Course: Mathematics 3 credits: 3

Course code	ELVH17GWIS3
Name	Mathematics 3
Study year	2022-2023
ECTS credits	3
Language	Dutch, with parts in English
Coordinator	T.W. Scholten
Modes of delivery	Lecture
Assessments	Mathematics 3 - Written, organised by STAD examinations

Learning outcomes

The student can:

- Solve a variety of 1st and 2nd order differential equations using standard techniques such as separation of variables, use of an integrating factor, use of exactness, use of characteristic polynomial and equating coefficients.
- Use Laplace transforms to solve differential equations
- Find the Laplace transform of a function using properties of and theorems about Laplace transforms, with the assistance of a table of Laplace transforms.
- Find the inverse Laplace transform of a function using properties of and theorems about Laplace transforms, and algebraic techniques such as partial fractions and completing the square, with the assistance of a table of Laplace transforms.

Content

Differential equations are important in engineering and other fields as mathematical models of systems involving rates of change. This study unit introduces differential equations and certain standard techniques for solving them, insofar as this is possible. It also introduces the Laplace transform, which is used in control engineering, and can also be applied to solve differential equations.

Included in programme(s)

Electrical Engineering Major Electronics
Electrical Engineering Major Mechatronics

School(s)

Institute of Engineering

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