SYLLABUS

Differential Equations and Transform Theory 7.5 credits M0052M

Differentialekvationer och transformteori

Course syllabus admitted: Autumn 2023 Sp 1 - Present

DECISION DATE
2022-02-14

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LULEÅ TEKNISKA UNIVERSITET

Differential Equations and Transform Theory 7.5 credits M0052M

Differentialekvationer och transformteori

First cycle, M0052M

Education level	Grade scale	Subject	Subject group (SCB)
First cycle	G U 3 4 5	Matematik	Mathematics

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 the course Integrals, Vectors and Matrices (M0051M), or equivalent.

Selection

The selection is based on 1-165 credits.

Course Aim

After completing the course, the student will

- have knowledge of calculations using complex numbers, first and second order differential equations, power series, and transform theory
- know how to solve differential equations using standard methods, including simple numerical methods, power series and Laplace transform.
- have basic insight into mathematical modeling with differential equations.
- be able to use mathematical software for the problem areas of the course
- be able to validate the plausibility of the results
- have insight into interpreting and validating the results from applied problems

Contents

Complex numbers.
Differential equations: Ordinary differential equations, systems of differential equations. Applications. Improper integrals.
Series. Transform Theory and Applications.
Use of computer tools.

Realization

Each course occasion´s language and form is stated and appear on the course page on Luleå University of Technology's website.
Lectures and tutorials where theory and example problems are reviewed, with som degree of personal practice.

Mandatory marking conferences for grading of the course assignments.

The assignments may be marked using other methods.

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.
The course is graded with a written exam, and mandatory assignments. To pass the course, both parts need to be passed. The final grade of the course is set by the grade of the written exam.

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 M0052M is equal to M0039M

Course offered by

Department of Engineering Sciences and Mathematics

Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0002	Assignment report	U G#	1.5	Mandatory	A19	
0003	Written exam	G U 3 4 5	6	Mandatory	A21	

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 Niklas Lehto 2019-02-15