

SYLLABUS

Manufacturing Methods 7.5 credits T0019T

Tillverkningsmetoder

Course syllabus admitted: Autumn 2023 Sp 1 - Present

**DECISION DATE
2022-02-14**

Manufacturing Methods 7.5 credits T0019T

Tillverkningsmetoder

First cycle, T0019T

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

Main field of study

Industrial Design 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 and You are expected to have basic knowledge about mathematics and physics, e.g. by:

F0004T (Physics 1), F0006T (Physics 3), M0047M-M0049M (Linear Algebra and Differential Equations).

It is recommended to have knowledge of metallic and polymeric materials, e.g. by T0004T or equivalent.

Course material in English is available, therefore good knowledge corresponding to English 6 is recommended.

Selection

The selection is based on 1-165 credits.

Course Aim

Divided into 3 categories below, you as a student after successfully completed the course will have:

1. Knowledge and Understanding

- Remember a multitude of manufacturing methods and also seek, identify and map current and evaluate any future developments in the field of engineering technology manufacturing.

2. Skills and Abilities

- Be able to motivate, choose and defend manufacturing methods, e.g. based on the component's functional requirements, geometry, materials and manufacturing volume for actual manufacturing needs
- Be able to identify, map, prove, explain and summarize how a component is made
- Be able to orally and by writing explain manufacturing methods to peers
- Be able to give constructive criticism about explanations of manufacturing methods and corresponding report layout

3. Values and attitude

- Reflect on and evaluate their own efforts in group work and conclude how to improve for future work

Contents

Overview of common manufacturing methods, including:

- Cutting technology (overview, nomenclature and designations)
 - turning, milling, drilling and grinding
- Casting
- Spark machining
- Plastic processing
 - sheet metal forming, rolling, forging and extrusion are treated
- Laser machining methods
 - cutting, welding, and surface treatment
- Manufacturing methods for thermoplastics

But also concerns more technically operational aspects, e.g.

- Insight into surgical preparation and programming of numerically controlled machine
- Laser safety

In addition to course material, the student is expected to find and use external material

Realization

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

Teaching and learning takes place through own studies, submission of course-wide compulsory assignments and laboratory work in groups of normally 4-6 students. In the course, a mini-project is carried out during the course with normally two participants per group.

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. Continuous examination. Rules for differentiated grades are given during the start of the course, where a higher effort is usually required from a student for higher grades.

For final grades, approved laboratory work is also required.

Unauthorized aids during exams and assessments

If a student, by using unauthorized aids, tries to mislead during an exam or when a study performance is to be assessed, disciplinary measures may be taken. The term "unauthorized aids" refers to aids that the teacher has not previously specified as permissible aids and that may assist in solving the examination task. This means that all aids not specified as permissible are prohibited. The Swedish version has interpretative precedence in the event of a conflict.

Remarks

This course cannot be included in degree with T0013T, MPR042, MPB001 and MTM061.

Transition terms

2113

Course offered by

Department of Engineering Sciences and Mathematics

Modules

| Code | Description | Grade scale | Cr | Status | From period | Title |
|------|------------------------|-------------|-----|-----------|-------------|-------|
| 0002 | Laboratory work | U G# | 1.5 | Mandatory | A08 | |
| 0003 | Continuous examination | G U 3 4 5 | 6 | Mandatory | A21 | |

Study guidance

Study guidance for the course is to be found in our learning platform Canvas before the course starts. Students applying for single subject courses get more information in the Welcome letter. You will find the learning platform via My LTU.

Last revised

by Niklas Lehto, Programme Director 2022-02-14

Syllabus established

The syllabus was established by the Department of Applied Physics and Mechanical Engineering 2007-12-17, and remains valid from autumn 2008.