SYLLABUS

Particle and Nuclear Physics 7.5 credits F7031T

Partikel- och kärnfysik

Course syllabus admitted: Autumn 2023 Sp 1 - Present

DECISION DATE
2021-02-17

Luleå University of Technology 971 87 Luleå, Sweden
Phone: +46 (0)920 49 10 00 • Corporate Identity: 202100-2841

LULEÅ TEKNISKA UNIVERSITET

Particle and Nuclear Physics 7.5 credits F7031T

Partikel- och kärnfysik

Second cycle, F7031T

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

Entry requirements

Quantum Physics in any form.

Selection

The selection is based on 30-285 credits

Course Aim

After the course, the student should:
- have a deep understanding of the modern physical world, including both micro- and macro-cosmos
- have a knowledge of large-scale and international research projects within the area
- have an insight into concepts, theoretical models and computational methods within the area

Contents

The basic properties of quarks, elementary particles and atomic nuclei, and of forces and reactions between them. Experimental methods, detectors and large-scale laboratories. Strong, weak and electromagnetic interactions. Static properties of particles. Collisions and decays. Quarks and the quantum chromodynamic theory. Unification of forces in Nature. Large-scale research programmes. Astroparticle physics. The physics front-line. Challenges for the future. The structure of nuclear matter. Nuclear reactions and radiation. Fission and fusion.

Realization

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

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.
Homework assignment. There can be alternative examination methods.

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.

Overlap

The course F7031T is equal to F0009T

Course offered by

Department of Engineering Sciences and Mathematics

Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0001	Assignments	G U 3 4 5	7.5	Mandatory	A10	

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 Head Faculty Programme Director Niklas Lehto 2021-02-17

Syllabus established

by Department of Applied Physics and Mechanical Engineering 2010-02-20