

Forecasting, scheduling and manufacturing in the global supply chain

Master's degree in: Supply Chain Management

Subject: Supply chain planning

Credits: 6 ECTS

Program: Master in Supply Chain Management

Modality: On-campus Full-Time

Semester: First

Type: Mandatory

Language of instruction: English

Academic year: 2025/2026

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1. Presentation

The course "Forecasting, Planning, and Manufacturing in the Global Supply Chain" is essential for understanding and mastering the processes that enable efficient and effective supply chain management in an increasingly globalized and dynamic business environment. Firstly, forecasting plays a crucial role by providing the tools and techniques needed to anticipate the demand for products and services in global markets, allowing companies to plan their operations more accurately and efficiently.

Additionally, planning in the global supply chain encompasses the strategic and tactical management of production, distribution, and sourcing on a global scale, taking into account factors such as demand variability, lead times, international regulations, inventory management, and logistics network optimization. This course provides the tools and methodologies to design planning strategies that enable companies to adapt to the complexities and challenges of a global environment.

Moreover, manufacturing in the global supply chain focuses on international production processes, considering aspects such as plant location selection, global supplier management, process standardization, capacity optimization, and adaptation to the particularities of different markets and cultures. This course equips students with the knowledge needed to understand the challenges and opportunities associated with manufacturing in a globalized and competitive environment.

Furthermore, the integrated approach to forecasting, planning, and manufacturing in the global supply chain is essential for professionals to understand the interconnection and synergy between these processes. It also helps them develop analytical and strategic skills to make informed and effective decisions in complex and changing scenarios. Understanding these aspects is crucial for the success of companies in an increasingly global and competitive business environment.

2. Program's learning outcomes

The subject-related learning outcomes are distributed as follows:

2.1. Knowledge

- RAT 1 The graduate will be able to describe correctly complex supply chains and their adaptation to the organization's needs for permanent change.
- RAT 2 The graduate will be able to assertively identify developments in information technology applied to supply chain management.

2.2. Skills

- RAT 7 The graduate will be able to provide clear and precise explanations of any knowledge/information, both orally and in writing, in Catalan, Spanish and a third language, particularly English.
- RAT 8 The graduate will be able to apply digital technologies (at the right time) in their field of expertise.
- RAT 11 The graduate will be able to apply in an efficient way the keys of e-Commerce to the area of operations and logistics in a multi-channel environment.
- RAT 12 The graduate will be able to adequately coordinate individual and team efforts and skills for the correct development and fulfilment of operational objectives.
- RAT 13 The graduate will be able to recruit a human resources team in the projects under their responsibility, adequate to the expected results projection.
- RAT 14 The graduate will be able to develop the strategic vision necessary to visualize the supply chain and the different factors that interact in it.
- RAT 15 The graduate will be able to assertively interpret the complementary concepts of planning and execution in a practical and efficient manner.

2.3. Competences

- RAT 17 The graduate will be able to come up with innovative, creative and entrepreneurial solutions in professional situations.
- RAT 18 The graduate will be able to evaluate the sustainability and social impact of the proposals presented, with ethical, environmental and professional responsibility.
- RAT 19 The graduate will be able to apply the gender perspective in the professional tasks.
- RAT 20 The graduate will be able to correctly design new supply chain projects that meet business objectives.
- RAT 21 The graduate will be able to restructure in an efficient way the teams of the company's functional departments involved in the supply chain.
- RAT 24 The graduate will be able to create in an effective way business models on the basis of the company's supply channel global strategy.

3. Subject's learning outcomes

The subject-based learning outcomes for this course are as follows:

- RAM 3 The graduate will be able to effectively design the operational transport networks of a company by preparing simulations across various business sectors.
- RAM 4 The graduate will be able to successfully integrate the tactical and strategic management of purchasing and suppliers within the supply chain environment.

4. Contents

- Topic 1: Efficient Management of Product and Service Demand
 - Demand Modelling
 - Demand Planning
 - Information Sources, Techniques, and Optimal Results
- Topic 2: Production Planning
 - Procurement, Production, and Inventories
 - Aggregate Production Plan (APP)
 - Master Production Plan (MPP)
- Topic 3: Processes Related to Material Management
 - Material Requirement Planning (MRP)
 - Just-in-Time
 - Just-in-Case
- Topic 4: Approaches to Manufacturing Impacting Available Capacity and Customer Service
 - Capacity Requirement Planning (CRP)
 - Manufacturing Resource Planning (MRP-II)
 - Distribution Requirement Planning (DRP)
 - Make to Stock & Make to Order (MTS-MTO)
- Topic 5: Structured Processes
 - Sales and Operations Planning (S&OP)
 - Integrated Business Planning (IBP)

5. Methodology

- Two group projects or reports. 10% each.

Block 2 will consist of:

- Participation and oral presentations – 20%.

Block 3 will consist of:

- An exam - 40%.

The final grade for the course will be obtained by weighting the three blocks. The minimum weighted grade required to pass is 5.0.

If the student fails Block 1 or Block 3 (or both) with a grade lower than 5.0, they may retake that block or blocks. This grade will average with the other blocks, and the maximum final grade the student can receive is 5.0.

If the student is unable to attend the initial evaluation, and can provide a justified reason (see regulations of the University of Lleida), they may take the exam on the date set for recovery.

Students who do not attend evaluative activities with a weight exceeding 50% will receive a general course grade of “Not presented.”

Alternative Evaluation

The single evaluation consists of a single exam that accounts for 100% of the course. The exam, and therefore the course, is passed with a grade of 5 out of 10 in this final test. If a grade lower than 5.0 is obtained, the student has the right to a recovery exam.

To opt for the single evaluation, it is necessary to send a written request to the coordination during the first 15 business days of the course. The procedure to follow to opt for this single evaluation is established in the specific rules of EAE.

Plagiarism is a fraudulent activity that can lead to severe penalties, both academic and legal. Academic honesty is one of the pillars of the educational commitment of the School, and the members of its teaching community are especially aware and prepared to detect such actions. Given the difficulty often involved in conceptualizing plagiarism, it has been deemed appropriate to clearly define its content and scope in these regulations and policies.

Plagiarism is understood as the appropriation of works or other people's work by passing them off as one's own; that is, without explicitly crediting their origin. Plagiarism can consist of the unauthorized total or partial copying of someone else's work, or presenting the copy as an original work, impersonating the true author. Some examples of plagiarism are:

- Submitting someone else's work as if it were your own, regardless of whether the copy is total or partial.
- Paraphrasing a text by rephrasing it with other words, but making small changes in the language to disguise it and without citing sources.
- Buying or obtaining a work and presenting it as one's own.
- Relying on an idea or phrase from another person to write a new paper without citing the author of the work.

As established in Article 10 of the Academic Code of Conduct for Students at EAE Barcelona, without prejudice to the academic sanctions resulting from its application, the Academic Commission will promote the legal actions that correspond in case plagiarism could violate applicable regulations regarding intellectual property.

7. Bibliography

- Álvarez Ochoa, F. (2015). Logistical Solutions to Optimize the Supply Chain, 2nd edition. Marge Books.
- Anaya Tejero, J.J. (2011). Integral Logistics: The Operational Management of the Company, 4th edition. ESIC Editorial.
- Paulino, L. (2020). Introduction to the Supply Chain: Planning and Logistics. Independently published.
- Pires Silvio, R. I.; Carretero Diaz, L.E. (2007). Supply Chain Management. McGraw-Hill.