Lean Production

Programme course

6 credits

Lean Production

TMQU12

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
- Industrial Engineering and Management - International, M Sc in Engineering
- Industrial Engineering and Management, M Sc in Engineering
- Mechanical Engineering, M Sc in Engineering
- Design and Product Development
- Chemical Biology
- Engineering Biology, M Sc in Engineering
- Industrial Engineering and Management, Master's programme
- Energy-Environment-Management

Specific information
Exchange students may apply for the course after arrival to LiTH but before it starts. The international officer for exchange studies must be contacted before applying.

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
Basic course in Quality Management

Intended learning outcomes

After completing this course the student should be able:

- describe the historical the development of Lean Production and problematize Western interpretations of the Toyota production system
- explain the principles and concepts of Lean Production
- apply tools and methods such as value stream mapping, 5S, Jidoka, visual management, SMED, Poka Yoke, standardized workand Heijunka to eliminate waste in the system
- analyze, evaluate, develop and propose solutions for how industrial and service organizations can achieve more efficient processes using Lean
- adopt a systems perspective in the implementation of Lean Production and describe the factors that are important for success
- analyze, problematize and evaluate the application of Lean production in various sectors
- discuss the relationship between Lean Production and other improvement programs as Agile Manufacturing and Six Sigma
- critically analyze, evaluate and use literature in the field of Lean.

Course content

Lean philosophy, Lean strategy, 5 basic principles of Lean production, waste according to Lean philosophy, Just in Time, value stream mapping, 5S, Jidoka, visual management, SMED, Poka Yoke, standardized work, Heijunka, improvement strategies (i.e. Kaizen), Hoshin Kanri, daily management, Lean leadership, implementation issues and Agile manufacturing.

Teaching and working methods

The course is carried out in form of lectures and lessons with accompanying exercises and group work. The course has a strong industry linkage and is based on five project assignments, which relate to the application of Lean in different industrial contexts. Students receive regular supervision to support the project work. At the end of the course a conference on Lean with speakers from industry is organized.

Examination

UPG1	Project work	6 credits	U, 3, 4, 5

The project assignments focus on supporting students' active learning. The course is examined by 2 individual assignments and 3 group assignments. The final grade is based on the sum of the points from the assignments and participation in two course occasions: Lean game and Lean conference. For grade 3 only one individual assignment is required.

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

Department
Institutionen för ekonomisk och industriell utveckling

Director of Studies or equivalent
Björn Oskarsson

Examiner
Bonnie Pokisnska

Education components
Preliminary scheduled hours: 78 h
Recommended self-study hours: 82 h

Course literature

Additional literature

Books

Liker, Jeffrey K, Meier, David, (2006) *The Toyota way fieldbook : a practical guide for implementing Toyota's 4Ps*
ISBN: 0071448934, 9780071448932
New York : McGraw-Hill , c2006

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.