

## [GDA302] MATHEMATICS II

### GENERAL INFORMATION

<b>Studies</b>	DEGREE IN INDUSTRIAL DESIGN AND PRODUCT DEVELOPMENT ENGINEERING		<b>Subject</b>	MATHEMATICS
<b>Semester</b>	2	<b>Course</b>	1	<b>Mention / Field of specialisation</b>
<b>Character</b>	BASIC TRAINING		<b>Language</b>	EUSKARA
<b>Plan</b>	2022	<b>Modality</b>	Face-to-face	<b>Total hours</b> 89 class hours + 61 non-class hours = <b>150 total hours</b>
<b>Credits</b>	6	<b>Hours/week</b>	4.94	

### PROFESSORS

(No professor appointed)

### REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
MATHEMATICS I	[!] [!] [!]

### LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
<b>G-RA07</b> - To solve mathematical problems that may arise in engineering, demonstrating the ability to apply knowledge of: linear algebra; geometry; differential geometry and differential and partial differential equations		x		5,4
<b>G-RTR1</b> - To develop interdisciplinary projects specific to their specialty and of gradual complexity, - becoming aware of respect for human rights and fundamental rights, and analyzing and assessing the impact of the proposed solutions on the SDGs - to acquire and/or apply basic, advanced and /or avant-garde, demonstrating the ability to work in multidisciplinary teams and/or undertake further studies with a high degree of autonomy		x		0,28
<b>G-RTR2</b> - To express information, ideas and the arguments that support them in an orderly, clear and coherent manner, orally and in writing, based on quality information, self-made or obtained from different sources, using inclusive and non-discriminatory language		x		0,32

**Total:** 6

KC: Knowledge or Content / SK: Skills / AB: Abilities

### ENAE LEARNING RESULTS

ENAE LEARNING RESULTS	ECTS
<b>ENAE01</b> - Knowledge and understanding: Knowledge and understanding of the underlying scientific and mathematical principles in their branch of engineering.	2
<b>ENAE02</b> - Knowledge and understanding: A systematic understanding of the key aspects and concepts of their branch of engineering.	1,8
<b>ENAE05</b> - Analysis in engineering: Ability to apply their knowledge and understanding in identifying, formulating and solving engineering problems using established methods.	2,2

**Total:** 6

### SECONDARY LEARNING RESULTS

**RGD113** [!] *Modeliza y resuelve los problemas geométricos, los físicos y los de ingeniería, utilizando las ecuaciones diferenciales*

#### LEARNING ACTIVITIES

	CH	NCH	TH
Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams		2 h.	2 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	2 h.		2 h.
Computer simulation exercises, individually and/or in teams	1 h.	1 h.	2 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	17 h.	11 h.	28 h.
Carrying out exercises and solving problems individually and/or in teams		2 h.	2 h.

#### EVALUATION SYSTEM

	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	10%

#### MAKE-UP MECHANISMS

Individual written and/or oral tests or individual coding/programming tests

Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems	10%
Individual written and/or oral tests or individual coding/programming tests	80%

**CH - Class hours:** 20 h.

**NCH - Non-class hours:** 16 h.

**TH - Total hours:** 36 h.

**RGD114** [!] *Utiliza el álgebra lineal para modelizar y resolver problemas de ingeniería, utilizando software matemático*

**LEARNING ACTIVITIES**

	<b>CH</b>	<b>NCH</b>	<b>TH</b>
Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams	5 h.	5 h.	10 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	4 h.		4 h.
Computer simulation exercises, individually and/or in teams	1 h.	1 h.	2 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	48 h.	31 h.	79 h.
Carrying out exercises and solving problems individually and/or in teams	2 h.	2 h.	4 h.

**EVALUATION SYSTEM**

**W**

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	10%
Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems	10%
Individual written and/or oral tests or individual coding/programming tests	80%

**MAKE-UP MECHANISMS**

Individual written and/or oral tests or individual coding/programming tests

**CH - Class hours:** 60 h.

**NCH - Non-class hours:** 39 h.

**TH - Total hours:** 99 h.

**RGD190** [!] *Conocer y aplicar las fases para desarrollar de forma guiada, con los objetivos y la planificación previamente definidos, un proyecto de complejidad técnica acorde con los conocimientos de formación básica de la ingeniería. Reflexiona sobre los cono*

**LEARNING ACTIVITIES**

	<b>CH</b>	<b>NCH</b>	<b>TH</b>
Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams	2,4 h.	1,6 h.	4 h.

**EVALUATION SYSTEM**

**W**

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	100%
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**MAKE-UP MECHANISMS**

(No mechanisms)

**CH - Class hours:** 2,4 h.

**NCH - Non-class hours:** 1,6 h.

**TH - Total hours:** 4 h.

**RGD191** [!] *Contribuir en la estrategia de funcionamiento del equipo priorizando los objetivos comunes, fomentando y valorando la participación de todas las personas y responsabilizándose de las tareas individuales, así como del cumplimiento de plazos.*

#### LEARNING ACTIVITIES

Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams

CH

1,8 h.

NCH

1,2 h.

TH

3 h.

#### EVALUATION SYSTEM

W

100%

#### MAKE-UP MECHANISMS

(No mechanisms)

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems

CH - Class hours: 1,8 h.

NCH - Non-class hours: 1,2 h.

TH - Total hours: 3 h.

**RGD193** [!] *Redacta una memoria de proyecto clara y concisa utilizando las fuentes de información y estructura de memoria facilitadas, y haciendo un uso correcto, inclusivo y no discriminatorio del lenguaje.*

#### LEARNING ACTIVITIES

Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams

CH

2,4 h.

NCH

1,6 h.

TH

4 h.

#### EVALUATION SYSTEM

W

100%

#### MAKE-UP MECHANISMS

(No mechanisms)

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems

CH - Class hours: 2,4 h.

NCH - Non-class hours: 1,6 h.

TH - Total hours: 4 h.

**RGD194** [!] *Realiza una presentación oral y defensa del proyecto clara y concisa, haciendo uso correcto, inclusivo y no discriminatorio del lenguaje.*

#### LEARNING ACTIVITIES

Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams

CH

2,4 h.

NCH

1,6 h.

TH

4 h.

#### EVALUATION SYSTEM

W

100%

#### MAKE-UP MECHANISMS

(No mechanisms)

Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems

CH - Class hours: 2,4 h.

NCH - Non-class hours: 1,6 h.

TH - Total hours: 4 h.

## CONTENTS

**LEARNING RESOURCES AND BIBLIOGRAPHY****Learning resources**

Moodle Platform  
Class presentations  
Computer practical training  
Slides of the subject  
Video projections  
Subject notes

**Bibliography**

Robert Smith, Roland Minton. Cálculo, tomos 1 y 2 (McGraw-Hill, 2007)  
Salas, S. L., Hille, E. & Etgen, G. J. Calculus: una y varias variables (Reverte, 2003)  
Lay, D. C. & Murrieta, J. M. Álgebra lineal y sus aplicaciones (Pearson Educación, 2007)  
Poole, D. Álgebra lineal: una introducción moderna (Cengage Learning Editores, 2011)