



Course - PM for *ML2305 Production logistics and supply chains*

2022, P2, TIITHM.

The course provides tools for managing supply chains as well as solutions to improve material and information flows in production logistic processes.

Content and learning objectives

Course content

The aim of the course is that the student should obtain understanding of and tools for supply chain management in technology intensive sectors, but also that they should realise how these theories and tools can be applied in service producing supply chains. Further, students should obtain advanced knowledge of how technical solutions can improve material and information flows in internal productions logistics, transport and storage systems, as well as in SCM (including intermodal transports). The course will also form a basis for critical analysis of ethical, safety and integrity challenges in layers and transport systems as well as interaction between man and automated equipment.

Intended learning outcomes

After passing the course, the students should be able to:

- Define production logistics and supply chain management and categorise the different elements in a supply chain by applying an established framework.
- Describe, analyse and compare different transport systems and warehouse logistics systems, their components and underlying technologies for internal and external material flows.
- Explain how and under which requirements an increased digitisation and various IT systems can facilitate a transparent and seamless information flow in production logistics or in a supply chain.
- Identify and analyse interplay and information sharing in different parts of the production logistics, between different units in an organisation and between companies in a supply chain for physical products.
- Analyse the needs of a producing company, regarding its internal and external logistics systems from environmental, social and economical perspectives and set together possible solution proposals.

The structure of the course

Work in the course is built around lectures and project assignments related to the central fields of the course. The course includes a written examination on the central elements in SCM and production logistics, as well as a written assignment on applications, reflections and critical analysis regarding the connection between digitisation and the operation and development of sustainable production.

Language

English

Detailed schedule

Available on Course Canvas

Course literature and preparations

Specific prerequisites

Completed course ML1503 Industrial system II, 6 credits, or the equivalent.
Completed course Bachelor thesis, 15 credits or the equivalent.

Recommended prerequisites

ML1504 or the equivalent.

Equipment

None

Literature

Available on Canvas

Disability

If you have a disability, you can get support through Funka:

<https://www.kth.se/student/studentliv/funktionsnedsattning>

In addition, inform the course leader if you have special needs. Then show the certificate from Funka.

Examination and finalizing the course

Grading scale

A, B, C, D, E, FX, F

Examination

PRO1 - Project work, 3.0 credits, Grading scale: A, B, C, D, E, FX, F

TEN1 – Online exam, 3.0 credits, Grading scale: A, B, C, D, E, FX, F

	ILOS	PRO1 (3,0)	TEN1 (3,0)
ILO1	Define production logistics and supply chain management and categorise the different elements in a supply chain by applying an established framework.		X
ILO2	Describe, analyse and compare different transport systems and warehouse logistics systems, their components and underlying technologies for internal and external material flows.		X
ILO3	Explain how and under which requirements an increased digitization and various IT systems can facilitate a transparent and seamless information flow in production logistics or in a supply chain.		X
ILO4	Identify and analyse interplay and information sharing in different parts of the production logistics, between different units in an organization and between companies in a supply chain for physical products.	X	X
ILO5	Analyse the needs of a producing company, regarding its internal and external logistics systems from sustainability perspectives and set together possible solution proposals.	X	

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students. The examiner decides, in consultation with KTH's coordinator for disabilities (Funka), about possible adapted examination for students with documented, permanent disabilities. The examiner may permit other examination format for re-examination of individual students.

PRO1 – Projektarbete, 3.0, betygsskala: A, B, C, D, E, FX, F

Group work, Case based. Continuous in the course. Written report and oral presentation.

The purpose of the project is to understand, analyze and experimentally validate the functioning of various production logistics and supply chain technologies/systems. Students are provided with a topic (concerning one technology/system) and they have to conduct experiments in KTH/Scania Smart Factory Lab. During the experimentation, they have to identify and analyze interplay and information sharing in different parts of the production logistics, between different units in an organization and between companies in a supply chain for physical products. This task shall be performed in a group of 2-3 students. The students also present the finding through a report and oral presentation. In the report and presentation, students must also highlight the needs of a production company, regarding its internal and external logistics systems from sustainability perspectives and set together possible solution proposals. Detailed instructions will be available in CANVAS.

Basic Criteria (BC): Attendance at lab introduction, submission of assignment report and oral presentation of projects. Lab introduction is important and compulsory to attend as all the safety instructions will be explained during the session, which is mandatory before starting experiments in lab.

For **Fx** grade the *BC* should be fulfilled. Possibility of supplementation is provided by agreement.

	A	B	C	D	E
ILO4	BC + In the light of a structured external analysis and in a scientific approach, present an identification and analysis regarding collaboration and information sharing (between components or units) for a specific production logistical problem	Partly satisfying criterion for A	BC + In the light of an external analysis, present an identification and analysis regarding collaboration and information sharing (between components or units) for a specific production logistical problem.	Partly satisfying criterion for C	BC + Present an identification and analysis regarding collaboration and information sharing (between components or units) for a specific production logistical problem
ILO5	BC + In the light of a structured external analysis and in a scientific approach, present an analysis of a company's needs with regard to sustainability perspectives and compile possible solutions that can help solve the company's problems in production logistics.	Partly satisfying criterion for A	BC + In the light of an external analysis, present an analysis of a company's needs with regard to sustainability perspectives and compile possible solutions that can help solve the company's problems in production logistics.	Partly satisfying criterion for C	BC + Present an analysis of a company's needs with regard to sustainability perspectives and compile possible solutions that can help solve the company's problems in production logistics.

TEN1 – Online Exam, 3.0, betygsskala: A, B, C, D, E, FX, F

The purpose of the online exam is to evaluate the understanding and knowledge of the students related to the ILOs 1 to 4. Online exam will be a mix subjective and objective questions, including case studies and situation based reasoning questions. The mode of response during the exam would be written, oral or mixed. Detailed instructions will be available in CANVAS.

	ILO 1	ILO2	ILO3	ILO4
A	All correct answers in Level C			
B	All correct answers in Level B or one correct answer in Level C			
C	At least 4 correct answers in Level B			
D	All correct answers in Level A or At least 2 correct answers in Level B			
E	Passing Level A			

Final Grades:

- For a passing grade in the course, the student has to pass (at least score E) in TEN1 and PRO1.
- Final grading has been set to be a combination of PRO1 and TEN1 as shown in the table below.

PRO1 (3hp)	TEN1 (3hp)				
	A	B	C	D	E
A	A	B	B	C	D
B	A	B	C	C	D
C	B	B	C	D	D
D	B	C	C	D	E
E	C	C	D	D	E

Examiner

Magnus Wiktorsson

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.

Learning platform

Canvas

Offered by

ITM/ Production Engineering