

[MSB003] Smart monitoring

GENERAL INFORMATION

Studies	MASTER DEGREE IN SMART ENERGY SYSTEMS	Subject	Monitoring and diagnosis
Semester	2	Course	1
Character	COMPULSORY	Mention / Field of specialisation	
Plan	2022	Modality	Face-to-face
Credits	4,5	Hours/week	0
		Language	ENGLISH
		Total hours	55 class hours + 57.5 non-class hours = 112.5 total hours

PROFESSORS

GONZALEZ JIMENEZ, DAVID
CENTENO TELLERIA, MANU

REQUIRED PREVIOUS KNOWLEDGE

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

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
MSR041 - Apply techniques for the intelligent monitoring and diagnosis of renewable technologies, electric vehicles, industrial equipment and components of energy communities, with the aim of minimising the environmental, economic and social impact of these systems.		x		4,06
MSR171 - Ability to work in multidisciplinary teams and in a multilingual environment	x		x	0,16
MSR222 - Exhibits, argues and defends the results obtained in the work carried out before a panel of judges			x	0,12
MSR251 - 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

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		3 h.	3 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)
Comments: Continuous assessment. It cannot be retaken.

CH - Class hours: 0 h.
NCH - Non-class hours: 3 h.
TH - Total hours: 3 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
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)
Comments: Continuous assessment. It cannot be retaken.

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

RMS108 [!] *Aplicar técnicas para la monitorización y diagnóstico inteligente de tecnologías renovables, vehículos eléctricos, equipos industriales y componentes de comunidades energéticas, con el objetivo de minimizar el impacto ambiental, económico y social de*

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	7 h.	20,5 h.	27,5 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	18 h.	26 h.	44 h.

EVALUATION SYSTEM

W

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

33,3%

33,3%

33,4%

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
Individual written and/or oral tests or individual coding/programming tests
Comments: The challenge cannot be retaken. Continuous assessment.

CH - Class hours: 55 h.
NCH - Non-class hours: 46,5 h.
TH - Total hours: 101,5 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

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)

Comments: Continuous assessment. It cannot be retaken.

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

CONTENTS

Basic Concepts & Metrics

Probability Distributions

Reliability Analysis

Introduction to Prognostics & Health Management (PHM)

Introduction to State Observers in State Space

Condition based maintenance & Fault Diagnosis

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources

Moodle Platform
Class presentations

Bibliography

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