

Course Unit	Product and Process Innovation		Field of study	Information Technology, Communications and Electronics	
Master in	Product and Process Innovation - Information Technology, Communications, Electronics		School	School of Technology and Management	
Academic Year	2023/2024	Year of study	1	Level	2-1
Type	Semestral	Semester	2	ECTS credits	10.0
Code	5057-681-1202-00-23				
Workload (hours)	270	Contact hours	T -	TP -	PL -
			TC -	S -	E -
			OT -	O	75

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s) Elsa Cristina Dantas Ramalhosa, Maria Filomena Filipe Barreiro, Pedro Miguel Monteiro Rodrigues, Vera Alexandra Ferro Lebres, Ângela Paula Barbosa da Silva Ferreira

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. Apply methodologies for the development of innovative processes and products in Communications, Electronics and Information Technology areas.
2. Identify, evaluate, integrate and implement available technologies in the market.
3. Know procedures and regulations for the certification of new processes and products.
4. Know how to work in co-innovation environments, multidisciplinary and multicultural contexts.
5. Recognize opportunities in competitive and emerging markets.
6. Apply methodologies of investigation, data analysis, with particularly focus in artificial intelligent, intelligent systems, among others.

Prerequisites

Not applicable

Course contents

Support innovation tools Innovation in technology-based enterprises Methodologies for research, analysis and data processing

Course contents (extended version)

1. Classification and typologies of innovation (product, process, organizational and marketing).
2. Concept of innovative enterprise.
3. Circular economy; Sustainability; Life cycle analysis; Innovation by analogy
4. Strategies for placing innovative processes/products/services on the market
5. Know R&D agendas and strategies straight with the development of new processes and products.
6. Apply tools for the design and execution of projects based on timeline defined by industrial agents
7. Criteria for market-oriented research
8. Design and plan research projects
9. Concepts of techniques for data analysis and processing

Recommended reading

1. Pires, A. (1999). Inovação e Desenvolvimento de Novos Produtos. Sílabo.
2. Oliveira, C. A. (2010). Inovação da Tecnologia, do Produto e do Processo. Prime.
3. Van Wulfen, G. (2011). Creating Innovative Products and Services: The FORTH Innovation Method (1st Ed). Gower Publishing.
4. Pettenella, D. ; Olonqvist, P. ; Slee, B. , Innovation in Forestry: Territorial and Value Chain Relationships, Gerhard Weiss, 2011.
5. Trott , P. , Innovation Management and New Product Development (6th edition), Pearson Education Limited, 2016.

Teaching and learning methods

The learning and assessment will occur continuously over the semester. Exercises using tools that promote incremental and disruptive innovation. Adopt "learning-by-doing" strategies, in particular by the intellectual property, Learning based on ongoing projects (national and international) in the context of the institution's research units.

Assessment methods

- Continuous assessment - (Regular, Student Worker) (Final, Supplementary, Special)
 - Practical Work - 30% (Practical work related with the main contents of the curricular unit)
 - Projects - 30% (Preparing projects and formalising applications)
 - Development Topics - 40% (Team working sessions with a discussion of topics on the development and management of the company)

Language of instruction

1. Portuguese
2. English

Electronic validation

Ângela Paula Barbosa da Silva Ferreira, Elsa Cristina Dantas Ramalhosa, Maria Filomena Filipe Barreiro, Pedro Miguel Monteiro Rodrigues, Vera Alexandra Ferro Lebres	Hélder Teixeira Gomes	José Luís Sousa de Magalhaes Lima	Ana Isabel Pinheiro Nunes Pereira	José Carlos Rufino Amaro
20-02-2024	13-03-2024	15-03-2024	15-03-2024	16-03-2024