Mondragon
Unibertsitatea
Goi Eskola
Politeknikoa
Escuela Politécnica
Superior

[GDA301] MATHEMATICS I

GENERAL INFORMATION

Studies	DEGREE IN INDUSTRIAL DESIGN AND PRODUCT DEVELOPMENT ENGINEERING	**Subject**	MATHEMATICS
Semester	1	**Course** 1	
Character	BASIC TRAINING	**Mention / Field of specialisation**	
Plan	2022	**Modality** Face-to-face	**Language** EUSKARA
Credits	6	**Hours/week** 5.06	**Total hours** 91 class hours + 59 non-class hours = **150 total hours**

2030 AGENDA GOALS

8 DECENT WORK AND ECONOMIC GROWTH   9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

PROFESSORS

ORUNA OTALORA, ZIGOR ALBERTO

URIEN CRESPO, MIREN JOSUNE

REQUIRED PREVIOUS KNOWLEDGE

Subjects	**Knowledge**
(No specific previous subjects required)	*(No previous knowledge required)*

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
G-RA01 - To solve mathematical problems that may arise in engineering, demonstrating the ability to apply knowledge of: differential and integral calculus; numerical methods; and optimization		x		5,4
G-RTR1 - 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		0,36
G-RTR2 - 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		0,24
			Total:	**6**

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

ENAEE LEARNING RESULTS	ECTS
ENAE01 - Knowledge and understanding: Knowledge and understanding of the underlying scientific and mathematical principles in their branch of engineering.	1,8
ENAE02 - Knowledge and understanding: A systematic understanding of the key aspects and concepts of their branch of engineering.	1,32
ENAE05 - Analysis in engineering: Ability to apply their knowledge and understanding in identifying, formulating and solving engineering problems using established methods.	2
ENAE15 - Practical application of engineering: Understanding of applicable methods and techniques and their limitations.	0,88
	Total: 6

SECONDARY LEARNING RESULTS

1RGD192 **(1 sem)**

LEARNING ACTIVITIES	CH	NCH	TH
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams	1 h.	2 h.	3 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	100%	*(No mechanisms)*

CH - Class hours: 1 h.
NCH - Non-class hours: 2 h.
TH - Total hours: 3 h.

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RGD101 [!] *Utiliza el cálculo diferencial para resolver los problemas de optimización, de cálculo aproximado y la expansión de los errores*

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	11 h.	11 h.	22 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	2 h.	6 h.	8 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	20 h.		20 h.
Carrying out exercises and solving problems individually and/or in teams	17 h.	14 h.	31 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	20%	Individual written and/or oral tests or individual coding/programming tests
Individual written and/or oral tests or individual coding/programming tests	80%	

CH - Class hours: 50 h.
NCH - Non-class hours: 31 h.
TH - Total hours: 81 h.

1RGD191 (1 sem)

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		3 h.	3 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	100%	*(No mechanisms)*

CH - Class hours: 0 h.
NCH - Non-class hours: 3 h.
TH - Total hours: 3 h.

1RGD190 (1 sem)

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	1 h.	2 h.	3 h.

EVALUATION SYSTEM	W	MAKE-UP 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	100%	*(No mechanisms)*

CH - Class hours: 1 h.

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NCH - Non-class hours: 2 h.
TH - Total hours: 3 h.

1RGD194 (1 sem)

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	3 h.		3 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	100%	*(No mechanisms)*

CH - Class hours: 3 h.
NCH - Non-class hours: 0 h.
TH - Total hours: 3 h.

RGD102 [!] *Utiliza el cálculo integral para resolver problemas físicos y geométricos*

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	5 h.	3 h.	8 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	2 h.	6 h.	8 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	11 h.		11 h.
Carrying out exercises and solving problems individually and/or in teams	16 h.	11 h.	27 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	20%	Individual written and/or oral tests or individual coding/programming tests
Individual written and/or oral tests or individual coding/programming tests	80%	

CH - Class hours: 34 h.
NCH - Non-class hours: 20 h.
TH - Total hours: 54 h.

1RGD193 (1 sem)

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.	1 h.	3 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	100%	*(No mechanisms)*

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CH - Class hours: 2 h.
NCH - Non-class hours: 1 h.
TH - Total hours: 3 h.

CONTENTS

1. Basic functions and operations2. Complex numbers3. Limits and continuity of functions4. Derivation and its applications5. Integration and its applications

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources	Bibliography
[!] *Apuntes de la asignatura*	Salas Hill. Calculus I Editorial Reverté
[!] *Software específico de la titulación*	Smith Robert T:Cálculo Vol I, Ed. Mc Graw Hill
[!] *Plataforma Moodle*	