UNIVERSIDAD DE CASTILLA - LA MANCHA
GUÍA DOCENTE

1. General information

Course: CALCULUS I

Type: BASIC

Degree: 360 - UNDERGRAD. IN INDUSTRIAL ELECTRONICS AND AUTOMAT. ENGINEERING (TO)

Center: 303 - E.DE INGENIERÍA INDUSTRIAL Y AEROESPOACIAL DE TOLEDO

Year: 1

Main language: Spanish

Use of additional languages:

Web site:

Code: 56301

ECTS credits: 6

Academic year: 2022-23

Group(s): 40 41

Duration: First semester

Second language:

English Friendly: Y

Bilingual: N

Lecturer: MARIA FUENSANTA ANDRES ABELLAN - Group(s): 41

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Lecturer: JESUS ROSADO LINARES - Group(s): 41

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Lecturer: DAVID RUIZ GRACIA - Group(s): 41

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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
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.
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 Industrial Engineering and Automation.
A17	Ability to apply principles and methods of quality control.
B01	Ability to solve mathematical problems that occur in engineering. Aptitude to apply knowledge of: linear algebra; geometry; differential geometry; differential and integral calculus; differential and partial differential equations; numerical methods; numerical algorithms; statistics and optimization.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

Know the main approaches for resolution through using numerical methods, to use some statistical software packages at user level, data processing, mathematical calculus and vizualization, set out algorithms and program through programming language of a high level, vizualize functions, geometric figures

and data, design experiments, analyze data and interpret results

Be able to express yourself correctly both orally and in writing, and, in particular, to know how to use mathematical language to express with precision quantities and operations that appear in industrial engineering. Become accustomed to working in a team and behaving respectfully.

Know the use of the functions of one and various variables including its derivation, integration and graphic representation

To know the tundamentals and applications of Optimization

Additional outcomes

6. Units / Contents

Unit 1:

Unit 2:

Unit 3:

Unit 4:

Unit 5:

Unit 6:

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	A01 A08 A12 B01	1	25	N	-	
Class Attendance (practical) [ON-SITE]	Problem solving and exercises	A02 A08 A13 A17 B01	0.6	15	N	-	
Computer room practice [ON-SITE]	Problem solving and exercises	A02 A07 A08 A13 A17 B01	0.48	12	N	-	
Individual tutoring sessions [ON-SITE]	Guided or supervised work	A02 A08	0.08	2	N	-	
Study and Exam Preparation [OFF-SITE]	Self-study	A01 A02 A03 A12 A13 B01	3.6	90	N	-	
Progress test [ON-SITE]	Assessment tests	A01 A02 A03 A07 A08 A12 A13 A17 B01	0.12	3	Y	N	
Final test [ON-SITE]	Assessment tests	A01 A02 A03 A07 A08 A12 A13 A17 B01	0.12	3	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
Progress Tests	0.00%	10.00%	
Final test	0.00%	90.00%	
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][Problem solving and exercises]	12
Individual tutoring sessions [PRESENCIAL][Guided or supervised work]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	90
Progress test [PRESENCIAL][Assessment tests]	3
Final test [PRESENCIAL][Assessment tests]	3
Unit 1 (de 6):	
Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	1
Unit 2 (de 6):	
Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	5
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	2
Unit 3 (de 6):	
Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	3

Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	2

Unit 4 (de 6):

Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	5
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	4

Unit 5 (de 6):

Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	7
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	5

Unit 6 (de 6):

Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	1

Global activity

Activities	hours
Class Attendance (theory) [PRESENCIAL][Lectures]	25
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	15
Computer room practice [PRESENCIAL][Problem solving and exercises]	12
Individual tutoring sessions [PRESENCIAL][Guided or supervised work]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	90
Progress test [PRESENCIAL][Assessment tests]	3
Final test [PRESENCIAL][Assessment tests]	3
Total horas:	150

10. Bibliography and Sources

Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
APOSTOL, T	Calculus	Reverté			1995	
DEMIDOVICH, B. P.	5000 Problemas de Análisis Matemático.	Paraninfo			1980	
GRANERO, F.	Cálculo Infinitesimal.	McGraw-Hill			1997	
LARSON, R.; HOSTETLE, R.; EDWARDS, B.	Cálculo y Geometría Analítica.	McGraw-Hill			1984	
ORTEGA, J. M.	Introducción al análisis matemático	Labor			1993	
ROGAWSKI, J.; ADAMS, C.	Calculus	Freeman			2015	
SALAS, S.; HILLE, E.	Calculus	Reverté			2004	
SIMMONS, G.	Calculus with analytic geometry	McGraw-Hill			1996	
SPIVAK, M.	Calculus	Reverté			1995	