



MG2029 Production Engineering - Planning and Control 6.0 credits

Industriell produktion - planering och styrning

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for MG2029 valid from Autumn 2015

Grading scale

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

Education cycle

Second cycle

Main field of study

Specific prerequisites

MG1001 Manufacturing Technology and
MG1024 Production

or

MG1006 Design and Product Realization - Manufacturing

or the equivalent

English B or the equivalent

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

After passing the course, you will be able to:

- explain fundamental principles used in traditional production planning and control systems
- develop an aggregate plan for manufacturing of a multi-component product
- suggest master production schedule and material requirement plan for a given aggregate plan
- apply the proper inventory control method for a product with known demand
- choose the best operations scheduling approach to optimize certain shop floor performances
- describe the principles of push and pull control policies,
- characterize the fundamental principles of lean philosophy and tools,
- utilize appropriate lean tools to continuously improve shop floor performance
- apply value stream mapping for current and future states to a given case study.

Course contents

Production planning and control

- Forecasts and aggregate plans for production
- Master Production Schedule
- Material Requirements Planning (MRP systems)
- Detailed shopfloor scheduling

Lean philosophy and tools

- Lean Philosophy, principles and processes
- Lean as a strategy, people and problem solving
- Lean journey, experiences and the 5S tool
- Value Stream Mapping (VSM)

Disposition

Lectures

Production Game

Atlas Copco Learning Factory - Lean laboratory exercise

Project assignment - Value Stream Mapping

Seminar on Toyota's Management Principles

Course literature

Olhager, J. Produktionsekonomi, Studentlitteratur (2000), ISBN 91-44-0074-8

Liker, J.K. The Toyota Way, McGraw-Hill (2004), ISBN 0-07-139231-9

Production and Operation Analysis, Steven Nahmias, 6th edition, ISBN-10: 0071263705 | ISBN-13: 978-0071263702

Petersson, P., Johansson, O., Broman, M., Blücher, D., Alterman, H. LEAN Turn Deviations Into Success!, Part Development AB (2010), ISBN 978-91-633-4587-6

The Toyota Way - 14 Management Principles from the World's Greatest Manufacturer (pdf excerpt available via Bilda)

Further reading:

Olhager, J. Produktionsekonomi, Studentlitteratur (2000), ISBN 91-44-0074-8 (In Swedish)

Liker, J.K. The Toyota Way, McGraw-Hill (2004), ISBN 0-07-139231-9

Examination

- INL1 - Assignment and laborations, 3.0 credits, grading scale: P, F
- TEN1 - Written exam, 3.0 credits, grading scale: A, B, C, D, E, FX, F

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.

Other requirements for final grade

Approved assignments (INL1; 3 cr)

Passed written examination (TEN1; 3 cr)

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.