

**SYLLABUS**

# **Theory of Relativity 7.5 credits F7041T**

**Relativitetsteori**

**Course syllabus admitted: Autumn 2023 Sp 1 - Present**

DECISION DATE  
**2022-02-14**

# Theory of Relativity 7.5 credits F7041T

## Relativitetsteori

### Second cycle, F7041T

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

## Entry requirements

Calculus M0029M, Linear Algebra and Differential Equations M0031M or equivalent.

## Selection

The selection is based on 30-285 credits

## Course Aim

This course introduces Einstein's theory of relativity. The course covers general relativity, gravitation and cosmology.

## Contents

The ideas behind Einstein's general theory of relativity. Curved space-time and general tensors. The energy-momentum tensor and Einstein's law of gravitation. The Schwarzschild solution. Experimental tests. Black holes. The Kerr solution. Gravitational waves. Gravitation and cosmology. The curved and expanding Universe.

## Realization

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

The course consist of lectures devoted to a basic core of the subject.

## 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 assignments. Alternative examination methods may occur.

## 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 part of the degree together with the course F0017T.

## Course offered by

Department of Engineering Sciences and Mathematics

## Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0001	Home Assignments	G U 3 4 5	7.5	Mandatory	A12	

## 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

by Dept. TVM Mats Näsström 2012-03-14