

[MRG105] MODELLING AND SIMULATION

GENERAL INFORMATION

Studies	Master's Degree in ROBOTICS AND CONTROL SYSTEMS		Subject	?	
Semester	1	Course	2	Mention / Field of specialisation	
Character	OPTIONAL				
Plan	2023	Modality	Face-to-face	Language	CASTELLANO/EUSKARA
Credits	3	Hours/week	0	Total hours	51 class hours + 24 non-class hours = 75 total hours

PROFESSORS

EGUREN EGUIGUREN, JOSE ALBERTO
UNZUETA ARANGUREN, GORKA

REQUIRED PREVIOUS KNOWLEDGE

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

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
MRRA19 - To demonstrate capacity for the management of technological Research, Development and Innovation		x		1,5
MRR125 - To have and understand knowledge which provides a base or opportunity to be original in the development and/or application of ideas, often in an investigation context	x	x		1,5
Total:				3

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

SECONDARY LEARNING RESULTS

RMR112 [!] *Demostrar capacidad para la gestión de la Investigación, Desarrollo e Innovación tecnológica*

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	8,5 h.	8 h.	16,5 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.	4 h.	9 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

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: 25,5 h.

NCH - Non-class hours: 12 h.

TH - Total hours: 37,5 h.

RMR113 [!] *Poseer y comprender conocimientos que aporten una base u oportunidad de ser originales en el desarrollo y/o aplicación de ideas, a menudo en un contexto de investigación*

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	8,5 h.	8 h.	16,5 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.	4 h.	9 h.

EVALUATION SYSTEM

	W
Presentation and defence of exercises, case studies,	100%

MAKE-UP MECHANISMS

Presentation and defence of exercises, case studies, computer

computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems

practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems

CH - Class hours: 25,5 h.
NCH - Non-class hours: 12 h.
TH - Total hours: 37,5 h.

CONTENTS

1. INTRODUCTION TO DOE 2. FULL FACTORIAL DESIGN 3. FRACTIONAL FACTORIAL DESIGN 4. TAGUCHI METHOD

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources

Subject notes

Bibliography

BOX, GEORGE E.P.; HUNTER, WILLIAM G.; HUNTER, J. STUART. Estadística para investigadores. Ed. Reverté, Barcelona, 1988
 PRAT, ALBERT; TORT-MARTORELL, XAVIER; GRIMA, PERE; POZUETA, LOURDES. Métodos Estadísticos. Control y mejora de la calidad. Ed. UPC, Barcelona, 1997. ISBN 84-8301-222-7
 PHADKE, MADHAV S. Quality Engineering using robust design. Ed. AT&T Bell Laboratories, 1989. ISBN 0-13-745167-9.
 TAGUCHI G.; ELSAYED A. E.; HSIANG T. Quality Engineering in Production Systems. Mc Graw Hill, 1989. ISBN 0-07-062830-0.
 HIRANO, Hiriyuki. Poka Yoke. Mejorando la calidad del producto evitando los defectos. Productivity Press, Inc. ISBN: 84-87022-73-1