

Course Unit	General Industrial Management		Field of study	Accounting, Economics and Management	
Bachelor in	Management Informatics		School	School of Technology and Management	
Academic Year	2023/2024	Year of study	3	Level	1-3
Type	Semestral	Semester	1	ECTS credits	6.0
Code	9186-709-3104-00-23				
Workload (hours)	162	Contact hours	T 30	TP -	PL 30
			TC -	S -	E -
			OT -	O -	

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) José Mário Escudeiro de Aguiar, João Manuel Carvalho Sobrinho Teixeira

### Learning outcomes and competences

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

1. Define and distinguish the supply chain management and logistics management; identify best practices in supply chain management to cost reduction and add value.
2. Choose and apply the forecasting method more suitable for a given time series.
3. Determine the reorder parameters for the deterministic and stochastic inventory' management models in the single stock location and supply channel chain.
4. Identify the different types of productive systems and associated layouts.
5. Apply the MRP (Manufacturing Resources Planning) method in the production planning.
6. Apply the DRP (Distribution-requirements planning) in materials planning of the supply chain.
7. Distinguish Pull and Push systems in controlling production and materials in the supply chain.
8. Handle some tools regarding statistical processes control (control charts) and sampling plans in the quality control.

### Prerequisites

Before the course unit the learner is expected to be able to:

1. Dominate basic Statistics competences (descriptive, deductive and inductive).
2. Dominate basic competences in the area of social sciences and human resources.
3. Use electronic spreadsheets.

### Course contents

Supply Chain Management and logistics management. Forecasting methods. Inventory management. Production planning. Quality control.

### Course contents (extended version)

1. Supply Chain Management and logistics management
  - Evolution and definition of logistics and supply chain concepts.
  - Supply Chain strategy.
  - Customer service goals on the planning of supply chain.
  - Impact of customer service goals on the supply chain.
2. Forecasting methods
  - Introduction (the role of forecasting at the company environment).
  - Classification of the forecasting methods and work methodology in forecasting.
  - The basic forecasting tools for times series and other types of data.
  - Basic tools for exploring data, evaluation and comparison of forecasting methods.
  - Times series decomposition methods (additive and multiplicative) and calculation of moving averages.
  - Exponential smoothing (AES and AEL), Holt's method and Holt-Winters' method.
3. Inventory management
  - Inventory costs and economic order quantity (integral deliveries and overlapped deliveries).
  - Norms of replenishment (continuous review method, periodic review method).
  - Quantity discounts and joint ordering.
  - Stochastics models of continuous revision and periodic revision.
  - The ABC classification. Selection of the management model.
4. Production Planning
  - Productive System classification: project, jobbing, batch, mass/continuous.
  - Production structures (productive structures, product cycle, etc. ).
  - Planning stages, capacity analysis and documents of production.
  - Manufacturing Resources Planning (MRP) method.
  - Production and materials Control Systems: Pull and Push; Kanban Method.
  - Distribution-requirements planning (DRP) in the supply chain.
5. Quality control
  - Inspection, reception control by sampling (sampling plans and average resulting quality).
  - Control charts by variables and attributes (variations, control limits, etc).

### Recommended reading

1. Ballou, R. ; Business Logistics/Supply Chain Management (5th Edition), Prentice-Hall International, Inc.
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). London: Pearson Education Limited.
4. Jacobs, F. , & Chase, R. (2018). Operations and Supply Chain Management (15th edition). New York: McGraw-Hill Education.
5. Slack, N. , Brandon-Jones, A. , & Johnston, R. (2016). Operations Management (8th edition). London: Pearson.

### Teaching and learning methods

The theoretical-practical lectures are devoted to present the theoretical concepts and analysis of some examples. Laboratorial classes are devoted to solve exercises under supervision. Each student should solve the exercises for each topic, programming electronic spreadsheets to obtain the portfolio.

### Assessment methods

1. Alternative 1 - (Regular, Student Worker) (Final, Supplementary, Special)
  - Final Written Exam - 100%
2. Alternative 2 - (Regular, Student Worker) (Final, Supplementary)

**Assessment methods**

- Intermediate Written Test - 50% (To be held during classes.)
- Final Written Exam - 50% (To be held at the end of the semester.)

**Language of instruction**

Portuguese, with additional English support for foreign students.

**Electronic validation**

José Mário Escudeiro de Aguiar	Carla Alexandra Soares Geraldes	José Carlos Rufino Amaro	Nuno Adriano Baptista Ribeiro
13-10-2023	13-10-2023	31-10-2023	06-11-2023