[MSA104] TESTING AND VALIDATION PLATFORMS

GENERAL INFORMATION

Studies	MASTER DEGREE IN SMART ENERGY SYSTEMS			**Subject**	?
Semester	2	**Course**	1	**Mention / Field of specialisation**	
Character	COMPULSORY				
Plan	2025	**Modality**	Face-to-face	**Language**	EUSKARA/CASTELLANO
Credits	4,5	**Hours/week**	0	**Total hours**	63 class hours + 49.5 non-class hours = **112.5 total hours**

2030 AGENDA GOALS

PROFESSORS

AIZPURU LARRAÑAGA, IOSU
DEL OLMO LARRAÑAGA, JON
AZPI-ARETXEDERRETA MONTERO, PAUL

REQUIRED PREVIOUS KNOWLEDGE

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

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
MS121 - Manage the life cycle processes of a smart energy system in a sustainable and efficient way taking into account environmental, economic and industrial implications through Software-in-the-Loop and Hardware-in-the-Loop platforms.			*x*	4,02
MS171 - Ability to work in multidisciplinary teams and in a multilingual environment	*x*		*x*	0,16
MS222 - Exhibits, argues and defends the results obtained in the work carried out before a panel of judges			*x*	0,16
MS251 - Develops a project in the field of energy systems in a practical application context		*x*		0,16
			Total:	4,5

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

SECONDARY LEARNING RESULTS

RMS107 **[!]** ***Gestionar los procesos del ciclo de vida de un sistema inteligente de energía de forma sostenibile y eficiente teniendo en cuenta las implicaciones ambientales, económicas e industriales mediante plataformas de Software-in-the-Loop y Hardware-in-the-***

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	21 h.	12,5 h.	33,5 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	30 h.		30 h.
Carrying out exercises and solving problems individually and/or in teams	9,5 h.	25 h.	34,5 h.
Carrying out visits and/or learning trips to other university centres, laboratories, companies and/or thermal power plants	2,5 h.		2,5 h.

EVALUATION SYSTEM	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	67%
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	33%

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: 63 h.
NCH - Non-class hours: 37,5 h.
TH - Total hours: 100,5 h.

RMS222 **[!]** ***Expone, argumenta y defiende ante un tribunal los resultados obtenidos en el trabajo desarrollado***

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.	4 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	100%	Individual written and/or oral tests or individual coding/programming tests

CH - Class hours: 0 h.
NCH - Non-class hours: 4 h.
TH - Total hours: 4 h.

RMS251 **[!]** ***Desarrolla un proyecto del ámbito de los sistemas energéticos en un contexto de aplicación práctica***

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.	4 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	100%	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: 0 h.
NCH - Non-class hours: 4 h.
TH - Total hours: 4 h.

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

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.	4 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	100%	Individual written and/or oral tests or individual coding/programming tests

CH - Class hours: 0 h.
NCH - Non-class hours: 4 h.
TH - Total hours: 4 h.

CONTENTS

Introduction to systems engineering

Requirements authoring

System architecture

Validation and verification of systems

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources	Bibliography
Subject notes	Acceso online a bibliografía: https://labur.eus/gyShT
Moodle Platform	
Class presentations	