Course Unit	Industrial Management			Field of study	Management		
Master in	Chemical Engineering			School	School of Technology and Management		
Academic Year	2023/2024	Year of study	2	Level	2-2	ECTS credits	6.0
Type	Semestral	Semester	1	Code	6362-756-2103-00-23		

Workload (hours)	162	Contact hours	T	TP	PL	TC	S	E	OT	O
			30	-	30	-	-	-	-	-

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): António Jorge da Silva Trindade Duarte

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:
1. Identify the different types of production systems and associated layouts.
2. Define and distinguish the concepts of supply chain management and logistics.
3. Identify best practices in supply chain management to reduce costs and add value.
4. Determine replenishment parameters in deterministic and stochastic models of stock management within a company and a supply chain channel.
5. Know and manipulate tools for planning and monitoring of projects.
6. Understand the role of Quality and Quality Management Systems, integrating methodologies for continuous improvement and waste reduction.
7. Manipulate the statistical process control tools.
8. Define productive equipment maintenance policies.

Prerequisites

Before the course unit the learner is expected to be able to:
Without any prior knowledge to topics in the area of Management.

Course contents

Introduction to Operations Management. Supply Chain and Inventory Management. Project planning. Quality Management. Continuous improvement and waste reduction. Maintenance Management.

Course contents (extended version)

1. Introduction to Operations Management.
   - Types of processes.
   - Industrial layouts.
2. Supply Chain and Inventory Management.
   - Concepts.
   - Inventory review policies.
   - Inventory costs.
   - Economic order quantity.
   - Stochastics and deterministics models.
   - Distribution-requirements planning (DRP) in the supply chain.
   - Production Planning.
3. Project planning.
   - Critical Path Method.
   - Programme Evaluation and Review Technique).
4. Quality Management.
   - Quality management systems and ISO 9000 standards.
   - Statistical Process Control.
   - Control charts by variables and attributes.
5. Continuous improvement and waste reduction.
   - Waste types.
   - Lean Management Tools.
6. Maintenance Management.
   - Maintenance efficiency (costs and ratios).
   - Replacement policies.
   - Backup equipment.

Recommended reading

1. Ballou, R. (2004). Business Logistics/Supply Chain Management (5th Edition). New Jersey: Pearson Prentice-Hall.
2. Courtois, A. , Pillet, M. , & Martin-Bonnefous, C. (2007). Gestão da Produção (5ª edição). Paris: Lidel.
3. Heizer, J. , Render, B. & Munson, C. (2017). Operations Management: Sustainability and Supply Chain Management (12th edition). USA: Pearson Education, Inc.
4. IPQ. (2015). NP EN ISO 9001: 2015 - Sistemas de Gestão da Qualidade - Requisitos. Caparica: IPQ -- Instituto Português da Qualidade.
5. Montgomery, D. C. (2013). Statistical Quality Control (7th Edition). USA: Wiley.

Teaching and learning methods

The contents presented will be addressed during contact hours, in a theoretical-practical regime, accompanied by the resolution of exercises (many of which using computer tools). In non-contact hours, topics will be explored through application exercises. Tutorial sessions will be held in non-contact hours, whenever necessary, individually or in groups.

Assessment methods

1. Option I - (Regular, Student Worker) (Supplementary, Special)
   - Final Written Exam - 100%
2. Option II - (Regular, Student Worker) (Final)
   - Intermediate Written Test - 25%
   - Final Written Exam - 25%
   - Practical Work - 40%
   - Portfolio - 10%

Language of instruction

English

Electronic validation

António Jorge da Silva Trindade Duarte	Carla Alexandra Soares Geraldes	Simão Pedro de Almeida Pinho	José Carlos Rufino Amaro
04-10-2023	05-10-2023	25-10-2023	31-10-2023