

[GJN203] INDUSTRIAL ASSETS MANAGEMENT

GENERAL INFORMATION

Studies DEGREE IN MECHATRONICS ENGINEERING	Subject ?	
Semester 2	Course 3	Mention / Field of specialisation
Character COMPULSORY		
Plan 2022	Modality Face-to-face	Language CASTELLANO/EUSKARA
Credits 4,5	Hours/week 3.75	Total hours 67.5 class hours + 45 non-class hours = 112.5 total hours

PROFESSORS

URIZAR AIZPURU, ENERITZ	
LLAGUNO VILLAFAFILA, ARRATE	

REQUIRED PREVIOUS KNOWLEDGE

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

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
GJR304 - To know and apply the principles of maintenance and quality control systems			x	4,02
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		0,24
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:				4,5

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

SECONDARY LEARNING RESULTS

RGJ390 [!] *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
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
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	100%

MAKE-UP MECHANISMS

(No mechanisms)

Comments: Continuous assessment. Retake is not foreseen.

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

RGJ391 [!] *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
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams	2 h.	1 h.	3 h.

EVALUATION SYSTEM

	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory	100%

MAKE-UP MECHANISMS

(No mechanisms)

Comments: Continuous assessment. Retake is not foreseen.

exercises, term projects, challenges and problems

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

RGJ393 [!] *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

1 h. 2 h. 3 h.

EVALUATION SYSTEM

W

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

100%

MAKE-UP MECHANISMS

(No mechanisms)

Comments: Revision and correction of the written report of the semester project

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

RGJ394 [!] *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

2 h. 1 h. 3 h.

EVALUATION SYSTEM

W

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

100%

MAKE-UP MECHANISMS

(No mechanisms)

Comments: Continuous assessment. Retake is not foreseen.

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

RGJ309 [!] *Identificar y aplicar diferentes herramientas y estrategias para asegurar la Calidad y el Cero Defectos en los procesos productivos.*

LEARNING ACTIVITIES

CH **NCH** **TH**

Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints

2 h. 4 h. 6 h.

Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams

6 h. 2 h. 8 h.

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

4 h. 4 h.

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

4 h. 4 h. 8 h.

EVALUATION SYSTEM

W

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory

70%

MAKE-UP MECHANISMS

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term

exercises, term projects, challenges and problems
 Individual written and/or oral tests or individual coding/programming tests
Comments: EN1 ZERO DEFECTS 50% PC1 30% PBL 20%

projects, challenges and problems
 Individual written and/or oral tests or individual coding/programming tests

CH - Class hours: 16 h.
NCH - Non-class hours: 10 h.
TH - Total hours: 26 h.

RGJ310 [!] *Identificar y aplicar las diferentes técnicas que se utilizan para la planificación y mejora de la Calidad.*

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	6 h.	4 h.	10 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	6 h.		6 h.
Carrying out exercises and solving problems individually and/or in teams	2,5 h.	5 h.	7,5 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
Comments: EN1 ZERO DEFECTS 30% PC1 40% PBL 30%

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: 14,5 h.
NCH - Non-class hours: 9 h.
TH - Total hours: 23,5 h.

RGJ311 [!] *Plantea sistemas de recogida de datos y analiza los datos recogidos para mejorar continuamente la disponibilidad de los medios productivos*

LEARNING ACTIVITIES

	CH	NCH	TH
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	1 h.	2 h.	3 h.
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams	6 h.	4 h.	10 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	4 h.		4 h.
Carrying out exercises and solving problems individually and/or in teams	4 h.	5 h.	9 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
Comments: PC2 50% EN2 KAIZEN EXERCISES 20% PBL 30%

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

CH - Class hours: 15 h.
NCH - Non-class hours: 11 h.
TH - Total hours: 26 h.

RGJ312 [!] *Selecciona el plan de mantenimiento adecuado en base a criterios objetivos*

LEARNING ACTIVITIES	CH	NCH	TH
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	1 h.	3 h.	4 h.
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams	5 h.	2 h.	7 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	5 h.	2 h.	7 h.
Carrying out exercises and solving problems individually and/or in teams	5 h.	2 h.	7 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	60%	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	
Individual written and/or oral tests or individual coding/programming tests	40%	Individual written and/or oral tests or individual coding/programming tests	
Comments: PC2 50% EN2 KAIZEN EXERCISES 10% PBL 40%			
CH - Class hours: 16 h.			
NCH - Non-class hours: 9 h.			
TH - Total hours: 25 h.			

CONTENTS

QUALITY MANAGEMENT

1.INTRODUCTION TO QUALITY MANAGEMENT

- 1.Definition of Quality
- 2.Quality Objectives
- 3.Evolution of Quality
- 4.Continuous improvement-Deming cycle

2.QUALITY AND PROCESS CONTROL

- 1.Introduction to quality control
 - 2.Problems of quality control
 - 3.Variability of processes (5M)
 - 4.Strategies to achieve zero defects
- I.Final control
 - II.Successive verification system
 - III.Self Inspection
 - IV.Statistical process control (SPC)
 - i.Basic Statistics
 - ii.Control charts
 - V.Inspection at Source (POKA YOKE)

3.TOTAL QUALITY MANAGEMENT – QUALITY PLANNING AND PREVENTION

- 1.QUALITY TOOLS
- 2.APQP
- 3.FMEA

Maintenance Management

- 1.Introduction to Maintenance Management
- 2.Maintenance types and Profiles
- 3.TPM: TOTAL PRODUCTIVE MAINTENANCE
 - 1.Introduction
 - 2.Objectives
 - 3.Waste management
 - 4.TMP METHODOLOGY
 - 1.MEASUREMENT METHOD: MAINTENANCE KEY PROCESS INDICATORS
 - 4.Autonomous Maintenance
 - 5.Corrective Maintenance
 - 6.Preventive Maintenance
 - 7.Predictive Maintenance
 - 8.Maintenance Management System Implementation
 - 1.Basic conditions
 - 2.RCM_AMFE
 - 9.CMMS (Computerized Maintenance Management System) (GMAO)

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources	Bibliography
Subject notes Moodle Platform Class presentations Presentations by external Lecturers	Procesos y Gestión de Mantenimiento y Calidad. Raimundo Fernández Díez. Marcombo 2018 http://katalogoa.mondragon.edu/janium-bin/janium_login_opac_re_in_k.pl?grupo=MECATRONICA32&ejecuta=20&_ST OZEKI, K. ASAKA, T. Handbook of Quality Tools. The Japanese approach. Productivity Press. Advanced Quality Product Planning (APQP) and Control Plan including PPAP 2000. Plexus Corporation, 1999. Product- Process FMEA. Renault Institute of Quality Management. Moubray John, RCM II Mantenimiento Centrado en Confiabilidad, Aladon LLC, 2004 Introducción al TPM. Seiichi Nakajima. 1991. Tecnologías de Gerencia y Producción. TPM en Industrias de Proceso. Tokutaro Suzuki. 1996. Productivity Press