

SYLLABUS

Multiphysics, simulation and computation 7.5 credits F7024T

Multifysik, simulering och beräkning

Course syllabus admitted: Autumn 2023 Sp 1 - Present

**DECISION DATE
2023-01-16**

Multiphysics, simulation and computation 7.5 credits F7024T

Multifysik, simulering och beräkning

Second cycle, F7024T

Education level	Grade scale	Subject	Subject group (SCB)
Second cycle	G U 3 4 5	Fysik	Physics

Entry requirements

Physics 1-3 F0004T-F0006T, Continuummechanics F0030T and Vector calculus as in M0032M Functions of several variables and computer tools. Or F0031T Hydromechanics and Vector calculus as in Mathematics M M0013M.

Selection

The selection is based on 30-285 credits

Course Aim

At the end of the course the student should have basic knowledge about

- The finite element method
- How to formulate mathematical models describing physical and technical problems in a suitable form appropriate for the finite element method.
- How to use the simulation software Comsol Multiphysics to simulate physical and technical processes in which several disciplines in science and engineering are coupled.
- Orientation of how the software and simulation tool is used in actual research in university and industry.

Contents

The finite element method Introduction till Comsol Multiphysics Mathematical modeling of physical and technical processes.

Realization

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

The work is done in groups of 1-3 students.

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. Home assignments.

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
0001	Assignment report	G U 3 4 5	7.5	Mandatory	S08	

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, Head of Undergraduate Education 2023-01-16

Syllabus established

by Department of Applied Physics and Mechanical Engineering 2007-12-17