Fakultät für Ingenieurwesen
Facoltà di Ingegneria
Faculty of Engineering

COURSE DESCRIPTION – ACADEMIC YEAR 2024/2025

Course title	**Logistics and Transport** (Logistik und Transportwesen)
Course code	42160
Scientific sector	ING-IND/17
Degree	Bachelor in Industrial and Mechanical Engineering
Semester	1
Year	3
Credits	6
Modular	No

Total lecturing hours	36
Total lab hours	24
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	
Course page	Microsoft Teams 2024/25 - Logistik und Transportwesen - Vittorio Franzellin - 42160 | Allgemein | Microsoft Teams and Ole https://ole.unibz.it/enrol/index.php?id=11533

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)	
Contact LA	
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	Formative assessment (not part of the grade) **Form** | **Duration** | **Learning Outcomes** Discussion of case studies | As part oft he lecture methods | 1,2,3,4 Summative assessment (composition of the grade) **Form** | **Dauer** | **Nr. Lernergebnisse** Written Exam | 3 hrs. | 1,2,3,4
Assessment language	German
Assessment Typology	Monocratic
Evaluation criteria and criteria for awarding marks	Structure of the written exam: 10 Points Multiple Choice Fragen 40 Points Theory Part 50 Points Exercise Section 10 Points Open Questions related to ext.Activities **110 Points** **Total Exam Points**

Required readings	Lecture handouts and exercise material as lecture support
Supplementary readings	Recommended further reading: • Reinhard Koether „Technische Logistik", 3. edition. HANSER • Hans-Otto Günther - Horst Templmeier „Produktion und Logistik", 7. edition. SPRINGER • Hans-Otto Günther - Horst Templmeier „Übungsbuch Produktion und Logistik", 4. edition. SPRINGER • P.Brandimarte e G.Zotteri "Logistica di distribuzione" CLUT Edizioni, Torino, 2004. • Templmayer Martin, H., Römisch, P.,Weidlich, A. „Materialflusstechnik, Konstruktion und Berechnung von Transport-, Umschlag und Lagermittel. Vieweg Verlag." (actual edition)
Software used	