



KTH Industriell teknik  
och management

# Course Memo ML2300 HT19

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**Course name: Sustainable Production**

**Course code: ML2300**

HP/ECTS:	7,5
Teachers:	Seyoum Eshetu Birkie ( <a href="mailto:seyoume@kth.se">seyoume@kth.se</a> ) (course responsible) Magnus Wiktorsson ( <a href="mailto:magwik@kth.se">magwik@kth.se</a> ) Jon-Erik Dahlin ( <a href="mailto:jonerikd@kth.se">jonerikd@kth.se</a> ) Jouni Korhonen ( <a href="mailto:jounikor@kth.se">jounikor@kth.se</a> )
Industry engagement:	Study visits: AstraZeneca and Scania Guest lectures from industry and academic experts
Examiner:	Magnus Wiktorsson
Grading:	A-F
Language:	English
Target group:	Students enrolled in Sustainable Production Development, TITHM, year 1

## Background and course learning objectives

### Background

This is the first course in the programme that form the basis for the subject areas that are dealt with in the programme. The course includes for example following main subjects:

- Dynamics in value creation and sustainability
- Theory and practice of sustainable production
- Planning, operation and evaluation of sustainable production system
- Environmentally conscious process design
- Relation between the product, the production and the supply chains for sustainable production
- Selected subjects in sustainable production: Production Management for sustainable Production / The role of logistics in sustainable production / Industrial operational reliability and robustness for sustainable production / The relation between production and circular economy: Material flow and energy flow

The course is delivered in a diverse formats including: lectures, group exercises, seminars and company field visits. Guest lectures are held on selected topics. Students shall communicate their understanding of the subject matter through oral presentation, written project reports, as well as providing logically coherent reflections in written exam.

### **Course learning objectives (Intended Learning Objectives)**

- ILO1. Describe how the different subject areas production management, production logistics and industrial operational reliability relate to sustainable production development.*
- ILO2. Account for motives, driving forces and obstacles for sustainable production.*
- ILO3. Explain and analyse the sustainable production system where environmental aspects and other sustainability aspects have connections to the system components and relations.*
- ILO4. Evaluate, analyse and compare alternatives for development of production, considering economic, environmental and social sustainability, based on established methods and tools.*
- ILO5. Relate a sustainable production to sustainability aspects regarding product supply chains and transport.*
- ILO6. Discuss the role of production for an increased life-cycle perspective and circular material and energy flows.*

### **Course assessment**

**INL1 (A-F, 3 hp).** Group assignment. Case based continuous in course with written hand-in.

- Please refer to Project description provided separately

**ÖVN1 (P/F, 3hp).** Three exercises.

- Literature based seminar tasks in 3 sessions focusing Production management, Production logistics and Sustainability.
- Oral discussion with individual tasks. Active participation and *attendance mandatory*
- Assessment days (subject to possible change): 13/9, 3/10, 9/10

**TEN1 (A-F, 3hp).** Written final exam to assess theoretical understanding.

- On 22/10 closed book written exam

## Grading criteria

The overall grading of the course shall be a combination of INL1 and TEN1. When the grades are not equal – TEN1 rules as shown in the table below. The final passing grade is assigned on condition that ÖVN1 is a pass grade. All three exercises within ÖVN1 need to be passed to get Pass on ÖVN1.

<i>ILOs</i>	<i>INL1</i>	<i>TEN1</i>	<i>ÖVN1</i>							
ILO1		X	X	INL1 (5hp)	A	B	TEN1 (4hp)			
ILO2		X			A	A	B	C	D	E
ILO3	X				B	B	B	B	C	D
ILO4	X				C	B	C	C	C	D
ILO5		X	X		D	C	C	D	D	E
ILO6		X	X		E	D	D	D	E	E

## Course literature

*No obligatory course literature. Recommended readings:*

Bellgran, M., and Säfsten, K., (2010). Production development design and operation of production systems, Springer.

Belvedere, V., and Grando, A. (2017). Sustainable Operations and Supply Chain Management, Wiley.

\* Relevant literature from books, journal papers and cases will provided continuously.

## Adapted examination for students with disabilities

The application for compensatory assistance in case of disability is made via KTH FUNKA, more information can be found via the link:

<https://www.kth.se/en/student/studentliv/funktionsnedsattning/stod-for-studenter-med-funktionsnedsattning-1.39736>

For students with disabilities who have a statement from KTH's FUNKA unit on recommended support measures in the examination, the following applies in this course:

All support actions under code R (i.e. adjustments relating to space, time and physical circumstances) are granted without special decision by the examiner

Support measures under code P (educational adaptation) must be actively granted or rejected by the examiner after contact has been made by the student in accordance with KTH's rules.

Normally, support actions under code P will also be approved.