MG2109 Advanced Manufacturing Technology, Extended Course 9.0 credits

Avancerad tillverkningsteknik, större kurs

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

Establishment

Course syllabus for MG2109 valid from Autumn 2019

Grading scale

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

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

Minimum of 45 cr of second cycle courses completed and
one of the courses MG1016, MG1026 or MG2104, or the corresponding.

Only one of the courses MG2009, MG2109 or MG2110 can be taken due to overlapping subjects

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, the student should be able to:

- analyse conventional (cutting) machining processes and selected advanced machining processes, regarding their applicability and technical adequacy in a given manufacturing environment
- interpret tolerances in engineering drawings and use this understanding to plan and carry out measurements of given engineering components
- measure and analyse the dynamic characteristics of the manufacturing system, i.e machine tools, cutting tools, workpiece, fixturing and cutting process, and their relation to quality and productivity
- analyse advanced additive manufacturing processes nd their potential for new opportunities
- do qualified economic calculations for conventionl machining processes, given specific preconditions for material, tools and productivity
- independently explore, review, document and present research based tasks on advanced concepts in manufacturing technology

Course contents

The course is divided into five thematic sections:

- CNC machining, maching economics and quality control
- Design and analysis of manufacturing machines
- Advanced subjects for research-based studies
- Laboratory exercises
- Study visits to companies

Key concepts in the course are

- CNC machining
- Machining economics and productivity
- Quality control and measurement techniques
- Machine tool design and machine dynamics
- Advanced machining processes
- Additive manufacturing

Examination

- INLA - Homework Assignments, 3.0 credits, grading scale: P, F
- LABA - Workshop Laboratory Exercises, 1.5 credits, grading scale: P, F
- STU1 - Study visit, 0.5 credits, grading scale: P, F
- TEN2 - Written exam, 4.0 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.

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

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.