LUNDS UNIVERSITET
Lunds Tekniska Högskola

Course syllabus

Tillverkningsmetoder
Production and Manufacturing Methods

MMTF20, 7,5 credits, G2 (First Cycle)

Valid for: 2023/24
Faculty: Faculty of Engineering, LTH
Decided by: PLED M
Date of Decision: 2023-04-11

General Information

Main field: Technology.
Compulsory for: M2, MD2
Language of instruction: The course will be given in Swedish

Aim

A major part of the final properties and cost of a product is decided through the choice of manufacturing methods, and how the chosen methods are designed and controlled. The main purpose with the course is to give the student a broad understanding of existing manufacturing processes, in order to be able to control the critical product attributes; cost, function and properties.

Learning outcomes

Knowledge and understanding
For a passing grade the student must

- be able to define and describe specific terms in manufacturing technology.
- individually and in writing, be able to assess and compare different manufacturing processes, regarding function, result and efficiency.
- be able to perform basic calculations that outline the basis of these manufacturing methods.
- be able to integrate basic knowledge from material science, solid state physics and mechanics.

Competences and skills
For a passing grade the student must

- in group, be able to apply calculation methods on an actual product, and in writing be able to specify the scope and limits of the manufacturing of the said product, regarding material, tooling, machines processes etc. The student should also in this context be able to apply simple economic calculations.
- with reference to a physical component, within given frames, be able to analyze the used manufacturing methods, integrate knowledge from material science, and in group present the results in a written report.
- individually be able to seek and put together information on a given manufacturing process, and give an oral presentation of this in front of a larger group of students.

Contents

The course comprises the following groups of manufacturing methods and processes: Mechanical behaviour of materials and deformation models; metal-casting materials and equipment; forming and shaping processes and equipment including rolling, forging, extrusion, drawing, sheet-metal forming, forming and shaping of plastics; machining processes and machine tools including fundamentals, cutting tools and cutting tool materials, turning, drilling, milling, broaching, sawing, abrasive machining and finishing operations, advanced machining operations including EDM, AWJC, LBM, EBM; joining processes and equipment including fusion-welding processes and solid-state welding processes and an introduction to manufacturing economy.

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)
Assessment: Written examination, written assignments and compulsory experimental exercises.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Admission

Assumed prior knowledge: FMEA01/FMEA30 Engineering Mechanics, FHL013/FHLF15 Solid Mechanics, Basic Course/FHLA01 Solid Mechanics, Basic Course and FKM015/FKMA01 Materials Engineering, Basic Course/FKMA01 Materials.
The number of participants is limited to: No
The course overlaps following course/s: MMTA05

Reading list

- Ståhl, Jan-Eric: Industriella Tillverkningssystem del I, Material och tillverkningsmetoder. KFS i Lund AB, 2017.

Contact and other information

Course coordinator: Fredrik Schultheiss, fredrik.schultheiss@iprod.lth.se
Course homepage: http://www.iprod.lth.se