Production Logistics

Programme course

6 credits

Produktionslogistik

TPPE21

Valid from: 2017 Spring semester

Determined by
Board of Studies for Industrial Engineering and Logistics

Date determined
2017-01-25

Main field of study
Industrial Engineering and Management

Course level
Second cycle

Advancement level
A1X

Course offered for
- Mathematics, Master's Programme
- Design and Product Development
- Industrial Engineering and Management - International, M Sc in Engineering
- Industrial Engineering and Management, M Sc in Engineering
- Mechanical Engineering, M Sc in Engineering

Entry requirements
Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

Prerequisites
Production and Operations Management.

Intended learning outcomes
After taking this course, the student should:
- understand economic implications of production logistics and in particular of industrial planning and control
- obtained an overview of planning systems for industrial manufacturing systems in different markets.
- be able to formulate, analyze and solve planning and control problems using appropriate techniques in different industrial environments
- be able to use the most common methods within production logistics for planning and control
- be able to design concepts and systems for materials and production management at all decision levels of the enterprise, and
- comprehend the relations between production, planning and other functions of the industrial enterprise

Course content

Return on investment is the driving force for owners of many industrial companies and it is important to understand how logistics can contribute in this context. Product development and marketing were previously of highest importance to a company's competitiveness. Shorter product life cycles have increased the exposure to risk, wider use of outsourcing has led to the involvement of more actors, and a more globalized market has made companies more exposed to competitors. In summary this means that logistics are gaining in importance and this course provides knowledge within production logistics, which implies logistics with manufacturing companies as a point of departure.
Production logistics encompasses relations to customers, relations to suppliers and coordination of centralized production or distributed production in terms of a production network. The starting point is flow design based on decoupling thinking which highlights critical properties of flow and guides the decision on selecting approach for planning and control. The general parts of planning and control covers requirements consolidation to compile total market requirements as a combination of forecasts and customer orders, buffers in terms of materials and capacity, basics of scheduling, and aggregate planning for overall dimensioning.
Production logistics is based on the management paradigm that is applied to generate the required return on investment. This course is structured in line with four management paradigms, where two are classified as owner driven and financials based, and two as customer driven and value based. The first class covers efficiency based management with e.g. MRPII, and constraints based with e.g. DBR. The second class covers lean based management with e.g. rate based scheduling, and agility based with e.g. flexible based supply. Finally also so called hybrid systems are covered where methods from the different management paradigms are combined to fulfill more complex requirements from a manufacturing strategy perspective

Teaching and working methods

Lectures and problem seminaries are mainly focused on the fundamental principles and frameworks for production logistics whereas the laboratory session highlights practical aspects.

Examination

TEN2	Written examination	6 credits	U, 3, 4, 5

Grades

Four-grade scale, LiU, U, 3, 4, 5

Other information

Supplementary courses:
Integrated Manufacturing Management. Manufacturing Strategies. Integrerated Logistics.

Department

Institutionen för ekonomisk och industriell utveckling

Director of Studies or equivalent

Fredrik Persson

Examiner

Joakim Wikner

Education components

Preliminary scheduled hours: 48 h
Recommended self-study hours: 112 h

Course literature

Fastställs senare

Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at http://styrdokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva.