[MNA105] Advanced Machine Learning

GENERAL INFORMATION

Studies	MASTER DEGREE IN DATA ANALYSIS, CYBERSECURITY AND CLOUD COMPUTING	**Subject**	Data Analysis
Semester	2	**Course**	1	**Mention / Field of specialisation**	
Character	COMPULSORY				
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

IZAGIRRE AIZPITARTE, UNAI

REQUIRED PREVIOUS KNOWLEDGE

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

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
M2N104 - Designing, developing and implementing an advanced data analysis process to respond to the nature of the data and the objective of the task to be executed.		x		2,4
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		0,6
			Total:	3

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

SECONDARY LEARNING RESULTS

RA142 **Proposes and develops solutions, individually and in groups, based on data analysis using advanced machine learning concepts.**

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	5 h.	11 h.	16 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	1 h.	4 h.	5 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	9 h.		9 h.
Carrying out exercises and solving problems individually and/or in teams	4 h.	11 h.	15 h.

EVALUATION SYSTEM	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	40%
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	40%
Individual written and/or oral tests or individual coding/programming tests	20%

MAKE-UP MECHANISMS

Individual written and/or oral tests or individual coding/programming tests

CH - Class hours: 19 h.
NCH - Non-class hours: 26 h.
TH - Total hours: 45 h.

RA141 **Identifies the concepts of preprocessing and advanced data analysis.**

LEARNING ACTIVITIES	CH	NCH	TH
Development and writing of records, reports, presentations, audiovisual material, etc. on	3 h.	8 h.	11 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	5 h.	7 h.	12 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Individual written and/or oral tests or individual coding/programming tests	100%	Individual written and/or oral tests or individual coding/programming tests

CH - Class hours: 13 h.
NCH - Non-class hours: 17 h.
TH - Total hours: 30 h.

CONTENTS

- Introduction
- Deep Neural Networks
- DNNs building and tunning
- Applications of DNNs

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources	Bibliography
Subject notes Technical articles Computer practical training	http://katalogoa.mondragon.edu/janium-bin/janium_login_opac_re_lnk.pl?grupo=MASTERDATUANALISIA12&ejecuta=10&