



1. General information

Course: ALGEBRA

Type: BASIC

Degree: 357 - UNDERGRADUATE DEGREE PROGRAMME IN ELECTRICAL ENGINEERING (TO)

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

Year: 1

Main language: Spanish

Use of additional languages:

Web site:

Code: 56300

ECTS credits: 6

Academic year: 2021-22

Group(s): 40 41

Duration: First semester

Second language:

English Friendly: Y

Bilingual: N

| Lecturer: MARIA FUENSANTA ANDRES ABELLAN - Group(s): 40 41 | | | | |
|--|-------------|--------------|-----------------------------|--------------|
| Building/Office | Department | Phone number | Email | Office hours |
| Edificio Sabatini / 1.48 | MATEMÁTICAS | 926051536 | fuensanta.andres@uclm.es | |
| Lecturer: DAMIAN CASTAÑO TORRIJOS - Group(s): 40 41 | | | | |
| Building/Office | Department | Phone number | Email | Office hours |
| Edificio Sabatini / 1.53 | MATEMÁTICAS | 926051463 | Damian.Castano@uclm.es | |
| Lecturer: JESÚS CASTELLANOS PARRA - Group(s): 40 41 | | | | |
| Building/Office | Department | Phone number | Email | Office hours |
| Edificio Sabatini / 1.55 | MATEMÁTICAS | 926051598 | Jesus.Castellanos@uclm.es | |
| Lecturer: JESUS ROSADO LINARES - Group(s): 40 41 | | | | |
| Building/Office | Department | Phone number | Email | Office hours |
| Edificio Sabatini / 1.53 | MATEMÁTICAS | 926051603 | Jesus.Rosado@uclm.es | |
| Lecturer: DAVID RUIZ GRACIA - Group(s): 40 41 | | | | |
| Building/Office | Department | Phone number | Email | Office hours |
| Edificio Sabatini / 1.53 | MATEMÁTICAS | 926051469 | David.Ruiz@uclm.es | |
| Lecturer: MARÍA DEL MAR ÁLVAREZ ÁLVAREZ - Group(s): 41 | | | | |
| Building/Office | Department | Phone number | Email | Office hours |
| | MATEMÁTICAS | | MariadelMar.Alvarez@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. |
| 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. |
| 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

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.

To know the theory of matrices and determinants and to know how to carry out the corresponding calculations. Know the fundamentals and applications of Lineal Algebra and Euclidean Geometry

To know how to use and carry out elementary operations with complex numbers.

Additional outcomes

6. Units / Contents

Unit 1:
Unit 2:
Unit 3:
Unit 4:
Unit 5:
Unit 6:
Unit 7:
Unit 8:
Unit 9:

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 |

10. Bibliography and Sources

| Author(s) | Title/Link | Publishing house | Citv | ISBN | Year | Description |
|---|---|------------------|------|----------------|------|---|
| Arsevú, J y otros | Problemas resueltos de álgebra lineal. | Thomson | | 84-9732-284-3 | 2005 | Libro de problemas recomendado |
| Bretscher, O | Linear Algebra with Applications, 5th Ed. | Pearson | | 978-0321796943 | 2012 | |
| Burgos, J de | Algebra Lineal | Mac Graw-Hill | | 84-481-0134-0 | 1993 | Clara exposición teórica con una gran cantidad de ejemplos y problemas. |
| Fernández, C y otros | Ecuaciones diferenciales y en diferencias | Thomson | | 84-9732-198-7 | 2003 | Recomendado para el tema 9 |
| Friedberg, S. H.; Insel, A. J.; Spence, L. E. | Linear Algebra, 4th Ed. | Pearson | | 978-0130084514 | 2003 | Recomendado para el |

| | | | | | |
|---------------------|--|---------------|-------------------|------|--------------------------------|
| García,A y otros | Cálculo | CLAGSA | | | tema 1 |
| Kolman, B | Algebra lineal con aplicaciones y Matlab | Prentice Hall | | | Bibliografía complementaria |
| Larson y otros | Algebra Lineal | Pirámide | 84-368-1878-4 | 2004 | Bibliografía complementaria |
| Merino, L. Santos E | Algebra Lineal con Métodos Elementales | Thomson | 84-9732-481-1 | 2006 | Interesante exposición teórica |
| Rojo, J | Algebra lineal. 2ª Edición | Mac Graw-Hill | 978-84-481-5635-0 | 2007 | Bibliografía complementaria |
| Rojo,J. Marín I | Ejercicios y problemas de álgebra lineal | Mac Graw-Hill | 84-481-1889-8 | 1994 | Bibliografía complementaria |
| Villa, A de la | Problemas de Algebra | CLAGSA | 84-605-0390-9 | 1998 | Libro de problemas recomendado |