



# MG2103 Industrial Process Engineering 6.0 credits

## Industriell Produktionsteknik

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 MG2103 valid from Spring 2013

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

Mechanical Engineering

## Specific prerequisites

MG1002 Automation Technology, or equivalent

English corresponding to English B

## Language of instruction

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

## Intended learning outcomes

Upon completion of the course requirements, the student should be able to:

- efficiently develop production technology for manufacturing industry
- set up a requirements list for a part manufacturing system and its components
- evaluate and select among different technical solutions for automation of material supply and other peripheral equipment
- plan and carry out implementation and deployment of a part manufacturing system
- master methods for planning and control of production, in particular through the use of simulation-based process improvement

## Course contents

The course focuses on part manufacturing and thus deals with principles for building manufacturing systems, as well as the latest technology in part manufacturing and automation of material handling.

Course topics include industrial control systems, communication technology, sensors and servo systems, flexible manufacturing systems, production lines and material handling. Particular attention will be paid to control and automation technology, and process and condition monitoring used in manufacturing cells.

Other areas covered include analysis of manufacturing processes and recognition of improvement opportunities, based on factory flow simulation. During the course, the student will be introduced to typical simulation models for supporting production related decisions. Lean production implementation methods will also be covered.

Finally, basic maintenance management methods, required for ensuring sufficient up-time and proper working and environmental conditions.

## Disposition

The course is divided into three main areas:

Manufacturing Systems, Process Improvements and Reliability, Safety and Maintenance

Classes include lectures, computer and laboratory exercises and project and homework assignments.

## Equipment

No special requirements.

## Examination

- INLA - Assignment in Simulation, 1.0 credits, grading scale: A, B, C, D, E, FX, F
- INLB - Assignment Process Improvement, 1.0 credits, grading scale: A, B, C, D, E, FX, F
- LABA - Laboratory Exercises, 2.0 credits, grading scale: P, F
- TEN1 - Written Exam, 2.0 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

Exam , TEN1, 2hp

Assignments INL1 (1hp) and INL2 (1hp)

Laboration, LAB1 (1hp), LAB2 (1hp)

## 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.