MG2045 Decision-making for Advanced Manufacturing 6.0 credits

Beslutsstöd för avancerad tillverkning

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

Establishment

On 01/10/2020, the Dean of the ITM School has decided to establish this official course syllabus to apply from autumn term 2021 (registration number M-2020-1990).

Grading scale

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

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

Admitted to a Master's programme (two-year).

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 students should be able to:

1. Describe advanced manufacturing processes
2. Explain the importance of metrology (measurement technology) in advanced manufacturing processes
3. Describe methods and instruments that are used industry for metrology purposes
4. Evaluate measurement and manufacturing data by use of suitable statistical tools and algorithms for machine learning
5. Apply decision support systems for advanced manufacturing

Course contents

The course is about decision support systems in advanced manufacturing technology, based on industrial metrology tools and procedures. The course includes an extensive review of advanced manufacturing processes and industrial metrology tools, methods, algorithms and their applicability, configurations, subsystems, structure, design and operational capability. During the course, extensive training is given in handling and evaluation of production and measurement data through use of applicable statistical tools and algorithms for machine learning to receive and account result with traceability. The course intends to teach the students how measuring techniques assist decision support in advanced production. On completion of the course, the students will be able to apply new knowledge through three main activities : design, carry out and document personal research.

Examination

- INLA - Individual home assignment, 1.5 credits, grading scale: A, B, C, D, E, FX, F
- LABA - Laboratory work, 1.5 credits, grading scale: P, F
- PROA - Project work, 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.

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.