



LUNDS UNIVERSITET
Lunds Tekniska Högskola

Course syllabus

Internationell distributionsteknik International Physical Distribution

MTTN70, 7,5 credits, A (Second Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED I

Date of Decision: 2023-04-14

General Information

Compulsory for: MLOG1

Elective for: E4, I4-lf, M4-lp

Language of instruction: The course will be given in English

Aim

The aim of this course is to provide students with fundamental understanding as well as more advanced knowledge of the design and implementation of physical distribution and transportation systems. The entire distribution network will be considered, focusing on key aspects such as infrastructure and transport modes, transport market structure and design/planning of distribution operations. The course will address the most important theories, concepts, models, methods and tools used to identify, describe, design, analyse and evaluate diverse solutions for physical distribution of goods. It will furnish an understanding of the important role played by physical distribution/transportation into contemporary supply chains across several industry sectors, as well as convey the knowledge and skills to methodically analyse transportation needs and make informed decisions regarding choice and design of appropriate distribution solutions.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- Understand and apply theories, models and tools for needs identification, design and implementation of physical distribution solutions across various industries
- Develop an understanding of distribution networks and their key systemic performance objectives

- Compare, contrast and evaluate different transport modes and infrastructure across various operational situations.
- Apply tools for solving facility location and transportation planning problems.
- Understand and explain the structure and characteristics of transportation markets, as seen both from the service provider and user (buyer) perspectives.
- Understand and explain the importance of international trade regulations, taxing and risk/security issues in physical distribution operations.
- Appreciate the implications of sustainability for the design and operation of distribution networks.
- Have the ability to independently describe, analyse and design distribution solutions from companies' specific situation and transport needs.

Competences and skills

For a passing grade the student must

- methodically analyse transportation needs and choose and design transport and distribution systems
- describe and argue (in both oral and written form) in favour of developed transport and distribution systems
- Analyse and solve distribution-related problems through case studies
- Be able to apply appropriate theoretical and quantitative models
- Read selectively across various reference literature and scientific publications to analyse, evaluate and develop distribution solutions for firms
- Develop oral and written communication skills

Judgement and approach

For a passing grade the student must

- have acquired self-confidence and deeper insight into the area of physical distribution
- be confident with engineering related methods to be used for the analysis of distribution and transport systems
- be able to apply critical thinking to physical distribution problems
- have increased their understanding of how crucial the choice of distribution solutions are for a socially and environmentally sustainable society.

Contents

- Physical distribution networks: Overview and systemic performance objectives
- Modes of freight transport and related infrastructure: road, rail, sea and air
- Transport markets: industry structure, characteristics and types of third party logistics service providers
- Purchasing of transportation services (e.g. tendering process, costing methods, contracts)
- Terminals and cross-docking facilities.
- Distribution network design (facility localization)
- Transportation planning
- Transport regulations and public policy (e.g. global trade, customs regulations, documentation)
- Transport security and risk issues
- Contemporary trends and challenges in transportation (e.g. sustainability aspects)

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)

Assessment: To qualify for a final grade, the student must have passed the written examination and completed compulsory assignments. Evaluation of course performance is based on the written examination and the assignments. Compulsory attendance may occur in certain parts.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Parts

Code: 0117. **Name:** International Physical Distribution.

Credits: 4,5. **Grading scale:** UG. **Assessment:** Passed written examination. **Contents:** Literature, lectures and assignments.

Code: 0217. **Name:** Assignments.

Credits: 3. **Grading scale:** UG. **Assessment:** Satisfactorily completed assignments. **Contents:** The assignments are compulsory and are carried out in groups.

Admission

Admission requirements:

- Passed assignments in the course MTTF01 Logistics (code 0217) or passed assignments in the course MTTF25 Fundamentals of Logistics and Operations Management (code 0215)

Assumed prior knowledge: MTTN25 Warehousing and Materials Handling or similar.

The number of participants is limited to: No

The course overlaps following course/s: MTT045

Reading list

- Coyle, J, Novak, R & Gibson, B : Transportation, A Supply Chain Perspective. South Western Cengage Learning (8th ed.), 2016, ISBN: 978-1-133-59296-9.
- A selection of relevant articles will be posted on the course webpage.

Contact and other information

Course coordinator: Ebba Eriksson, ebba.eriksson@tlog.lth.se

Examiner: Jan Olhager, jan.olhager@tlog.lth.se

Course homepage: <http://www.tlog.lth.se>

Further information: Participation is mandatory for the first session. Absence from the first class session may result in an automatic drop from the course.