



**LUNDS UNIVERSITET**  
Lunds Tekniska Högskola

*Course syllabus*

# **Materialhantering**

## **Warehousing and Materials Handling**

**MTTN25, 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:** I4-pr, I4-lf, M4-lp

**Language of instruction:** The course will be given in English

### **Aim**

The course aims to provide you with current knowledge regarding the design and the management of a warehouse in all sorts of environments. After finishing this course, you will master the techniques and tools required to analyze and improve the efficiency in existing warehouses as well as designing new facilities from start. This course will also improve your ability to abstract, model, and solve real-life problems related to logistics and warehousing.

### **Learning outcomes**

*Knowledge and understanding*

For a passing grade the student must

acquire knowledge regarding tools and concepts that can be used to analyze and improve the efficiency in a warehouse. This means that the student should be able to:

- Understand and explain the strategic importance of warehouses in supply chains
- Describe and explain for techniques used when analyzing material flows in a warehouse
- Analyze material flows and configurations in a warehouse and suggest efficiency improvements
- Describe and explain the material flows in a warehouse

- Describe and analyze the choice of materials handling equipment, including the selection of automation systems
- Understand and explain what factors affect warehouse design
- Understand and explain what costs arise in a warehouse
- Understand sustainability aspects in warehousing

#### *Competences and skills*

For a passing grade the student must

develop skills and abilities so that he/she can work with efficiency improvements in a warehouse. This means that the student should be able to:

- Apply techniques for analyzing material flows in warehouse and develop more efficient solutions
- Judge and evaluate materials handling equipment for an industrial acquisition
- During lectures and exercises, independently and collectively discuss problems related to warehousing and materials handling
- Present themselves and their ideas for an academic and a corporate audience

#### *Judgement and approach*

For a passing grade the student must

be able to apply critical thinking and, hopefully, acquire a lasting interest for industrial warehousing and materials handling. His/her attitude should be more "professionalized", and the student should have obtained insights regarding the design and management of a warehouse.

## **Contents**

The course in Warehousing and Materials Handling will familiarize you with the concept of a warehouse in a supply chain and its relevant terminology. Furthermore, you will learn what types of equipment and IS/IT systems that are suitable for different types of warehousing environments. You will also learn to analyze a warehouse in order to plan its layout and manage its resources. Finally, you will learn to benchmark the operations in different warehouses against each other.

## **Examination details**

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

**Assessment:** Passed written examination, project and 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:** 0122. **Name:** Case.

**Credits:** 4,5. **Grading scale:** TH. **Assessment:** Satisfactorily completed case. **Contents:** In a case study, the students in groups (3-4) should solve the materials handling problems of a fictive company. A report should be presented containing the suggested improvements of each group..

**Code:** 0222. **Name:** Assignments.

**Credits:** 3. **Grading scale:** TH. **Assessment:** Satisfactorily completed individual assignment. **Contents:** The individual assignment should be solved by the student and a written report should be presented.

## Admission

**Admission requirements:**

- MTTTF01 Logistics

**Assumed prior knowledge:** MIO310/MIOF30 Operations Research-Basic Course.

**The number of participants is limited to:** No

**The course overlaps following course/s:** MTT021, MTT091, MTTTF10

## Reading list

- Bartholdi III, J.J. and Hackman, S.T: Warehouse & Distribution Science. 2010.  
Downloadable from [www.warehouse-science.com](http://www.warehouse-science.com).
- A list of articles will be provided by the course coordinator in the beginning of the course.

## Contact and other information

**Course coordinator:** Joakim Kembro, [joakim.kembro@tlog.lth.se](mailto:joakim.kembro@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.