropriate to a level based on advanced course books, and includes updated and cutting-edge aspects of their field of knowledge.
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.
CB05	Have developed the necessary learning abilities to carry on studying autonomously
CEE06	Knowledge of electrical power systems and their applications.
CEE09	Ability to design power plants.
CG03	Knowledge of basic and technological subjects to facilitate learning of new methods and theories, and provide versatility to adapt to new situations.
CG04	Ability to solve problems with initiative, decision-making, creativity, critical reasoning and to communicate and transmit knowledge, skills and abilities in the field of industrial engineering.
CG06	Ability to handle specifications, regulations and mandatory standards.
CG07	Ability to analyse and assess the social and environmental impact of technical solutions.
CT01	Knowledge of a second language.
CT02	Knowledge and application of information and communication technology.
CT03	Ability to communicate correctly in both spoken and written form.

## 5. Objectives or Learning Outcomes

## Course learning outcomes

Description

Ability to interpret and design power plant protection systems.

Ability to apply the mandatory legislation and regulations governing the design and construction of power plants.

Knowledge of the constructive aspects of installations for the production of electrical energy.

Knowledge of the mechanisms for the technical and financial management mechanisms of a power plant.

## Additional outcomes

## 6. Units / Contents

**Unit 1:****Unit 2:****Unit 3:**

Unit 4:

Unit 5:

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	CEE06 CEE09	1.52	38	N	-	
Laboratory practice or sessions [ON-SITE]	Practical or hands-on activities	CEE06 CEE09	0.56	14	Y	Y	
Study and Exam Preparation [OFF-SITE]	Self-study	CEE06 CEE09	3.6	90	N	-	
Final test [ON-SITE]	Assessment tests	CEE06 CEE09	0.32	8	Y	Y	
<b>Total:</b>			<b>6</b>	<b>150</b>			
<b>Total credits of in-class work: 2.4</b>				<b>Total class time hours: 60</b>			
<b>Total credits of out of class work: 3.6</b>				<b>Total hours of out of class work: 90</b>			

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	70.00%	70.00%	
Laboratory sessions	15.00%	15.00%	
Theoretical papers assessment	15.00%	15.00%	
<b>Total:</b>	<b>100.00%</b>	<b>100.00%</b>	

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	
<b>Hours</b>	<b>hours</b>
Class Attendance (theory) [PRESENCIAL][Lectures]	38
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	14
Study and Exam Preparation [AUTÓNOMA][Self-study]	90
Final test [PRESENCIAL][Assessment tests]	8
<b>Global activity</b>	
<b>Activities</b>	<b>hours</b>
Class Attendance (theory) [PRESENCIAL][Lectures]	38
Final test [PRESENCIAL][Assessment tests]	8
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	14
Study and Exam Preparation [AUTÓNOMA][Self-study]	90
<b>Total horas: 150</b>	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Orille Fernández, A. L.	Red Eléctrica de España					Operador de la red de transporte del sistema eléctrico español.
	<a href="http://www.ree.es">www.ree.es</a>					
	Centrales eléctricas	UPC		84-89636-52-4 (T.III)	1997	
Ramírez Vázquez, José.	Comisión Nacional de los Mercados y la Competencia (CNMC)					Operador de los mercados eléctricos para toda la Península Ibérica
	<a href="https://www.cnmc.es/">https://www.cnmc.es/</a>					
	Máquinas motrices generadores de energía eléctrica : enciclo	Ceac,		84-329-6005-5	1980	
Miguel Cañas Carretón / Sergio Martín Martínez	OMIE					
	<a href="http://www.omie.es">http://www.omie.es</a>					
	Apuntes de la asignatura					
	<a href="https://campusvirtual.uclm.es">https://campusvirtual.uclm.es</a>					
	Asociación Española de la					

Conejo Navarro, Antonio J.	Industria Eléctrica www.unesa.es			
	Power system operations /	Springer,	978-3-319-69406-1	2018
	<a href="https://www.springer.com/la/book/9783319694061">https://www.springer.com/la/book/9783319694061</a>			
José Antonio Carta González, Roque Calero Pérez, Antonio Colmenar Santos y Manuel Alonso Gil	Centrales de Energías Renovables	Prentice Hall	978-8483226001	2009
Ramírez Vázquez, José.	Centrales eléctricas /	Ceac,	84-329-6006-3	1980
Antonio Gómez Expósito	Análisis y operación de sistemas de energía eléctrica /	MacGraw-Hill,	84-481-3592-X	2002
		Ministerio de		
España. Ministerio de Industria, Turismo y Comercio	RCE : reglamento sobre centrales eléctricas, subestaciones y	Industria, Turismo y Comercio, Divis	978-84-7474-921-2	2006
Fraile Mora, Jesús (1946-)	Máquinas eléctricas /	McGraw-Hill,	978-84-481-6112-5	2011
Orille Fernández, A. L.	Centrales eléctricas /	UPC,	84-7653-341-1	1995
Montané Sangrá, Paulino	Protecciones en las instalaciones eléctricas : evolución y p Boletín Oficial del Estado www.boe.es	Marcombo,	84-267-0688-6	1993