

SYLLABUS

Metalforming I 7.5 credits

B0004T

Bearbetningsteknik I

Course syllabus admitted: Spring 2019 Sp 3 - Autumn 2019 Sp 2

DECISION DATE
2018-11-07

Metalforming I 7.5 credits B0004T

Bearbetningsteknik I

First cycle, B0004T

Education level	Grade scale	Subject	Subject group (SCB)
First cycle	G U 3 4 5	Maskinteknik	Mechanical Engineering

Entry requirements

In order to meet the general entry requirements for first cycle studies you must have successfully completed upper secondary education and documented skills in English language +

Swedish upper secondary school courses Physics 2, Chemistry 1, Mathematics 3c (specifik entry A8).

Or:

Swedish upper secondary school courses Physics B, Chemistry A, Mathematics D (specifik entry 8)

Selection

The selection is based on final school grades or Swedish Scholastic Aptitude Test.

Examiner

Esa Vuorinen

Course Aim

After completed course the student should be able to:

- Account for and understand the behaviour of metals at plastic deformation , regarding material parameters as well as process parameters.
- Account for differences between hot and cold deformation, particularly as regards rolling
- Separate the behaviour of the metal at full-plastic working methods from the behaviour at partly plastic working methods
- Understand the difficulties and possibilities of the processes as regards material properties
- Account for basic concepts and definitions at chip-cutting tooling
- Know the behaviour of the tool-material and its wear at chip-cutting processes
- Make calculations for economic outcome at chip-cutting tooling.

Contents

The basis for plastic deformation. The dependence of plasticity and deformation-resistance on state of tension, crystal-structure, temperature, speed of deformation, and degree of deformation. Influence of deformation-geometry and friction. Cold- and hot – deformation. The basic concepts of rolling: Widening, catching, the bending of rolls, bombation, tolerances, gauging of thickness,, surface condition and hardening by deformation. Basic theories for chip-cutting tooling, particularly turning and cutting. Cutting data, tool material and the influence of cutting liquids on the cutting process. The mechanism of wear at cutting tooling.

Realization

Each course occasion's language and form is stated and appear on the course page on Luleå University of Technology's website.

Lectures, calculation-exercises, laboratory work and educational visits

Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided. Written examination, assignments and laboratory work.

Remarks

The course is included in the Technician education 120 HEC and in the Bachelors education 180 HEC. The course corresponds to MP1010.

Literature. Valid from Autumn 2018 Sp 2

Hågeryd, Lennart, Björklund, Stefan, Lenner, Matz. (2018) Modern produktionsteknik. D. 1. 3 uppl. Stockholm : Liber. (496 s). ISBN 978-91-47-11343-9

Anmärkning/Note: annan utgåva: Modern produktionsteknik ; D. 2 . 2002 , ISBN 91-634-0065-0

Kompendier. Bearbetningsteknik och valsningsteknik. Tillhandahålls av Bergsskolan i Filipstad.

Course offered by

Department of Engineering Sciences and Mathematics

Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0001	Written exam	G U 3 4 5	5	Mandatory	A12	
0002	Assignments	U G#	1.5	Mandatory	A12	
0003	Laboratory work	U G#	1	Mandatory	A12	

Last revised

by HUL Mats Näsström 2018-11-07

Syllabus established

by Dept TVM Mats Näsström 2012-04-03