Syllabus

Course title
Planning of Logistics Systems

Course code
47505

Scientific sector
ING-IND/17

Degree
Master in Industrial Mechanical Engineering

Semester
2

Year
I

Academic year
2016/17

Credits
5

Modular
no

Total lecturing hours
32 hrs

Total lab hours
16 hrs

Attendance
Extremely recommended

Prerequisites
none

Course page

Specific educational objectives
To achieve the theoretical knowledge and the practical skills needed to approach the configuration and management of an integrated supply chain.

Lecturer
Prof. Marco Perona
Marco.Perona@unibz.it

Scientific sector of the lecturer
ING-IND/17 – IMPIANTI INDUSTRIALI MECCANICI

Teaching language
English

Office hours
See on timetable

Teaching assistant (if any)
None

List of topics covered
The course covers the following topics:
1) Supply chains: the main trends: the long tail; servitization; circular economy & reverse logistics; digital technologies. The main choices: make vs. buy; n° of tiers; degree of parallelization; centralization vs. decentralization; facility location; facility dimensioning; n° choice of technology & automation level.
2) Supply chains configuration: value proposition configuration; distribution networks design; production networks design; supply networks design.
3) Supply chain performances and costs: the level of service, definition and measure. Supply chain costs, definition and measure. Cost vs. service trade-offs.
4) The sales and operations planning process: rationale, scope, objectives, activities, costs, levers, constraints,
<table>
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<tr>
<th>KPIs</th>
<th>5) Demand planning &amp; forecasting: demand characterization; independent &amp; dependent demand; forecasting; forecasting accuracy; overview of forecasting models; demand planning process; KPIs</th>
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<td>6) Inventory &amp; distribution planning: stocks and their functions; safety stock and cycle stock; order decoupling point and demand fulfillment approaches; centralized stock &amp; dependent system; distributed stock &amp; independent system; overview of main models; parameters setting.</td>
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| Teaching format | Traditional frontal lectures  
Guided numerical exercises solution  
Autonomous Industrial cases discussion |
|-----------------|----------------------------------------------------------------------------------|

| Learning outcomes | Knowledge and understanding  
The students knows the main theoretical foundations of modern supply chain configuration & management, specifically regarding how to configure, plan and control a supply chain, in the realm of modern servitized, circular and digitized industry.  
Applying knowledge and understanding  
The students learn how to apply their theoretical understanding to real cases through guided numerical exercises and autonomous case studies discussion.  
Making judgements  
In the case studies, students work in small groups and put to practice their judgment on which hypotheses to apply, how to analyze data, which methods or models to use, and how to apply them.  
Communication skills  
The students are encouraged to present, discuss and support their results through power point presentations.  
Learning skills  
Students will learn the theoretical part from traditional frontal lectures; they will develop quantitative skills by practicing numerical exercises with the teacher’s guidance; they will develop problem-solving abilities by autonomously discussing real case studies. |
|------------------|------------------------------------------------------------------------------------------|

| Assessment       | The assessment of students learning will be made through both group and individual work. Moreover, it will rely on both class behaviour and tests results.  
The assessment of the course will be done through a |
<table>
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<tr>
<th>Assessment language</th>
<th>English</th>
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| **Evaluation criteria and criteria for awarding marks** | The evaluation of students learning will follow a curricular method. It will be done through a combination of these factors:  
- class attendance and active participation  
- quantity and quality of facultative work done  
- group work results  
- final written / oral examination |

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<th><strong>Required readings</strong></th>
<th>Lecture notes and documents for exercise will be available on the reserve collections</th>
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<tr>
<td><strong>Supplementary readings</strong></td>
<td>Books and articles will be suggested by the teacher during the course</td>
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