Universida_{de}Vigo

Subject Guide 2022 / 2023

			S	ubject Guide 2022 / 2023
IDENTIFYIN	-			
Subject	ufacturing e Smart logistics Smart			
Subject	Manufacturing e			
	Smart logistics			
Code	V04M183V01106			
Study	Máster			
programme	Universitario en			
p 9	Industria 4.0			
Descriptors	ECTS Credits	Choose	Year	Quadmester
· · ·	3	Mandatory	1st	1st
Teaching	Spanish			
language	Galician			
	English			
Department				
Coordinator	Peláez Lourido, Gustavo Carlos			
Lecturers	Peláez Lourido, Gustavo Carlos			
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General	This course studies the basic principles of Smart Manu			
description	exploitation of information accessible through multiple			
	close as possible the product/process/service customiz	zed to the final co	onsumer, unders	stood as the best value-
	cost perceived by that consumer.			
Skills				
Code				
	and understand knowledge that provides a basis or op	portunity to be o	riginal in the de	velopment and/or
	tion of ideas, often in a research context	Land bland and date	-1.201-2.2000-2.2000-2.2000-2.2000-2.2000-2.2000-2.2000-2.2000-2.20000-2.200	6
	ts should be able to apply their acquired knowledge and			unfamiliar
	ments within broader (or multidisciplinary) contexts rel			
	ts are able to integrate knowledge and deal with the co being incomplete or limited, includes reflections on the			
	tion of their knowledge and judgements.		responsibilities	
	ts should be able to communicate their findings - and th	o ultimate knowl	odge and reaso	ns behind them - to
	st and non-specialist audiences in a clear and unambig		euge and reaso	ns benna them - to
	ration and planning skills			
	dge and use of the English language.			
	ter skills related to the field of study.			
	e integration of different data sources for the definition of	of flexible reliable	e and efficient s	upply chain
	ement systems, supported by the Industrial Internet of			
tools			iogistics ini	
	ne concepts, principles and tools of intelligent manufact	uring systems. w	hich facilitate a	ccess to information and
	ion data through automated tools for conturing process			

- production data through automated tools for capturing, processing and displaying informationD1Ability to understand the meaning and application of the gender perspective in different areas of knowledge and in
professional practice with the aim of achieving a more just and equal society
- D2 Incorporate criteria of sustainability and environmental commitment into professional practice. To acquire skills in the equitable, responsible and efficient use of resources
- D3 Multidisciplinary teamwork

Learning outcomes

Expected results from this subject	Expected	results	from	this	subiect
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Training and Learning Results

Get the understanding of the concepts that underlying Smart Manufacturing and Logistics	A1
	B6
	B7
	C14
Understand the different technologies that can potentially be adopted for Smart Manufacturing and Smart	t A1
Logistics	A3
	B6
	B7
	C13
	C14
Know how to assess Industrial Internet of Things (IIoT) applications in the context of Manufacturing and	A2
Logistics	A3
-	A4
	B1
	B6
	B7
	C13
	C14
	D1
	D2
Recognise the benefits and impacts of Smart Manufacturing on the Supply Chain, including Logistics	A3
Recognise the schemes and impacts of smart Manadetaring on the supply chain, including Ebystics	B1
	B6
	C13
	C14
	D1
	D2
	D3
Understand challenges and threats posed by the underlying technologies to Manufacturing and Logistics	A1
onderstand chancinges and threats posed by the anachying teenhologies to Manufacturing and Ebgistics	A3
	A4
	B6
	B0 B7
	C13
	C13 C14
	D1
	D1 D2
	D2 D3
	נע
Contents	
Торіс	
The roles of manufacturing within the modern	
supply chain	
Typology of manufacturing systems	
Supply Chain Operations Reference (SCOR) model	
Manufacturing control systems	
Interact of Things and Stations in the	

Internet of Things applications in the manufacturing/production control systems Utilising cloud computing

Industry 4.0 and its impact in manufacturing and
the supply chain
Benefits and challenges in the adoption of (*)- Equipos y dispositivos como [activos inteligentes]
Industry 4.0 - Herramientas de Análisis de Negocio: Business intelligence.
- Optimización de los procesos de Producción.
- Sostenibilidad aplicada a la Fábrica Inteligente
Digital Readiness
Intelligent Factories and Business Intelligence (BI) - Equipment and devices as "intelligent assets"
- Business Analysis Tools: Business intelligence.
- Optimization of Production processes.
- Sustainability applied to the Intelligent Factory

Planning			
	Class hours	Hours outside the classroom	Total hours
Case studies	5	10	15
Practices through ICT	3	11	14
Portfolio/dossier	0.5	9	9.5

Lecturing	12	12	24		
Objective questions exam	0.5	2	2.5		
Systematic observation	2	0	2		
Presentation	2	6	8		
*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.					

Methodologies	
	Description
Case studies	Analysis of a fact, problem or real event with the aim to know it, interpret, resolv, generate hypothesis, contrast data, reflect, complete knowledges, diagnosed and train in alternative procedures of solution.
Practices through ICT	Activities of application of knowledge in a given context and acquisition of basic and procedural skills related to the subject, through ICT.
Portfolio/dossier	Compilation of the work of the/the student with the objective to show his efforts, progresses and attainments in an area. The compilation owes to include contents chosen pole student/it, the criteria of selection and evidences of selfreflection.
Lecturing	Lecture by the professor of the content envelope to subject object of study, theoretical bases and/or guidelines of one work, exercise that the student has to develop

Personalized assistance				
Methodologies	Description			
Practices through ICT	Monitoring and individual evaluation of activities. Even if the activities are carried out autonomously, the students will have tutorial sessions at all times so that the teachers can monitor the activity.			
Portfolio/dossier	Preparation of the materials, activities, etc., on which the students will work. Although the activities will be carried out autonomously, the students will have tutorial sessions at all times so that the teachers can monitor the activity			
Tests	Description			
Objective questions exam	Individualized attention to students during the tests. Review of tests and evaluation activities.			
Presentation	Tracking the evolution of the workjob and help the students in the preparation of the presentation/exhibition.			

Assessment	Description	Qualification	n Training Learning F	
Portfolio/dossier	Ojectives: Evaluate higher thinking skills. Assess analysis, synthesis and evaluation.	15	A1 B1 C1 A2 B6 A3 A4	
Objective questions exam	Tests that evaluate knowledge that include closed questions with different answer alternatives (true/false, multiple choice, matching of elements). Students select an answer from a limited number of possibilities (preferably four) with a reduction for failure of a value equal to the percentage of success (-0.25 pts. in the case of four possible answers if the value of the question is 1 pt.). The test of objective questions only evaluates knowledge. It does not evaluate skills or attitudes. It evaluates lower thinking. It evaluates knowledge, understanding and application.	t 20	A1 B7 C1 A3	4
Systematic observation	Careful, rational, planned and systematic perception to describe and record the manifestations of student behaviour. It is possible to assess learning and actions and how they are carried out by evaluating order, precision, ability, efficiency The aim is to evaluate higher thinking.	15	A1 B1 C1 A2 B6 A3 A4	3 D1 D2 D3
Presentation	Presentation by the students to the teacher and/or a group of students of an aspect on the contents of the subject or the results of a work, exercise, project It can be carried out individually or in a group. In the presentation, knowledge, skills and attitudes are evaluated. The objectives are to evaluate higher thinking (analysis and synthesis).		A1 B1 C1 A2 B6 C1 A3 A4	

Other comments on the Evaluation

Students who do not pass the subject in continuous training at the first opportunity of each academic year, in which the distribution of evaluation weights is as stablished above, will have the possibility of having an exam of objective questions, worth 100% of the final mark, in successive calls that are not the first opportunity of each academic year.

Ethical commitment: Students are expected to behave ethically. If unethical behaviour is detected (copying, plagiarism, use of unauthorised electronic devices,...), the student will be considered to be ineligible to pass the subject. Depending on the type of unethical behaviour detected, it could be concluded that the student has not reached the necessary skills to overcome the subject. Students are expected to behave in a respectful and dignified manner and to collaborate with the teaching system, teaching staff, coordination and administrative and services personnel of the Master's degree. Any question due to the lack of ethical and dignified behaviour of the student body may have repercussions on the evaluation of the subject.

Sources of information

Basic Bibliography

Klaus Schwab, The fourth industrial revolution, Random House USA Inc, 2017

Alasdair Gilchrist, Industry 4.0: the industrial internet of things, 1st, Apress, 2016

Antonio Sartal, Diego Carou and J. Paulo Davim, **Enabling technologies for the successful deployment of industry 4.0**, CRC Press, 2020

Tjahjono, B., Esplugues, C., Ares, E., & Pelaez, G., What does industry 4.0 mean to supply chain?, 13, 1175-1182., Procedia Manufacturing, 2017

Gubbi, J., Buyya, R., Marusic, S., & Palaniswami, M., Internet of Things (IoT): A vision, architectural elements, and future directions., Elsevier, 2013

Complementary Bibliography

Slama, D., Puhlmann, F., Morrish, J., & Bhatnagar, R. M., Enterprise IoT: Strategies and Best practices for connected products and services, 1st, O'Reilly Media, Inc, 2015

Recommendations