

## [GCT301] MACHINE AND MECHANISM THEORY

### GENERAL INFORMATION

<b>Studies</b>	DEGREE IN ENGINEERING IN ECO-TECHNOLOGY IN INDUSTRIAL PROCESS		<b>Subject</b>	?
<b>Semester</b>	2	<b>Course</b>	3	<b>Mention / Field of specialisation</b>
<b>Character</b>	COMPULSORY		<b>Language</b>	EUSKARA
<b>Plan</b>	2022	<b>Modality</b>	Face-to-face	<b>Total hours</b> [!] 88 class hours + 119 non-class hours = <b>207 total hours</b>
<b>Credits</b>	4,5	<b>Hours/week</b>	4.89	

### PROFESSORS

OYANGUREN GARCIA, AITOR

### REQUIRED PREVIOUS KNOWLEDGE

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

### LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
<b>GCR311</b> - Applies the principles of theory of machines and mechanisms in complex mechanical systems		x		3,78
<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		0,4
<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
<b>Total:</b>				<b>4,5</b>

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

### SECONDARY LEARNING RESULTS

**RGC390** [!] *Definir y gestionar los objetivos y la planificación de un proyecto que le permita adquirir y/o reforzar los conocimientos de tecnologías específicas de su especialidad,- que en ocasiones llegan a la vanguardia del conocimiento- y definir una estrate*

#### 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		4 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%

**Comments:** Assessment of the acquired transversal skills:  
Followed methodology to solve the project: team work, decision making methods, conflict management... Project management: definition of objectives, planning,... Written and oral communication

#### MAKE-UP MECHANISMS

(No mechanisms)

**Comments:** Continuous assessment. The project is managed through the tutoring meetings and the meetings held with the experts, errors are corrected and the precise guidelines are given to overcome the project.

**CH - Class hours:** 0 h.

**NCH - Non-class hours:** 4 h.

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

**RGC391** [!] *Coordinar el equipo de trabajo, estimulando la cohesión y buen clima para lograr la integración de todas las personas y su contribución para alcanzar un rendimiento apropiado, tanto a nivel individual como grupal, para el desarrollo del proyecto en*

#### LEARNING ACTIVITIES

	CH	NCH	TH
Development and writing of records, reports, presentations, audiovisual material, etc. on		3 h.	3 h.

projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams

**EVALUATION SYSTEM**

**W**

Self-assessment

50%

Co-assessment

50%

**Comments:** Assessment of the acquired transversal skills:

Followed methodology to solve the project: team work, decision

making methods, conflict management... Project management:

definition of objectives, planning,... Written and oral communication

**MAKE-UP MECHANISMS**

(No mechanisms)

**Comments:** Continuous assessment. The project is managed through the tutoring meetings and the meetings held with the experts, errors are corrected and the precise guidelines are given to overcome the project.

**CH - Class hours:** 0 h.

**NCH - Non-class hours:** 3 h.

**TH - Total hours:** 3 h.

**RGC392** [!] *Identificar y argumentar de forma precisa los ODS en los que incide el proyecto realizado, aportando posibles acciones para la mejora.*

**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**

Reports on the completion of exercises, case studies,

100%

computer exercises, simulation exercises, laboratory

exercises, term projects, challenges and problems

**Comments:** Assessment of the acquired transversal skills:

Followed methodology to solve the project: team work, decision

making methods, conflict management... Project management:

definition of objectives, planning,... Written and oral communication

**MAKE-UP MECHANISMS**

(No mechanisms)

**Comments:** Continuous assessment. The project is managed through the tutoring meetings and the meetings held with the experts, errors are corrected and the precise guidelines are given to overcome the project.

**CH - Class hours:** 0 h.

**NCH - Non-class hours:** 3 h.

**TH - Total hours:** 3 h.

**RGC393** [!] *Elabora la memoria del proyecto, aportando argumentos elaborados y haciendo un uso correcto, inclusivo y no discriminatorio del lenguaje.*

**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

4 h.

4 h.

**EVALUATION SYSTEM**

**W**

Reports on the completion of exercises, case studies,

100%

computer exercises, simulation exercises, laboratory

exercises, term projects, challenges and problems

**Comments:** Assessment of the acquired transversal skills:

Followed methodology to solve the project: team work, decision

making methods, conflict management... Project management:

definition of objectives, planning,... Written and oral communication

**MAKE-UP MECHANISMS**

(No mechanisms)

**Comments:** Continuous assessment. The project is managed through the tutoring meetings and the meetings held with the experts, errors are corrected and the precise guidelines are given to overcome the project.

**CH - Class hours:** 0 h.

**NCH - Non-class hours:** 4 h.

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

**RGC394** [!] *Realiza una presentación oral del proyecto, justificando las soluciones propuestas con argumentos elaborados y precisos, y haciendo un uso correcto, inclusivo y no discriminatorio del lenguaje.*

#### 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

4 h.

4 h.

#### EVALUATION SYSTEM

W

#### 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

100%

**Comments:** Continuous assessment. The project is managed through the tutoring meetings and the meetings held with the experts, errors are corrected and the precise guidelines are given to overcome the project.

**Comments:** Assessment of the acquired transversal skills:

Followed methodology to solve the project: team work, decision making methods, conflict management... Project management:

definition of objectives, planning,... Written and oral communication

**CH - Class hours:** 0 h.

**NCH - Non-class hours:** 4 h.

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

**RGC327** [!] *Realiza un análisis cinemático y cinético de mecanismos*

#### 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

10 h.

10 h.

Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects

12 h.

12 h.

Carrying out exercises and solving problems individually and/or in teams

5 h.

5,75 h.

10,75 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

30%

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

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

70%

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

**CH - Class hours:** 17 h.

**NCH - Non-class hours:** 15,75 h.

**TH - Total hours:** 32,75 h.

**RGC328** [!] *Dimensiona y selecciona los componentes mecánicos óptimos*

#### 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

20 h.

20 h.

Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects

15 h.

15 h.

Carrying out exercises and solving problems individually and/or in teams

12 h.

14,75 h.

26,75 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

80%

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

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

20%

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

**CH - Class hours:** 27 h.  
**NCH - Non-class hours:** 34,75 h.  
**TH - Total hours:** 61,75 h.

**RGC327** [!] *Realiza un análisis cinemático y cinético de mecanismos*

**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		10 h.	10 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	12 h.		12 h.
Carrying out exercises and solving problems individually and/or in teams	5 h.	5,75 h.	10,75 h.

**EVALUATION SYSTEM**

W

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems  
 Individual written and/or oral tests or individual coding/programming tests

30%

70%

**MAKE-UP MECHANISMS**

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems  
 Individual written and/or oral tests or individual coding/programming tests

**CH - Class hours:** 17 h.  
**NCH - Non-class hours:** 15,75 h.  
**TH - Total hours:** 32,75 h.

**RGC328** [!] *Dimensiona y selecciona los componentes mecánicos óptimos*

**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		20 h.	20 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	15 h.		15 h.
Carrying out exercises and solving problems individually and/or in teams	12 h.	14,75 h.	26,75 h.

**EVALUATION SYSTEM**

W

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems  
 Individual written and/or oral tests or individual coding/programming tests

80%

20%

**MAKE-UP MECHANISMS**

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems  
 Individual written and/or oral tests or individual coding/programming tests

**CH - Class hours:** 27 h.  
**NCH - Non-class hours:** 34,75 h.  
**TH - Total hours:** 61,75 h.

**CONTENTS**

**LEARNING RESOURCES AND BIBLIOGRAPHY**

**Learning resources**

Subject notes  
 Topic related web quires  
 Slides of the subject

**Bibliography**

[http://katalogoa.mondragon.edu/janium-bin/janium\\_login\\_opac\\_re\\_Ink.pl?grupo=EKOTEKNOLOGIA32&ejecuta=25&\\_ST](http://katalogoa.mondragon.edu/janium-bin/janium_login_opac_re_Ink.pl?grupo=EKOTEKNOLOGIA32&ejecuta=25&_ST)