

[MNF101] IoT Technologies 1

GENERAL INFORMATION

Studies	MASTER DEGREE IN DATA ANALYSIS, CYBERSECURITY AND CLOUD COMPUTING		Subject	IoT Technologies	
Semester	1	Course	1	Mention / Field of specialisation	
Character	OPTIONAL				
Plan	2024	Modality	Face-to-face	Language	ENGLISH
Credits	3	Hours/week	0	Total hours	32 class hours + 43 non-class hours = 75 total hours

PROFESSORS

MUXIKA OLASAGASTI, EÑAUT

REQUIRED PREVIOUS KNOWLEDGE

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

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
M2N115 - Obtaining physical signals from sensors and designing the adequate conditioning for their transfer to control systems in both industrial and non-industrial contexts.	x			2,6
M2N207 - Apply acquired knowledge and problem-solving skills in new, unfamiliar or changing environments within broader (or multidisciplinary) contexts related to their field of study.		x		0,4
Total:				3

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

SECONDARY LEARNING RESULTS

RA161 Evaluates and chooses sensors for industrial processes and autonomous control systems cooperating and working individually and in multidisciplinary teams.

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.	7 h.	11 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	1 h.	2 h.	3 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	5 h.		5 h.
Carrying out exercises and solving problems individually and/or in teams	4 h.	8 h.	12 h.
Practical work in workshops and/or laboratories, individually and/or in teams	3 h.	6 h.	9 h.

EVALUATION SYSTEM

	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	75%
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	25%

MAKE-UP MECHANISMS

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

CH - Class hours: 17 h.

NCH - Non-class hours: 23 h.

TH - Total hours: 40 h.

RA162 Develops and validates a signal acquisition system for industrial processes and/or autonomous systems solving the problems associated with the proposed solution in new or unfamiliar environments.

LEARNING ACTIVITIES

	CH	NCH	TH
Development and writing of records, reports, presentations, audiovisual material, etc. on	3 h.	5 h.	8 h.

projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams			
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	1 h.	2 h.	3 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	4 h.		4 h.
Carrying out exercises and solving problems individually and/or in teams	4 h.	7 h.	11 h.
Practical work in workshops and/or laboratories, individually and/or in teams	3 h.	6 h.	9 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

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

25%

25%

50%

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

CH - Class hours: 15 h.

NCH - Non-class hours: 20 h.

TH - Total hours: 35 h.

CONTENTS

- General characteristics of sensors
- Types of transducers
- Conditioning and calibration
- Advanced sensors

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources

Bibliography

Slides of the subject

Moodle Platform

Technical articles

Specific Master Software

<https://labur.eus/t1Juv>