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## **FIELD OF STUDY: LOGISTICS**

*Responsible Partner: MUNDUS*

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# 1 TRANSPORT ORGANIZATION

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**Description:** Competences related to organizing, managing and controlling the operations of freight and passenger transport at the national and international level, and planning and managing the logistics activities of a company, in accordance with current regulations and the objectives established by the management of the company, within the framework of quality, safety and environmental respect.

## 1.1 Theoretical competences

Basic knowledge on planning of freight traffic, the organization of freight traffic for logistics national and international transport. Basic analysis of the transport sector and market, transport under a special authorization regime, budget prevention and control, evaluation of service quality, waste management and environmental regulations, route planning and transport operations, the administrative management of the vehicle fleet and other related knowledge.

1. Multimodal transport has as relevant characteristics that:

They are done in a single way.	
Various means of transport are used	X
Overlapping transportation is required	
The same means of transport is used	
I don't know	

2. When determining the total time, to define a route, what must be taken into account?

Travel, download and stop times.	X
Travel and download times.	
The travel times.	
Unloading and stopping times.	
I don't know	

3. How will the value of the goods be determined in a national transport?

By the valuation set by the consignee	
For the market price	X
By the valuation set by the shipper	
By the valuation set by the carrier	

I don't know	
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4. In commercial law, the document that verifies the receipt of previously lost merchandise is called:

Delivery note	X
Bill	
Order request	
Payment document	
I don't know	

5. The most important feature of the Weber Chart method is that...

It is a three-dimensional graph	
Transportation costs are linear	X
Transportation costs are not linear.	
The demand is not known in advance	
I don't know	

## 1.2 Practical skills

Skills for selection of modes and means of transport and optimal routes. Skills for the organization of activities and flows of goods in the warehouse: administration, reception, storage, movements and preparation of orders and distribution. Basic skills of cross docking, packaging management, ABC classification of products and basic calculation of cost of stock out.

1. A carrier carries 140 t on a 250 km journey for an amount of 875 euros. Calculate the price resulting from the t. x km.

0.025 tx km	X
0.030 tx km	
0.050 tx km	
0.075 tx km	
I don't know	

2. The driver of a truck with a maximum authorized mass of 8 tons is subjected to a breathalyzer test. The alcohol level obtained was 0.4 milligrams/liter of exhaled air. After ten minutes, they repeat the test and perform a blood test at a nearby health center. How much should he give as a maximum in the analysis in order not to be penalized?

0.00 grams per liter of alcohol in blood	
0.2 grams per liter of alcohol in blood	
0.3 grams per liter of alcohol in blood	X
0.5 grams per liter of alcohol in blood	
I don't know	

3. A package transport agency applies the following rates:
- Up to 100 kg in weight, the price is €8.75/shipment
  - Between 101 and 1000 kg, by fractions of 100 kg, at the price of €9.00/fraction
  - From 1,000 kg., by fractions of 1,000 kg., at the price of €9.50/fraction

We have to send 87 kg., 178 kg., and 2,890 kg., to different recipients in the same city. How much would it cost us to send the three packages?

€55.25	X
€26.75	
€126.35	
€93.45	
I don't know	

4. A company collects 950 baskets of peppers and tomatoes and 950 boxes of cucumbers and pears daily. The baskets and boxes are collected using Europallets. They are stacked by placing 3 high baskets at the base and the rest in boxes up to the height allowed by trucks (2.40 m high). Knowing that: the baskets measure 60 x 40 x 50; the boxes 60 x 40 x 22 and the Europallet 120 x 80 x 15. How many baskets and boxes can we place on each europallet?

12 baskets and 12 boxes	X
24 baskets and 12 boxes	
12 baskets and 6 boxes	
6 baskets and 12 boxes	
I don't know	

5. A company has to transport 72,000 bottles of wine from Barcelona to Saint Petersburg by road. The merchandise is packed on pallets and has a total volume of 105 m<sup>3</sup>. What is the cost according to the conditions?

The conditions of means of transport are:

- Road: €0.40 per kg, applying the equivalence 1m<sup>3</sup>= 333 kg

€13,986.00	X
€12,300.00	
€8,903.00	
€16,341.00	
I don't know	

### 1.3 IT skills

Competences related to control of shipping data in the computer system, Shipment tracking, handling CMR's and necessary transport documents, knowledge of Microsoft Office tools and general computer skills.

1. What is a kardex card?

It is an electronic card for storing product data.	
It is a document on which the data of an inventory is recorded.	X
It is a transport documentation.	
It is a company card.	
I don't know	

2. The computerized materials planning and stock management system that answers the questions of how much and when to procure materials is called:

EDI	
ISO	
EPC	
ERP	X
I don't know	

3. To ensure efficient management of inventory and merchandise flows, which of the following options is the most appropriate?

Hire an outside consultant to manage inventory.	
Implement an internally developed inventory management software	
Use a cloud-based inventory management system	X
Train internal staff in inventory management techniques	
I don't know	

4. What do we call Internet sites where commercial transactions can be carried out?

Natural market	
EDI	
E-market places	X
Stock exchanges	
I don't know	

5. Which of the following refers to an information system that provides the Administration with "predefined information reports".

CRM	
ESP	
ERP	
MRS	X
I don't know	

## 2 Warehouse operations

Connected to competencies related to organization and control of the operations and flows of merchandise in the warehouse, in accordance with established procedures and current regulations, and ensuring the quality and optimization of the warehouse network and/or logistics chain. Also competencies related to administrative management tasks in each of the phases of the supply chain (provisioning, production, transport, storage, distribution and delivery). It involves overseeing team performance, expediting the receiving and shipping of goods, and ensuring efficient, organized storage. By streamlining all warehouse activities, this detail-oriented leader can help drive overall profitability and customer satisfaction.

### 2.1 Theoretical competences

Basic theoretical knowledge on warehousing, handling and shipping legislation requirements. Knowledge about standards of health and safety, hygiene and security. Strong knowledge of warehousing Key Performance Indicators (KPIs). Basic knowledge on supply chain management

1. To control inventory levels and plan the location of warehouses it is necessary:

Know the variation of the demand	
Know the spatial location of the demand	X
Know if it is a regular demand	
Know if it is an irregular demand	
I don't know	

2. Order processing in a separate management organization is an activity:

Logistics	X
Marketing	
Common between production and logistics	
Common between marketing and logistics	
I don't know	

3. The design of layouts constitutes a definition of character.....for warehouses

Operational	
Tactic	
Strategic	X
Logistics	



I don't know	
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4. The physical distribution of the different areas within the warehouse as well as that of the constituent elements inserted in them is what is known as

Continent of a warehouse	
Handling area	
Loading and unloading areas	
Layout	X
I don't know	

5. What is a barcode?

Set of signs made up of a series of lines and numbers associated with them, which is placed on consumer products and used for computerized stock management	X
Set of shelves limited by a series of successive bars to prevent the deterioration of stocks	
Set of lines used to identify the maximum price of the items	
Number of solid lines that identify the volume of product in a warehouse	
I don't know	

## 2.2 Practical skills

Practical understanding of the functions of the supply chain and the usage of the relevant tools.

Ability to implement process improvement initiatives.

Oversee receiving, warehousing, distribution and maintenance operations.

Initiate, coordinate and enforce optimal operational policies and procedures.

Maintain the physical condition of the warehouse by planning and implementing new design layouts.

1. What is the value of the new demand forecast, applying the exponential smoothing formula with the following data:  $K:0.3$  – current demand: 1500 –previous forecast: 1200-

1,260	
1,280	
1,290	X
1,310	
I don't know	

2. The daily requirement for a component used in a manufacturing plant is 150 units. Until now the component was being purchased from an external supplier, but the decision has just been made to start manufacturing it in-house. Consequently, the EOQ model used to manage the inventories of this component is readjusted, taking into account that the available manufacturing capacity is 350 units per day. It is also known that the year has 200 business days, that the cost of preparing the machinery to launch each order is €600 and that the annual storage cost of each unit is €7. Calculate what the new order size should be after the switch to in-house manufacturing:

1500 units	
3000 units	X
2688 units	
5631 units	
I don't know	

3. A company maintains its activity for 280 days a year and needs 98,000 units of item A annually. The supplier's delivery time is 10 days once the order is issued, but it can be delayed up to 4 days. Knowing that its average demand is 350 units each day, what is the safety stock?

1,000 units	
1,200 units	
1,500 units	
1,400 units	X
I don't know	

4. A driver finishes his daily rest at 10:00h on Thursday. During the day he drives 8 hours, 1 hour is dedicated to other work and 45 minutes of statutory break and finishes at 19.45h. What daily rest has he done if he starts his day again at 10h on Friday?

12h and 15 min	
13h and 15 min	
14h and 15 min	X
15h and 15 min	
I don't know	

5. If a company receives 3,000 orders per year but can only serve 2,890 units, what is the out-of-stock percentage?

2%	
3.67%	X
4.67%	
5%	
I don't know	

## 2.3 IT skills

Managing basic ERPs or SAP programs. Basic level of managing labeling programs. Use of scanner and computer tools at the user level. Parcel reception and data entry in the computer system and quality control. Warehouse control systems, voice and light directed picking systems, barcode systems, safety software, and automated equipment.

1. Which of the following refers to a standard used in inventory management and materials planning to determine the right amount and time to procure materials?

JIT (Just-in-Time)	
KPI (Key Performance Indicator)	
CRM (Customer Relationship Management)	
MRP (Material Requirements Planning)	X
I don't know	

2. Within the hardware systems that have a storage for reading, there is the RF terminal or commonly called in slang, "reading gun." When purchasing these terminals, what element or characteristic is the most important?

Battery duration	
Terminal weight	
Scanner	X
Range of the transmitted signal	
I don't know	

3. What are those elements distributed throughout the warehouse called through which the RF terminals can receive and transmit information?

Servers	
Access Point or access points	X
Routers	
PC with wired network technology	
I don't know	

4. When reading the barcode on the label, which environment is the one that can give us a reading error?

Excess lighting on the label	X
Lighting defect	
Dusty environment	
Excess moisture	
I don't know	

5. The acronyms for supplier relationship management are:

CRM	
SPM	
SRM	X
SCM	
I don't know	

### 3 Operational management of supply chain

Competences related to coordinating, organizing, and overseeing all activities involved in the identification, acquisition, production, and distribution of the company's goods.

#### 3.1 Theoretical competences

Knowledge on management of supply, planning the receipt of goods and distribution of these goods (outputs) controlling the commercial operations.

1. Taking inventory is equivalent to:

Count warehouse stock at a given time	X
Control the consumption of the different services on a given day	
Control warehouse entries and exits at a specific time	
Organize the warehouse shelves, taking into account the criteria of the Health Center Management	
I don't know	

2. The stock is the word used to refer to the set of:

Warehouses of a company	
Merchandise accumulated in a warehouse awaiting its use	X
Products shipped to customers	
None of the above answers is correct	
I don't know	

3. In low-tech cross docking:

The packages are deconsolidated in the distribution center	
Packages can be redistributed by the provider	X
Packages are unconsolidated by the Provider	
Packages cannot be redistributed by the provider	
I don't know	

4. In a typical supply channel, the acquisition time for additional stock is a component of:

Critical cycle	
Logistics channel	
Logistics cost	
Order cycle	X
I don't know	

5. The cross-docking technique allows:

Lower transportation costs	
Reduce merchandise breakage	
Use the barcode	
Reduce the stock level of warehouses	X
I don't know	

### 3.2 Practical skills

Coordinate the different areas involved in the supply chain. Organize the storage of goods optimally. Supervise the purchase and supply of materials. Manage export and import operations of merchandise. Solve possible incidents that arise in any of the phases of the supply chain. Manage inventory and forecast supply needs. Prepare evaluation, control and transport reports of the merchandise.

1. The supply time follows a normal distribution with a mean of 15 days and a standard deviation of 3 days. What will be the probability that placing an order today will take more than 21 days to receive it?

0.5%	
2.275%	X
3.25%	
6.85%	
I don't know	

2. The company MACASAN acquired and consumed €12,000 of raw materials last year for the manufacture of its flagship product. The economic value of the average stock kept in the warehouse was €1,000.

Calculate the turnover rate of raw materials and the average storage period (in days).

15 days	
14 days	
10 days	
12 days	X
I don't know	

3. The supply time follows a normal distribution with a mean of 15 days and a standard deviation of 3 days. What is the probability that placing an order today will take more than 21 days to receive it?

0.5%	
2.275%	X
3.25%	
6.85%	
I don't know	

4. A manufacturer of wooden beams used for the construction of prefabricated sheds has a weekly demand that follows a normal distribution of mean 1800 units with standard deviation 400 units. The supply time of the supplier of the wood used for the beams is practically fixed and is 4 weeks. How is the demand for beams distributed during the supply time DT S?

As a normal with mean 6000 and standard deviation 400 units.	
As a normal with mean 3600 and standard deviation 200 units.	
As a normal with mean 1800 and standard deviation 80 units.	
As a normal with mean 7200 and standard deviation 800 units.	X
I don't know	

5. A company has received orders for a total of 5,500 units of product X. How many must it supply to obtain a service level of 90%?

4.950 units	X
3.950 units	
2.950 units	
1.950 units	
I don't know	

### 3.3 IT skills

Use programs and storage systems to control stock. Advanced domain in office automation. Basic software management: ERP and SGA. Installing and maintaining computer software applications used for inventory control, order processing, shipping and billing

1. Which of the following computerized systems is used to plan and manage the stock of materials, and provides answers to the questions about how much and when to purchase these materials?

MRS	
CRM	
ERP	X
EPC	
I don't know	

2. When it comes to wanting to control your warehouse stock, what do you need at a minimum software level for efficient and reliable control?

An ERP	
A SGA	X
Office package	
RF terminals and printers	
I don't know	

3. In the context of stock management in logistics, which of the following computer systems is mainly used to carry out exhaustive monitoring and control of product stocks in a warehouse?

Warehouse Management System (WMS)	X
Transport Management System (SGT)	
Inventory Management System (IMS)	
Order Management System (SGP)	
I don't know	

4. Within the policy of reducing paper and efficiency, what do we consider essential?

The use of email	
Share files via cloud space	
Communication via EDI	X



Eliminate unnecessary copies of documentation	
I don't know	

5. What does DRP mean in the context of supply chain management?

Distribution Requirements Planning	X
Distribution and Product Replenishment	
Distribution Resource Planning	
Distribution and Product Receipt	
I don't know	

## 4 Data Analysis

Competences related to review of logistic processes and procedures; identify, recommend, and implement improvements to maximize delivery efficiency while minimizing costs. Review and analyze transportation costs, parts procurement and delivery processes, inventory issues such as back orders, and other fulfillment metrics. Monitor warehouse facilities to evaluate inventory transactions such as receiving, storage, shipping, and inventory integrity.

### 4.1 Theoretical competences

Knowledge of the market needs and business awareness. Knowledge of manufacturing, assembly or distribution of equipment and associated suppliers is desirable. Good working knowledge of purchasing strategies.

1. Obtaining the bulk or majority of data in market research corresponds to the stage of:

Goal Determination	
Font Choices	
Field work	X
Information processing	
I don't know	

2. Market research contributes to the organization's information system:

A procedure for making decisions	X
Just the methods to get the data	
Just the techniques to analyze the data	
The methods to obtain the data and the techniques to analyze them	
I don't know	

3. The acquisition of a "retractable" handling equipment from a supplier of fixed assets is:

Spending	
A payment	
An investment	X
None of the above is correct	
I don't know	

4. What is the most important feature of the Weber Graphical Method used in logistics?

Treat transportation costs in a non-linear way	X
Provides a detailed view of inventory flows	
Consider delivery time as the main factor	
Uses a three-dimensional approach to analysis	
I don't know	

5. In perfectly competitive markets:

There is a single supplier that holds a predominant position in the market	
There are few and powerful bidders	
The price is set by the plaintiffs	X
There are numerous bidders and applicants	
I don't know	

## 4.2 Practical skills

Customer support skills. Researching and identifying prospective suppliers. Evaluating products and suppliers according to key business criteria. Liaising with internal project teams and maintaining strong supplier relations. Practical understanding of the functions of the supply chain and the usage of the relevant tools. Use of analytic methods and tools to understand, predict, and/or control logistics operations and processes.

1. When preparing the Aggregate Plan, a leveling strategy is followed and it is known that the production needs for the complete planning horizon (120 business days with 8 hours each day) are 25,600 units. On the other hand, it is also known that 3 hours of labor are used to produce each unit of product. What will be the labor needs of the period?

26.6 workers	
80 workers	X
95 workers	
35.5 workers	
I don't know	

2. What is the optimal purchase lot if the order preparation cost is 120 €, the annual demand is 100,000 units and the storage cost is 1.335 € per unit?

4.000 units	
4.240 units	X
4.500 units	
3.800 units	
I don't know	

3. The answer that establishes the flows from the point of consumption to the point of origin is the definition of a type of logistics called "reverse logistics", so the most complete answer is the one that defines it as the set of activities that have to do with the procurement, transport and storage of goods and products. According to the FIFO method:

The first goods to enter the warehouse are then the first to leave.	
The last goods to enter the warehouse are then the first to leave.	X
The first goods to leave the warehouse are drawn by lot.	
In the FIFO method the goods go out in "seniority" order.	
I don't know	

4. A company with a weekly production plan needs 5 operators to produce daily and in a linear manner, given an increase in demand, the need lies in 24.5 more hours per day to be carried out to cover said demand. Knowing that the unit per FTE is 7.25, determine the number of operators necessary to cover said demand on a daily basis.

38	
39	
40	X
41	
I don't know	

5. The acquisition cost (CA) of a batch of products acquired by a company is €200. The costs of ownership of the aforementioned batch of products amount to €50. The goods are sold, without counting the taxes, for €320. Calculate the commercial margin.

21,88%	X
34,26%	
36,76%	
42, 87%	

I don't know	
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### 4.3 IT skills

Use of the internet for market research. Proficiency in Microsoft Office and with business application software. Purchasing and resource planning systems. Proficient use of SAP or equivalent ERP systems.

1. Which of the following statements best describes the concept of EDI (Electronic Data Interchange) in logistics?

It is a standard used for the exchange of physical products between trading partners.	
It refers to the exchange of information on paper between different actors in the supply chain.	
It enables the electronic transfer of structured data and business documents between trading partners.	
It is a technology used to track and control inventory in warehouses.	X
I don't know	

2. Today it is vital to have useful information in real time, for this reason more and more data is grouped and created.

A dashboard	
KPI's	
Dashboard + KPI's	X
Process controllers	
I don't know	

3. We want to certify a supplier and one of the most important characteristics when it comes to our correct planning must be:

That both management systems understand each other for EDI communication	
Have access to your cloud platform for data consultation	
Have real-time access to the tracking of our order	
All are correct	X
I don't know	

4. In a company, customer A places one order per day with 50 different references. Customer B places one order per week with 50 different references:

Customer A is more time-consuming because it orders more packages	
Customer B requires more time because they place more order lines over the year	X
Both require the same amount of time because they have the same level of consumption	
Both require the same amount of time because they have the same level of turnover	
I don't know	

5. What do we call the first process that occurs in an EDI system?

Customer order	
Dispatch Notice	
Bill	
Alignment master files	X
I don't know	