

**1. General information**

**Course:** MATHEMATICAL SOFTWARE FOR ELECTRICAL ENGINEERING  
**Type:** ELECTIVE  
**Degree:** 356 - UNDERGRADUATE DEGREE PROGRAMME IN ELECTRICAL ENGINEERING (CR)  
**Center:** 602 - E.T.S. INDUSTRIAL ENGINEERING OF C. REAL  
**Year:** 4  
**Main language:** Spanish  
**Use of additional languages:**  
**Web site:**

**Code:** 56445  
**ECTS credits:** 6  
**Academic year:** 2021-22  
**Group(s):** 20  
**Duration:** C2  
**Second language:**  
**English Friendly:** Y  
**Bilingual:** N

**Lecturer:** VICTOR MANUEL PEREZ GARCIA - Group(s): 20

Building/Office	Department	Phone number	Email	Office hours
Politécnico/1.09.5	MATEMÁTICAS	926295435	victor.perezgarcia@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
A01	To understand and have knowledge in an area of study that moves on from the general education attained at secondary level and usually found at a level that, while supported in advanced text books, also includes some aspects that include knowledge found at the cutting edge of the field of study.
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.
A05	To have developed the learning skills necessary to undertake subsequent studies with a greater degree of autonomy.
A07	Knowledge of Information Technology and Communication (ITC).
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.
A13	Ability to take the initiative to solve problems, take decisions, creativity, critical reasoning and ability to communicate and transmit knowledge, skills and abilities in Electrical Engineering.
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
G06	Ability to manage and carry out the maintenance of electrical installations
G08	Ability to correctly use operating systems, databases and information programs with an application in engineering

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

Description

Use of software to resolve mathematical problems that occur in electrical engineering

**Additional outcomes****6. Units / Contents****Unit 1:**

- Unit 1.1
- Unit 1.2
- Unit 1.3
- Unit 1.4
- Unit 1.5
- Unit 1.6
- Unit 1.7

Unit 1.8  
Unit 1.9  
Unit 1.10  
Unit 1.11  
Unit 2:  
Unit 2.1  
Unit 2.2  
Unit 2.3  
Unit 2.4  
Unit 3:  
Unit 3.1  
Unit 3.2  
Unit 3.3

7. Activities, Units/Modules and Methodology							
Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises	A01 A02 A03 A07 A12 A13 CB02 CB03 CB05 G06 G08	0.6	15	N	-	
Class Attendance (theory) [ON-SITE]	Lectures	A01 A02 A03 A04 A05 A07 A12 CB02 CB03 CB04 CB05 G06 G08	1	25	Y	Y	
Laboratory practice or sessions [ON-SITE]	Project/Problem Based Learning (PBL)	A01 A02 A03 A05 A07 A12 A13 CB02 CB05 G06 G08	0.6	15	N	-	
Final test [ON-SITE]	Assessment tests	A04 A08 CB04	0.2	5	Y	Y	
Study and Exam Preparation [OFF-SITE]	Self-study	A01 A02 A03 A04 A05 A07 A08 A12 A13 CB02 CB03 CB04 CB05 G06 G08	3.6	90	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
Theoretical exam	0.00%	30.00%	
Progress Tests	30.00%	0.00%	
Laboratory sessions	70.00%	70.00%	
<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	
Hours	hours
<b>Unit 1 (de 3):</b>	
<b>Activities</b>	<b>Hours</b>
Class Attendance (theory) [PRESENCIAL][Lectures]	10
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	7
Laboratory practice or sessions [PRESENCIAL][Project/Problem Based Learning (PBL)]	8
Final test [PRESENCIAL][Assessment tests]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	60
<b>Unit 2 (de 3):</b>	
<b>Activities</b>	<b>Hours</b>
Class Attendance (theory) [PRESENCIAL][Lectures]	7
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	4
Laboratory practice or sessions [PRESENCIAL][Project/Problem Based Learning (PBL)]	3
Final test [PRESENCIAL][Assessment tests]	1
Study and Exam Preparation [AUTÓNOMA][Self-study]	20
<b>Unit 3 (de 3):</b>	
<b>Activities</b>	<b>Hours</b>
Class Attendance (theory) [PRESENCIAL][Lectures]	8
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	4
Laboratory practice or sessions [PRESENCIAL][Project/Problem Based Learning (PBL)]	4

Final test [PRESENCIAL][Assessment tests]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	10
<b>Global activity</b>	
<b>Activities</b>	<b>hours</b>
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	15
Laboratory practice or sessions [PRESENCIAL][Project/Problem Based Learning (PBL)]	15
Study and Exam Preparation [AUTÓNOMA][Self-study]	90
Final test [PRESENCIAL][Assessment tests]	5
Class Attendance (theory) [PRESENCIAL][Lectures]	25
<b>Total horas: 150</b>	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Jane Hahn	Latex for everyone	Prentice Hall	New Jersey	0136059082	1993	
	Matlab resources <a href="http://es.mathworks.com/academia/classroom-resources/?requestedDomain=es.mathworks.com#">http://es.mathworks.com/academia/classroom-resources/?requestedDomain=es.mathworks.com#</a>					
A. Bueno, G. D. Montesinos, V. M. Pérez-García	Herramientas informáticas de las matemáticas en ingeniería	Publicación Universitaria			2005	
Ernesto Aranda	Curso de Latex <a href="http://matematicas.uclm.es/earanda/wp-content/uploads/downloads/2013/10/latex.pdf">http://matematicas.uclm.es/earanda/wp-content/uploads/downloads/2013/10/latex.pdf</a>					
Garr Reynolds	Presentación Zen: Ideas sencillas para el diseño de presentaciones	Pearson Educación		978-8483226377	2009	