## Course Description – Academic Year 2024/2025

<table>
<thead>
<tr>
<th>Course title</th>
<th>Logistics and Transport (Logistik und Transportwesen)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course code</td>
<td>42160</td>
</tr>
<tr>
<td>Scientific sector</td>
<td>ING-IND/17</td>
</tr>
<tr>
<td>Degree</td>
<td>Bachelor in Industrial and Mechanical Engineering</td>
</tr>
<tr>
<td>Semester</td>
<td>1</td>
</tr>
<tr>
<td>Year</td>
<td>3</td>
</tr>
<tr>
<td>Credits</td>
<td>6</td>
</tr>
<tr>
<td>Modular</td>
<td>No</td>
</tr>
<tr>
<td>Total lecturing hours</td>
<td>36</td>
</tr>
<tr>
<td>Total lab hours</td>
<td>24</td>
</tr>
</tbody>
</table>

### Attendance
Course attendance is not compulsory. Where provided, participation in external activities is strongly recommended and may give the opportunity to receive bonus points in the final evaluation.

### Prerequisites

### Specific Educational Objectives
The aim of this course is to introduce engineering students to the fundamentals of logistics, supply chain management and specifically to the basic elements (systems and organisation) of procurement, warehousing, distribution and transport logistics. As part of the course, the theoretical content presented is deepened through specific application-orientated exercises.

### Lecturer
Vittorio Franzellin

### Contact
Vittorio.franzellin@unibz.it

### Scientific Sector of Lecturer
ING/IND 17
ING/IND 35

### Teaching Language
German

### Office Hours
During the lecture time span, 18:00-20:00 on the dates indicated in the official course calendar and/or arranged beforehand by email.

### Lecturing Assistant (if any)

### Office Hours LA

### List of Topics
The course will cover the following topics:
1. Introduction: Course Objectives, Context and Outline
2. Principles of Logistics
   2.1. Terminology and Definitions
   2.2. Logistics Functions and Classification
   2.3. Economical importance of Logistics
3. Supply Chain Management
   3.1. Objectives of Supply Chain Managements
   3.2. Bullwhip-Effect
   3.3. Supplier selection on a partnership basis
3.4. IT-Systems in Supply Chain Management

4. Procurement logistics
   4.1. Procurement strategies and concepts
   4.2. Strategic Purchasing methods
   4.3. Lead-Buyer Concept
   4.4. Supplier Management and development

5. Warehouse Logistics
   5.1. Packaging Technology
      5.1.1. Functions
      5.1.2. Types of packaging
      5.1.3. Identification (RFID)
   5.2. Warehouse system Technology
      5.2.1. Storage goods
      5.2.2. Types of storage systems and their dimensioning
      5.2.3. Means of conveyance
   5.3. Organization
      5.3.1. Material Requirement Planning
      5.3.2. Warehousing strategies and inventory management
      5.3.3. Storage and Order-Picking

6. Outbound logistics
   6.1. Location factors and choice of location
   6.2. Route planning and scheduling
   6.3. Structures of outbound logistics
   6.4. Dispatch warehouses
   6.5. Logistics networks

7. Transport logistics
   7.1. International logistics
   7.2. Loading equipment
      7.2.1. Securing of load
      7.2.2. Small load carrier
      7.2.3. Boxes
      7.2.4. Pallet
      7.2.5. Standard container
      7.2.6. Airway container
      7.2.7. Loading specifications
   7.3. Types of transport carriers
      7.3.1. Road Transport
      7.3.2. Ocean Freight
      7.3.3. Air Cargo
      7.3.4. Pipelines
      7.3.5. Combined cargo
   7.4. Logistic service provider and partners
      7.4.1. Forwarding agencies
      7.4.2. Global Service (Logistics-Outsourcing)

8. Logistics controlling
   8.1. Objectives and functions of logistics controlling
   8.2. Logistics key performance indicators
      1.1.1. Methods and instruments in logistics controlling

**Teaching format**

In addition to teaching solid basic theoretical knowledge in frontal lessons, special attention is paid to in-depth learning through targeted
exercises (supported by appropriate software tools) and company visits in the transport and logistics sector. Several case studies, practical examples and, if applicable, external activities to logistics-relevant companies are intended to give students a better understanding and application of the theoretical knowledge they have learnt in practice.

**Learning outcomes**

After completing the course, students should:

1. Knowledge and understanding:
   - Have a basic understanding of logistics and transport systems
   - Demonstrate general knowledge of the various technical solutions of transport and storage systems
   - Demonstrate knowledge of the most important methods and techniques of internal and external logistics (organisation)

2. Applying knowledge and understanding:
   - have the ability to transfer the methods and findings learnt to real practical applications

3. Making judgments:
   - be able to critically analyse and evaluate different options and solutions Communication skills:

4. Learning skills
   - be able to present case studies and lessons learnt from practice

**Assessment**

<table>
<thead>
<tr>
<th>Form</th>
<th>Duration</th>
<th>Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion of case studies</td>
<td>As part of the lecture methods</td>
<td>1,2,3,4</td>
</tr>
</tbody>
</table>

**Summative assessment (composition of the grade)**

<table>
<thead>
<tr>
<th>Form</th>
<th>Dauer</th>
<th>Nr. Lernergebnisse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written Exam</td>
<td>3 hrs.</td>
<td>1,2,3,4</td>
</tr>
</tbody>
</table>

**Assessment language**

German

**Assessment Typology**

Monocratic

**Evaluation criteria and criteria for awarding marks**

<table>
<thead>
<tr>
<th>Points</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Multiple Choice Fragen</td>
</tr>
<tr>
<td>40</td>
<td>Theory Part</td>
</tr>
<tr>
<td>50</td>
<td>Exercise Section</td>
</tr>
<tr>
<td>10</td>
<td>Open Questions related to ext. Activities</td>
</tr>
<tr>
<td><strong>110</strong></td>
<td>Total Exam Points</td>
</tr>
<tr>
<td>Required readings</td>
<td>Lecture handouts and exercise material as lecture support</td>
</tr>
<tr>
<td>-------------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>Supplementary readings</td>
<td>Recommended further reading:</td>
</tr>
<tr>
<td></td>
<td>• Reinhard Koether „Technische Logistik“, 3. edition. HANSER</td>
</tr>
<tr>
<td>Software used</td>
<td></td>
</tr>
</tbody>
</table>