

SYLLABUS

Composites Manufacturing and Lightweight Design 7.5 credits T7029T

Tillverkning av kompositer och lättviktsdesign

Course syllabus admitted: Autumn 2023 Sp 1 - Present

**DECISION DATE
2022-06-17**

Composites Manufacturing and Lightweight Design 7.5 credits T7029T

Tillverkning av kompositter och lättviktsdesign

Second cycle, T7029T

Education level	Grade scale	Subject	Subject group (SCB)
Second cycle	G U 3 4 5	Polymerteknik	Materials Technology

Entry requirements

Knowledge of composite materials corresponding to T7012T Composite material or equivalent.

Selection

The selection is based on 30-285 credits

Course Aim

The overall course aim is to develop the ability to understand basic physical mechanisms, analyse and carry out the manufacture of fibre-reinforced composite materials and products.

Upon completion of the course, the student should be able to demonstrate:

- Knowledge and understanding in composite manufacturing by explaining all commonly used manufacturing methods
- Skill and ability to use this knowledge in composite manufacturing to design and implement real manufacturing in a laboratory environment
- Skill and ability in reasoning about practical case-studies and as a result of investigations propose and justify a material choice, product design and manufacturing method for an arbitrary product
- Valuation ability meaning that the student exhibits an ability and attitude to critically and systematically evaluate the qualitative and quantitative impact of the physical mechanisms that influence the production process and thus determines a composite component's performance

Contents

Manufacturing methods, constituents of composites, physical mechanisms (compaction, impregnation, mould filling, curing, viscosity build-up, residual stress), manufacturing defects, design for manufacturing, quality control, repair, recycling.

Realization

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

Lectures, self-studies and seminars. Compulsory laboratory work and case studies.

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. In addition to a passed exam, approved laboratory work and case study are 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.

Course offered by

Department of Engineering Sciences and Mathematics

Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0002	Laboratory work	G U 3 4 5	2.5	Mandatory	A20	
0003	Case-study	G U 3 4 5	1	Mandatory	A20	
0004	Take-home examination	G U 3 4 5	4	Mandatory	S23	

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, huvudansvarig utbildningsledare 2022-06-17

Syllabus established

by HUL Niklas Letho 2020-02-14