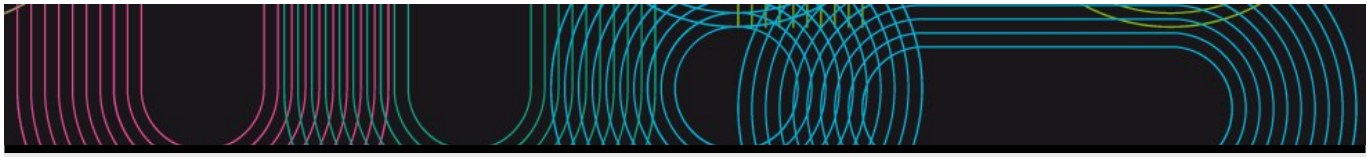

IDENTIFYING DATA				
(*)Visión Artificial				
Subject	(*)Visión Artificial			
Code	V05M038V01110			
Study programme	(*)Máster Universitario en Teoría do Sinal e Comunicacións.			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	5	Optional	1st	1st
Teaching language	English			
Department				
Coordinator	Martin Herrero, Julio			
Lecturers	Martin Herrero, Julio			
E-mail	julio@uvigo.es			
Web	http://http://www.faitic.uvigo.es			
General description	(*)This course addresses advanced techniques in computer vision, from acquisition systems to advanced image analysis, allowing the extraction of knowledge about a scene, subject or situation through one or several images.			

Competencies	
Code	
A15	(*)saber diseñar un sistema de toma de decisiones basado en la información de una escena en el espectro visible
A16	(*)entender el proceso de generación y tratamiento de imágenes captadas con sensores activos o pasivos, en el espectro de microondas, visible o infrarrojo cercano
B1	(*)Que los estudiantes sepan aplicar los conocimientos adquiridos y su capacidad de resolución de problemas en entornos nuevos o poco conocidos dentro de contextos más amplios o multidisciplinares relacionados con el campo de estudio
B2	(*)Que los estudiantes aprendan a desarrollar conceptos, teorías o principios originales con los que dar solución a problemas nuevos derivado de avances que hayan tenido lugar en las disciplinas científicas básicas que integran su campo de estudio
B3	(*)Que los estudiantes sean capaces de integrar conocimientos y enfrentarse a la complejidad de formular juicios a partir de información que, siendo incompleta o limitada, incluya reflexiones sobre las responsabilidades sociales y éticas vinculadas a la aplicación de sus conocimientos y juicios
B5	(*)Que los estudiantes adquieran habilidades de aprendizaje que les permitan actualizar sus conocimientos de un modo autónomo, consciente y crítico
B7	(*)manejar de forma efectiva la búsqueda de artículos científicos y resumir de forma coherente y útil el nuevo conocimiento adquirido
B18	(*)tener iniciativa y creatividad en la propuesta de soluciones sistémicas y algorítmicas alternativas a las estándar

Learning aims		
Expected results from this subject	Typology	Training and Learning Results
(*)Understand how computer vision works, how it is related to different fields of knowledge, and how to apply it to several domains of application. Learn what are its limits and what to truly expect.	know Know How	A15 A16 B1 B2 B3 B5 B7 B18

Contents
Topic

Artificial vision	Human vision. What's artificial vision all about?
Image and Light	Light. Photometry. Colour.
Acquisition	Lighting. Lenses. Image sensors: CCD and CMOS. Cameras. Frame grabbers.
Image analysis and pattern recognition	PDE image analysis. Variational image analysis. Wavelet image analysis. Stochastic image analysis. Pattern recognition.
Do androids dream of electric sheep?	Artificial... intelligence? Consciousness. The Chinese Room. Weak and Hard AI.

Planning

	Class hours	Hours outside the classroom	Total hours
(*)Sesión maxistral	25	25	50
(*)Estudo de casos/análises de situacións	15	15	30
(*) Resolución de problemas e/ou exercicios	20	20	40
*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.			

Methodologies

	Description
(*)Sesión maxistral	Study of the learning material, available at the e-learning platform. The lecturer will be available for contact via e-mail, discussion forum, and live.
(*)Estudo de casos/análises de situacións	The students will have to critically read and comment on seminal research papers and papers from the current issues of the main journals in the field.
(*) Resolución de problemas e/ou exercicios	The student will have to solve practical problems related to the contents of the course, including the implementation of some of the methods under study

Personalized attention

Methodologies	Description
Sesión maxistral	
Estudo de casos/análises de situacións	
Resolución de problemas e/ou exercicios	

Assessment

	Description	Qualification
(*)Sesión maxistral	(*)The acquisition of the fundamental topics and concepts addressed in the lessons will be evaluated.	20%
(*)Estudo de casos/análises de situacións	(*)Critical reasoning on the value, quality and relevance of the literature under study.	30%
(*) Resolución de problemas e/ou exercicios	(*)The understanding of methods and processes, the capability to use the knowledge, and the effort will be evaluated.	50%

Other comments on the Evaluation

Sources of information

Duda, R.O, Hart, P.E., 1973, Pattern Classification and Scene Analysis. New York: Wiley.

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Recommendations

Subjects that are recommended to be taken simultaneously

(*)Procesado Estatístico de Sinal e Técnicas Bootstrap/V05M038V01102
(*)Recoñecemento Biométrico/V05M038V01204
(*)Recoñecemento Estatístico de Patróns e Redes Neuronais/V05M038V01103
(*)Teledetección: Fundamentos e Aplicacións/V05M038V01206