[GJN103] INDUSTRIAL ASSETS MANAGEMENT

GENERAL INFORMATION

Studies	DEGREE IN MECHATRONICS ENGINEERING			**Subject**	?
Semester	2	**Course**	3	**Mention / Field of specialisation**	
Character	COMPULSORY				
Plan	2020	**Modality**	Adapted Face-to-face	**Language**	CASTELLANO
Credits	4,5	**Hours/week**	3.75	**Total hours**	67.5 class hours + 45 non-class hours = **112.5 total hours**

PROFESSORS

LEGARRETA ALEGRIA, JUAN LUIS
URIZAR AIZPURU, ENERITZ

REQUIRED PREVIOUS KNOWLEDGE

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

SKILLS

VERIFICA SKILLS

SPECIFIC

GJCE11 - Applied knowledge of maintenance systems and quality control.

GENERAL

GJCG03 - Addressing and optimising activities of assembly, commissioning, assistance and maintenance of facilities, machinery, and industrial mechatronic systems

GJCG04 - Managing technically teams and people in activities of assembly, commissioning, assistance and maintenance of facilities, machinery and industrial systems, through the methodology of administration by projects for the effective execution of planning

GJCG05 - Developing and designing products, equipment and mechatronic systems while complying with the technical, economic, quality and safety requirements established in the specifications and required by current legislation

LEARNING RESULTS

RG301 **They assume responsibilities in the team, organizing and planning the tasks to be developed, dealing with contingencies and encouraging the participation of its members.**

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
Self-assessment	30%
Co-assessment	35%
Observation (technical capacity, attitude and participation)	35%

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.

RG302 **They analyze the variables involved in the problem and propose actions for a stable situation.**

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
Observation (technical capacity, attitude and participation)	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.

RG304 They define the problem, the development of the solution, as well as the conclusions in an effective way, arguing and justifying each of them, making a correct use of the language, in writing.

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

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

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

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

RG305 They define the problem, the development of the solution, as well as the conclusions in an effective way, arguing and justifying each one of them, and making a correct use of the language, orally.

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
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%

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 They identify and apply different tools and strategies to ensure Quality and Zero Defects in production processes.

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.	1 h.	5 h.
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning		3 h.	3 h.
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	6 h.	2 h.	8 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	6 h.		6 h.

Comments: Evidence: PC1 Case study: Zero defects. Resolution and report writing

EVALUATION SYSTEM	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	50%
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	20%
Individual written and/or oral tests or individual coding/programming tests	30%

Comments: 30% PC1:Test_Introduction to Quality Management 50% EN1:Strategies to achieve zero defects 20% POPBL

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

Comments: In the case of having to take the make-up test, final mark: 75% of the make-up test + 25% of the first test. In case the reports should be made up, they may be corrected.

CH - Class hours: 17 h.
NCH - Non-class hours: 9 h.
TH - Total hours: 26 h.

RGJ310 They identify and apply different techniques used for planning and quality improvement.

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	1,5 h.	3 h.	4,5 h.
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning		2 h.	2 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	2 h.	1 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	5 h.	1 h.	6 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	3 h.	1 h.	4 h.

Comments: Case study: Zero defects. Case resolution and memory development Exercises: Pareto, IShikawa, FMEA Tests: Checkpoint 1

EVALUATION SYSTEM	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	30%
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	30%
Individual written and/or oral tests or individual coding/programming tests	40%

Comments: EN1 30% PC1 40% POPBL 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

Comments: Recovery: 75% recovery + 25% initial test Reports: Maximum score in the recovery "5".

CH - Class hours: 15,5 h.
NCH - Non-class hours: 8 h.
TH - Total hours: 23,5 h.

RGJ311 They set up data collection systems and analyse the data collected in order to continuously improve the availability of the productive means.

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.

Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning		3 h.	3 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	2 h.	2 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	2 h.	3 h.	5 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.	3 h.	7 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
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	30%	**Comments:** Recovery: 75% Recovery + 25% Control point
Individual written and/or oral tests or individual coding/programming tests	50%	

Comments: PC2 50% EN2 20% POPBL 30%

CH - Class hours: 12 h.
NCH - Non-class hours: 14 h.
TH - Total hours: 26 h.

RGJ312 They select the right maintenance plan based on objective criteria

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.	4 h.
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning		3 h.	3 h.
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.		5 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	3 h.	2 h.	5 h.

Comments: Exercises: EFFICIENCIES, INDICATORS Reports: kaizen tools work Tests: checkpoint

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	10%	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	40%	**Comments:** Recovery: 75% Recovery + 25% Control point
Individual written and/or oral tests or individual coding/programming tests	50%	

Comments: PC2 50% EN2 10% POPBL 40%

CH - Class hours: 15 h.
NCH - Non-class hours: 10 h.
TH - Total hours: 25 h.

CONTENTS

Quality engineering

1.Introduction to quality Management

2.Quality Control

1.Quality Control: Zero defects

2.Self-inspection

3.Basic statistics

4.Statistical Process Control (S.P.C.)

5.Inspection at the source. Poka-Yoke

3.Quality Planning/ Prevention

1.Quality planning

2.Failure mode and efects analysis (FMEA)

Maintenance Management

1. Introduction to Maintenance Management

2.Types of Maintenance

1.Corrective, Preventive, Predictive

3.Indicators in Maintenance Management

1. Maintainability, Reliability and Availability

2.Efficiency_ 6 major losses

3.Other indicators

4.Implementation of a Maintenance Management system

1.Prerequisites

2.RCM_AMFE

3.TPM and Autonomous Maintenance

5.CMMS_Computerised Maintenance Management

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_lnk.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