

SYLLABUS

Laser Material Processing

7.5 credits T0018T

Laserbearbetning

Course syllabus admitted: Autumn 2023 Sp 1 - Present

DECISION DATE
2018-06-15

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Laserbearbetning

First cycle, T0018T

Education level	Grade scale	Subject	Subject group (SCB)
First cycle	U G#	Produktionsteknik	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 and Courses in physics MTF096/F0004T, MTF098/F0006T, in manufacturing methods MPR042/T0013T/T0019T, T0017T and in material science and engineering MTM032/T0004T or similar. Good knowledge in English, equivalent to English 6.

Selection

The selection is based on 1-165 credits.

Course Aim

The student shall after successfully have completed the course

- Know and describe different laser types and important phenomena of how lasers work
- Know, describe and analyse laser beam propagation and laser beam focussing
- Know and describe the interaction of high power laser beams with material
- Know, describe and analyse important industrial laser processes
- Know and describe different industrial laser systems

Contents

The course comprises mainly:

- Laser theory and optics
- Interaction of high power laser beams with material
- Industrial laser processes: cutting, welding, surface treatment and other methods eg. drilling
- Industrial laser systems

Realization

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

Lectures, exercises, laboratory work, project work. The laboratory and project work are compulsory.

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. Successful completion of the laboratory and project work and class tests.

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

The course cannot be included in a degree programme in combination with MPB020 and MPR051.

Overlap

The course T0018T is equal to MPR060

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	A07	
0004	Project work	U G#	3	Mandatory	A09	
0005	Class tests	U G#	3	Mandatory	A09	

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 Mats Näsström 2018-06-15

Syllabus established

The syllabus was established by the Department of Applied Physics and Mechanical Engineering 2007-02-28, and remains valid from autumn 2007.