

## [MSD002] Design of electronic systems

### GENERAL INFORMATION

<b>Studies</b>	MASTER DEGREE IN SMART ENERGY SYSTEMS	<b>Subject</b>	Hardware and rapid prototyping
<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>	63 class hours + 49.5 non-class hours = <b>112.5 total hours</b>

### PROFESSORS

OYARZUN GOYALDE, JAVIER
GARAYALDE PEREZ, ERIK

### REQUIRED PREVIOUS KNOWLEDGE

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

### LEARNING RESULTS

#### LEARNING RESULTS

	KC	SK	AB	ECTS
<b>MSR111</b> - Design and manufacture affordable, non-polluting and electromagnetically compatible electronic circuits for the efficient integration of the different equipment making up a power system.		x		4,16
<b>MSR171</b> - Ability to work in multidisciplinary teams and in a multilingual environment	x		x	0,08
<b>MSR222</b> - Exhibits, argues and defends the results obtained in the work carried out before a panel of judges			x	0,1
<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

#### **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		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	100%

#### MAKE-UP MECHANISMS

(No mechanisms)

**CH - Class hours:** 0 h.

**NCH - Non-class hours:** 2,5 h.

**TH - Total hours:** 2,5 h.

#### **RMS118** [!] *Diseñar y fabricar circuitos electrónicos asequibles, no contaminantes y electromagnéticamente compatibles para la integración eficiente de los diferentes equipos que componen un sistema de energía*

#### LEARNING ACTIVITIES

	CH	NCH	TH
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning		15 h.	15 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	2 h.		2 h.
Computer simulation exercises, individually and/or in teams	21 h.	26 h.	47 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	40 h.		40 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	34%	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	33%	
Individual written and/or oral tests or individual coding/programming tests	33%	

**CH - Class hours:** 63 h.

**NCH - Non-class hours:** 41 h.

**TH - Total hours:** 104 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%

(No mechanisms)

**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

2 h.

2 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%

(No mechanisms)

**CH - Class hours:** 0 h.

**NCH - Non-class hours:** 2 h.

**TH - Total hours:** 2 h.

**CONTENTS**

**LEARNING RESOURCES AND BIBLIOGRAPHY**

**Learning resources**

Moodle Platform  
Labs  
Slides of the subject

**Bibliography**

Acceso online a bibliografía: <https://labur.eus/O8zEA>

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Computer practical training