

## [MSB005] Artificial Intelligence in Energy Applications

### GENERAL INFORMATION

<b>Studies</b>	MASTER DEGREE IN SMART ENERGY SYSTEMS	<b>Subject</b>	Monitoring and diagnosis
<b>Semester</b>	2	<b>Course</b>	1
<b>Character</b>	COMPULSORY	<b>Mention / Field of specialisation</b>	
<b>Plan</b>	2022	<b>Modality</b>	Face-to-face
<b>Credits</b>	4,5	<b>Hours/week</b>	0
		<b>Language</b>	CASTELLANO
		<b>Total hours</b>	76 class hours + 36.5 non-class hours = <b>112.5 total hours</b>

### PROFESSORS

AGUIRRE ORTUZAR, AITOR
IBASQ-PENALBA RETES, MARKEL

### REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
(No specific previous subjects required)	Statistics Programming fundamentals

### LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
<b>MSR141</b> - Predicting time series for the identification of energy resources and optimising the use of energy sources, through the use of Artificial Intelligence.			x	4,02
<b>MSR171</b> - Ability to work in multidisciplinary teams and in a multilingual environment	x		x	0,16
<b>MSR222</b> - Exhibits, argues and defends the results obtained in the work carried out before a panel of judges			x	0,16
<b>MSR251</b> - Develops a project in the field of energy systems in a practical application context		x		0,16
			<b>Total:</b>	<b>4,5</b>

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

### SECONDARY LEARNING RESULTS

**RMS111** [!] *Predecir series temporales para la identificación de recursos energéticos y optimizar el uso de las fuentes de energía, mediante el uso de la Inteligencia Artificial*

#### 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	9 h.		9 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	35 h.	18,5 h.	53,5 h.
Carrying out exercises and solving problems individually and/or in teams	20 h.	18 h.	38 h.

#### EVALUATION SYSTEM

	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	67%
Individual written and/or oral tests or individual coding/programming tests	33%

#### 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:** 64 h.

**NCH - Non-class hours:** 36,5 h.

**TH - Total hours:** 100,5 h.

**RMS171** [!] *Es capaz de trabajar en equipos multidisciplinares y en un entorno multilingüe*

#### 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	4 h.		4 h.

<b>EVALUATION SYSTEM</b>	<b>W</b>	<b>MAKE-UP MECHANISMS</b>
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	100%	Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems
<b>CH - Class hours:</b> 4 h. <b>NCH - Non-class hours:</b> 0 h. <b>TH - Total hours:</b> 4 h.		

<b>RMS222</b> [!] <i>Expone, argumenta y defiende ante un tribunal los resultados obtenidos en el trabajo desarrollado</i>			
<b>LEARNING ACTIVITIES</b>	<b>CH</b>	<b>NCH</b>	<b>TH</b>
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.
<b>EVALUATION SYSTEM</b>	<b>W</b>	<b>MAKE-UP MECHANISMS</b>	
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	100%	Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	
<b>CH - Class hours:</b> 4 h. <b>NCH - Non-class hours:</b> 0 h. <b>TH - Total hours:</b> 4 h.			

<b>RMS251</b> [!] <i>Desarrolla un proyecto del ámbito de los sistemas energéticos en un contexto de aplicación práctica</i>			
<b>LEARNING ACTIVITIES</b>	<b>CH</b>	<b>NCH</b>	<b>TH</b>
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams	4 h.		4 h.
<b>EVALUATION SYSTEM</b>	<b>W</b>	<b>MAKE-UP MECHANISMS</b>	
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	50%	<i>(No mechanisms)</i>	
Individual written and/or oral tests or individual coding/programming tests	50%		
<b>CH - Class hours:</b> 4 h. <b>NCH - Non-class hours:</b> 0 h. <b>TH - Total hours:</b> 4 h.			

## CONTENTS

### LEARNING RESOURCES AND BIBLIOGRAPHY

<b>Learning resources</b>	<b>Bibliography</b>
Moodle Platform Subject notes Technical articles Topic related web quires Moodle Platform	Acceso online a bibliografía: <a href="https://labur.eus/aHyaL">https://labur.eus/aHyaL</a>

