

## [MRG102] METHODOLOGICAL GUIDELINES FOR PREPARING A DOCTORAL TESIS

### GENERAL INFORMATION

<b>Studies</b>	Master's Degree in ROBOTICS AND CONTROL SYSTEMS	<b>Subject</b>	?
<b>Semester</b>	1	<b>Course</b>	2
<b>Character</b>	OPTIONAL	<b>Mention / Field of specialisation</b>	
<b>Plan</b>	2023	<b>Modality</b>	Face-to-face
<b>Credits</b>	3	<b>Hours/week</b>	0
		<b>Language</b>	CASTELLANO/EUSKARA
		<b>Total hours</b>	12 class hours + 63 non-class hours = <b>75 total hours</b>

### PROFESSORS

(No professor appointed)

### REQUIRED PREVIOUS KNOWLEDGE

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

### LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
<b>MRA19</b> - To demonstrate capacity for the management of technological Research, Development and Innovation		x		1,5
<b>MRR125</b> - 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
<b>Total:</b>				<b>3</b>

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

### SECONDARY LEARNING RESULTS

#### **RMR103** [!] *Demostrar capacidad para la gestión de la Investigación, Desarrollo e Innovación tecnológica*

##### 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		31,5 h.	31,5 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	6 h.		6 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

**CH - Class hours:** 6 h.  
**NCH - Non-class hours:** 31,5 h.  
**TH - Total hours:** 37,5 h.

#### **RMR104** [!] *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
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		31,5 h.	31,5 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	6 h.		6 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

**CH - Class hours:** 6 h.  
**NCH - Non-class hours:** 31,5 h.  
**TH - Total hours:** 37,5 h.

## CONTENTS

### LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources	Bibliography
Class presentations Presentations by external Lecturers	<p>OCDE (2015), Frascati Manual 2015: Guidelines for Collecting and Reporting Data on Research and Experimental Development, The Measurement of Scientific, Technological and Innovation Activities. Publicado por acuerdo con la OCDE, París (Francia). DOI: <a href="http://dx.doi.org/10.1787/9789264239012-en">http://dx.doi.org/10.1787/9789264239012-en</a></p> <p>Leyton Castillo, A. (2012). Clases y tipos de Investigación Científica. <a href="https://investigacionestodo.wordpress.com/2012/05/19/clases-y-tipos-de-investigacion-cientifica/">https://investigacionestodo.wordpress.com/2012/05/19/clases-y-tipos-de-investigacion-cientifica/</a>.</p> <p>Cegarra Sanchez, J.(2004). Metodología de la investigación científica y tecnológica. Madrid. Diaz de Santos.</p> <p>Zarraga, O (2016). Brake-clutch squeal prediction and suppression ( tesis doctoral). Mondragon Unibertsitatea, Mondragón.</p> <p>Hernandez Sampieri, R. (2017). Fundamentos de investigación. Méjico. Mc Graw Hill.</p> <p>Nallaperumal, K.(2013). Engineering Research Methodology A Computer Science and Engineering and Information and Communication Technologies Perspective. Manonmaniam Sundaranar University. Tirunelveli, Tamil Nadu, India. <a href="https://www.researchgate.net/publication/259183120_Engineering_Research_Methodology_A_Computer_Science_and_Engineering_and_Information_and_Communication_Technologies_Perspective">https://www.researchgate.net/publication/259183120_Engineering_Research_Methodology_A_Computer_Science_and_Engineering_and_Information_and_Communication_Technologies_Perspective</a></p> <p>Kumar, R. (2011). Research methodology &amp;#8211; A step-by-step guide for beginners. New Delhi. SAGE Publications.</p> <p>Sáez de Buruaga, M. (2018). A Novel Procedure Based on 2D Finite Element Modeling and Orthogonal Cutting Tests to Predict Machinability and Tool Wear Evolution Considering the Microstructure Effect of Lamellar Ferrite-Pearlite Steels (tesis doctoral).MU-MGEP.</p> <p>Bunge, M. (2001). La ciencia, su método y su filosofía. Editorial Sudamericana, Buenos Aires.</p>