Presentation of Industrial and Supply Chain Management courses

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The Training Center and pedagogy

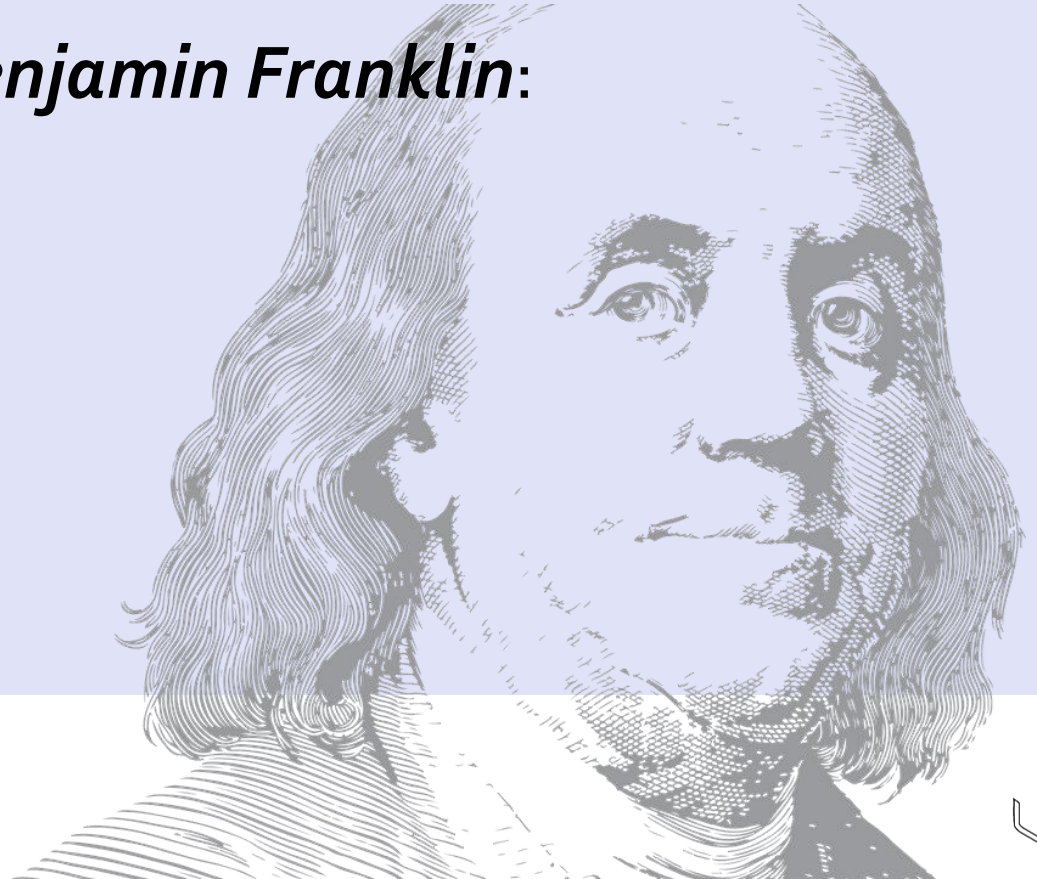
The Future of Supply Chain

https://youtu.be/wwjzxHI92Eg

To teach our students, so that they are able to apprehend complex situations in the field (technical, organizational, human, economic and environmental dimensions)

For this, a pedagogy derived from ***Benjamin Franklin***:

- ***you tell me, I forget,***
- ***you teach me, I remember,***
- ***you imply, I learn.***

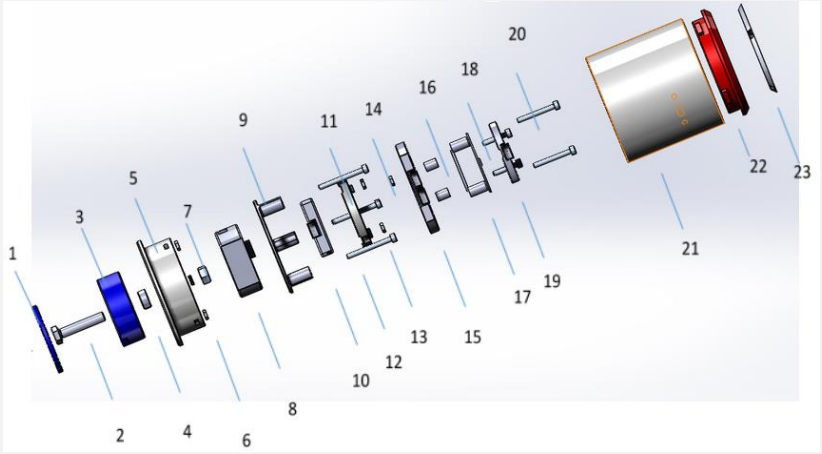


Educational objectives

- Make our students drivers of **digital transformation**,
- Provide them with a global and integrated **vision** of the company,
- Teach them the **advantages and limitations** of tools and systems, to promote **agility** and enable them to make informed decisions,
- To provide them with an education anchored in **concrete action**.

Project-based courses with a red thread IOT product and a challenge:

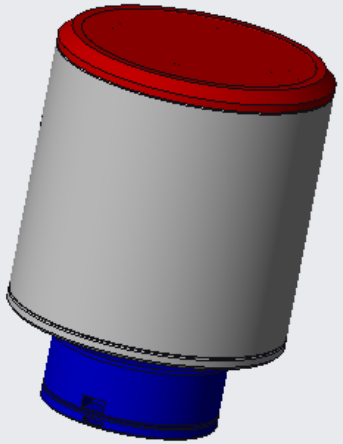
Develop a vibrating connected speaker from A to Z.
By simulating its design, its manufacturing until its delivery to the customer within the Training Center



Augmented Reality

Download the application
Vuforia View

ISO view

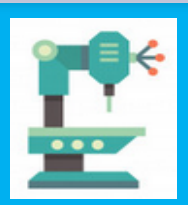
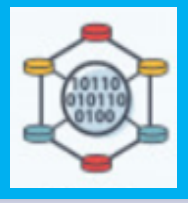


Exploded view

7

Industrial and Supply Chain Management (ISCM) courses

Overview of the ISCM courses

 **Industrial organization and planning**	• Create and organize a company, identify processes and flows, size physical and digital infrastructures, define repositories and create standards. Define a company policy and strategy.
 **Methods, industrialization & maintenance**	• After the simulation comes the implementation. Moving from a macro vision to a micro vision to give the means to the teams to achieve their objectives, to ensure the availability of means and the concordance between theory and practice.
 **Supply Chain Management and Logistics**	• Move from a global policy to an inventory and purchasing strategy. Optimize management and logistics to improve supply chain reliability. Work in partnership with subcontractors and customers.
 **Workstation study and robotization**	• Understand the advantages, disadvantages and limits of robotization. Know the differences between COBOT and ROBOT and know how to determine the most suitable solution. To know how to make human and machine converge towards the same goal.
 **Innovation and responsibility**	• "Staying still doesn't help. We must choose between progress or regression. So let us go forward with a smile on our face." Baden-Powell. Continuous improvement, change management, disruptive innovation or frugal innovation, society continues to move forward and the next generation must act and not suffer.

ISCM main goals

Designing a plant to manufacture a connected speaker and setting it up in a country appropriate to the company's business model

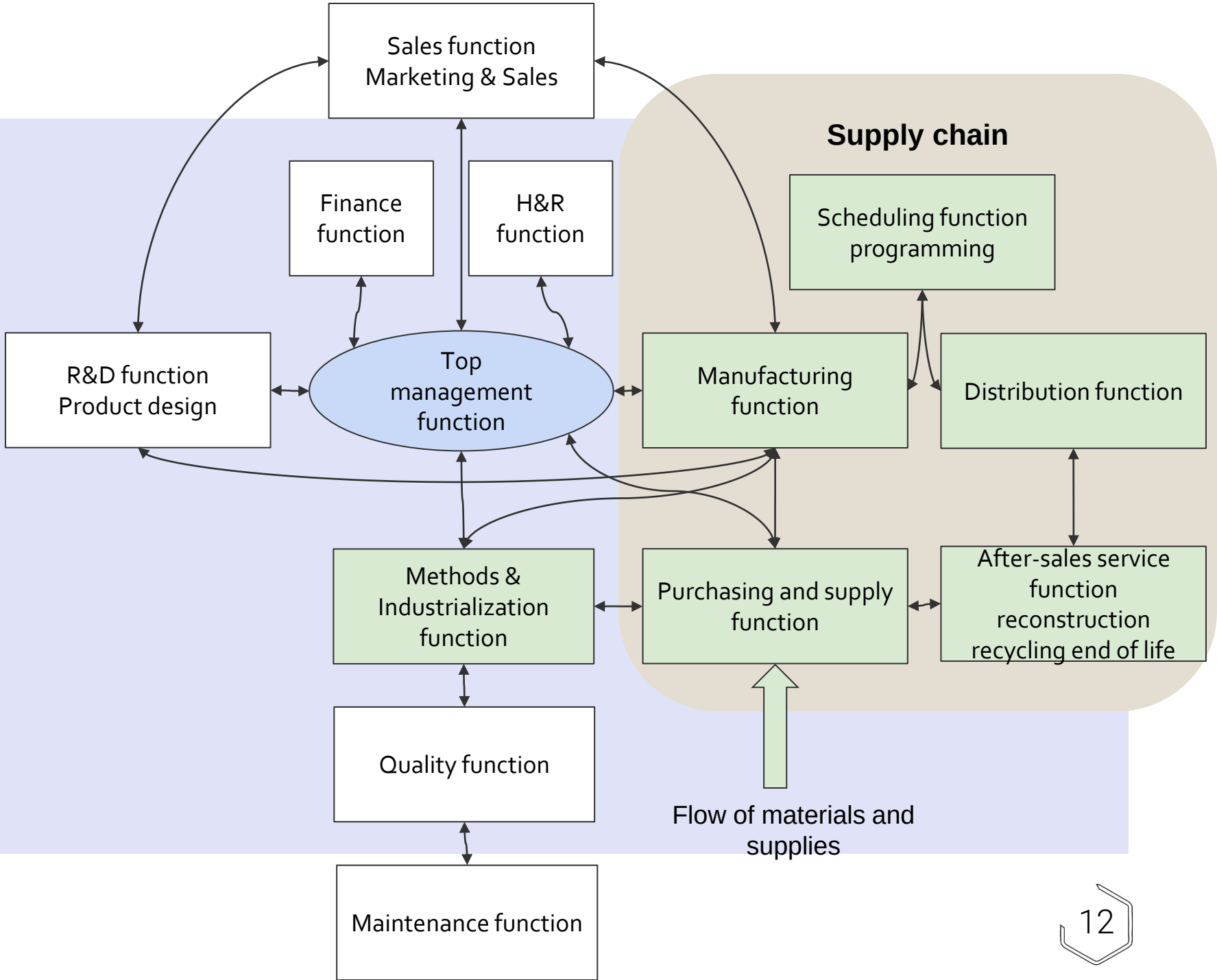
General skills

- Have a good **knowledge of production systems** in order to be able to innovate in Industrial Organization and Supply Chain
- To be agile and actor of its **transformation** and that of its organization to go to the Industry of the future (4.0)
- Develop the culture of team problem solving and **collective intelligence**

Input Data

Fictive story: The Training Center company is a SMI of 60 people that designs, manufactures and markets high-end connected products.

- Your Supply Chain project team (horizontal organization) will be composed of team members from the functions (in green below) of the company (vertical organization)



Input Data

The project team you have just created will aim to design and implement a global Supply Chain organization integrating the industrialization and mass production of a new model of connected enclosure.

You will therefore have 3 semesters to be able to ensure customer deliveries in accordance with sales forecasts.

This loudspeaker uses Bluetooth technology, and allows you to sound a room of about 25m².

Industrialization and manufacturing will only concern the operations of :

- **Assembly & Mounting**
- **Personalization & Packaging**

For the serious game, the components used will be made of plastic at scale 1.

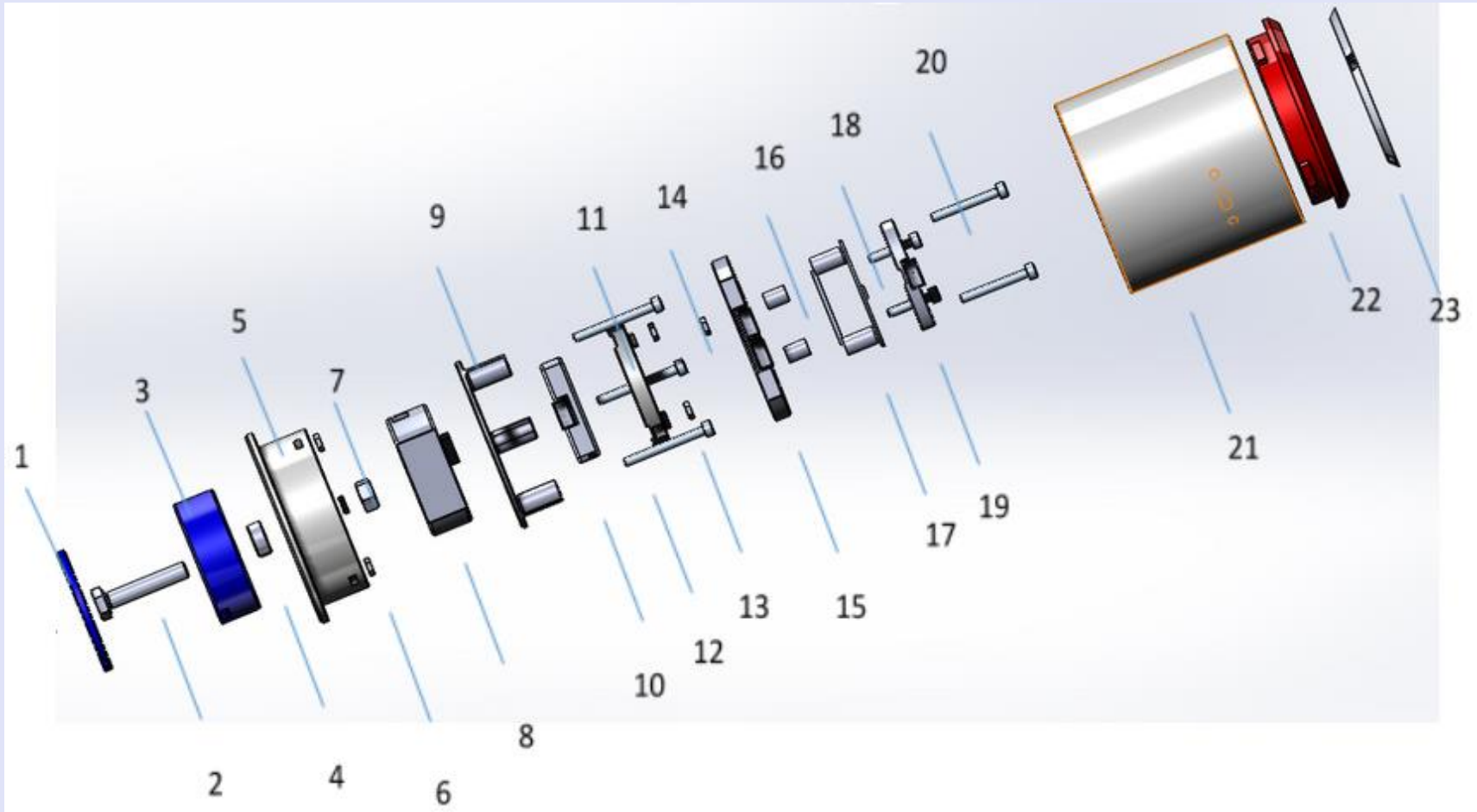
Input data of the problem:

Each loudspeaker can be customized by engraving on its upper membrane, made with a numerically controlled micro-milling machine.

The delay to carry out this engraving is 24 hours, customers wanting to be delivered within 48 hours.

- **Y1 sales forecast: 500 loudspeakers**
- **Y2 sales forecast: 4,000 loudspeakers**
- **Y3 sales forecast: 40,000 loudspeakers**

3D view of the connected loudspeaker:



Input Data

Bill Of Materials (BOM) of the connected loudspeaker:

No	Designation	Quantity	Unit cost price	Total cost price	Supply lead time in weeks
1	Lower diaphragm	1	1	1	4
2	Screw M6 x 25	1	0,02	0,02	1
3	Foot	1	0,8	0,8	4
4	Spacer	1	0,06	0,06	6
5	Bottom cover	1	2,3	2,3	6
6	Nut M3	3	0,01	0,03	1
7	Nut M6	1	0,02	0,02	1
8	Vibrating pot	1	4	4	12
9	Motherboard support	1	1,2	1,2	6
10	Battery	1	6	6	24
11	Battery support	1	1	1	15
12	Screw CHC M3 x 35mm	3	0,02	0,06	1
13	Nut M3	2	0,01	0,02	1
14	Nut M3	2	0,01	0,02	1
15	Electronic board	1	5	5	16
16	Matrix board	1	2	2	15
17	Bluetooth board support	1	1	1	12
18	Screw CHC M3 x 16mm	2	0,02	0,04	1
19	Bluetooth board	1	3	3	12
20	Screw CHC M3 x 25 mm	2	0,02	0,04	1
21	Body	1	3	3	6
22	Top cover	1	2	2	6
23	Upper membrane	1	0,10	0,10	4
24	Connection cables	2	0,03	0,06	10
25	Welding cable	1	0,05	0,05	10
			TOTAL	32,82 eur.	

Final Goal

Setting up a company 4.0 (e.g. workshop)

Serious Game: ISCM

Link: https://drive.google.com/drive/folders/1VKDIH3h-jZezM-onvWJuA8YqzR5HsXvH?usp=sharing

General Objectives:

- The project team will have to design the industrialization and organize the mass production of the new model of connected loudspeaker

Livrables:

- Defense with video + poster A3

Targeted skills:

- Project management of the implementation on a new production line

Session N°	COURSE	DETAILED COURSE
1	INTRODUCTION TO SUPPLY CHAIN MANAGEMENT	-
2	PROJECT MANAGEMENT 1	PLAN MANAGEMENT PROJECT
3	PROJECT MANAGEMENT 2	PDCA
4	PRODUCTION MANAGEMENT 1	INDUSTRIAL PLANNING
5	IMPLEMENTATION	CHAIN METHODS
6	PRODUCTION MANAGEMENT 2	CAPACITY AND FLOW MANAGEMENT
7	PRODUCTION MANAGEMENT 3	PRODUCTION SCHEDULING OPTIMIZATION
8	LEAN MANUFACTURING	-
9	WORKSTATION STUDY 1	TIME ANALYSIS
10	WORKSTATION STUDY 2	ERGONOMIC AND RISK ANALYSIS
11	INDUSTRY 4.0 and TPM	-
12	ROBOTIZATION	-
13	INVENTORY MANAGEMENT	-
14	VSM	-

Workshop: ISCM

Link: https://drive.google.com/drive/folders/1TiG2Ptu6-fdlyHfPd-QtXVMwreAIMkf7?usp=sharing

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SESSION N°	COURSE	DETAILED COURSE
1	WORKSHOP PRESENTATION	WORKSHOP INTRODUCTION
2	WORKSHOP PRESENTATION	INTRODUCTION TO INDUSTRIAL AND SUPPLY CHAIN MANAGEMENT
3	WORKSHOP PRESENTATION	PRODUCTION MANAGEMENT ORGANIZATION
4	WORKSHOP PRESENTATION	THE LOAD
5	ASSEMBLY ROUTING SHEET	TECHNICAL DATA
6	ASSEMBLY ROUTING SHEET	FMECA
7	ERGONOMICS	WORKSTATION DESIGN
8	ERGONOMICS	DETERMINATION OF MANUFACTURING TIME
9	SUPPLY CHAIN MANAGEMENT	STOCK MANAGEMENT

Evaluation grid

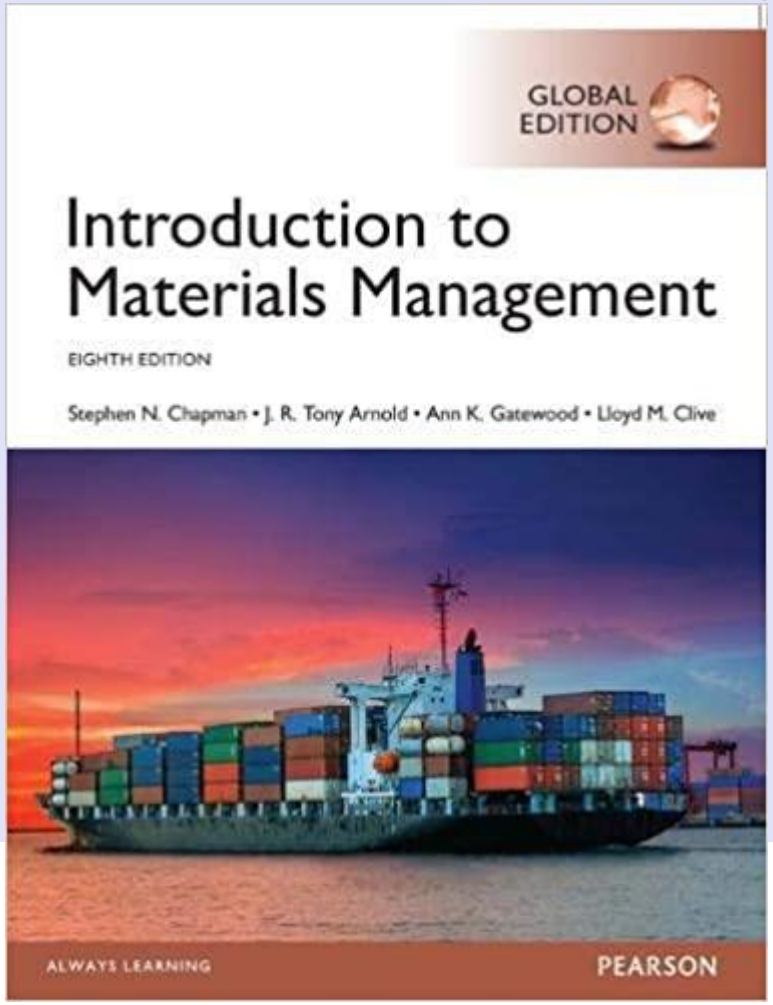
Scientific skills	Understanding and describing deliverables in context	0 - 4
	Relevance of analyses, choices and strategies	0 - 4
	Accuracy and relevance of the calculations	0 - 4
	Spirit of synthesis and innovation in the approach	0 - 4
	Highlighting results and taking a step back	0 - 4
Communication skills	Structuring of the presentation (Plan, clarity,...)	0 - 4
	Quality of expression (Vocabulary, elocution, diction, fluency,...)	0 - 4
	Quality of communication supports	0 - 4
	Compliance with instructions and duration	0 - 4
	Originality and innovation in presentation	0 - 4
Questions and Answers	Ability of the team to answer questions	0 - 4
	Relevance of the argumentation	0 - 4

Job opportunities

- Supply Chain engineer
  - Planning, procurement, distribution, inventory, sales…
- Production manager
- Supply Chain manager
- Project Manager in Industry, Supply Chain, Logistics
  - Implementation of a production line
  - Continuous improvement
  - Digital transformation
- Process engineer

Recommended bibliography

- Introduction to Materials management – Global Edition. Steve Chapman. Pearson; 8e édition (23 juin 2016)



Thanks for listening

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