

**Course number: SET 11020****Mathematics 2****Study Level: Bachelor /
Undergraduate****Prof. Dr. Tobias Raff****Language of Instruction: English****ECTS Credits: 5****Subject-specific competencies:**

- The students have basic knowledge of linear algebra.
- They know important types of differential equations and know how to solve them.
- They master the handling of Laplace and Fourier transformation.

Methodological competencies:

- The students master the use of mathematical formulas and algorithms.

Personal competencies:

- The students can set up simple mathematical models.
- They can apply the learned mathematical procedures to problems of electrical engineering.

Teaching content:**Linear Algebra:**

- Definition of matrices
- Basic properties and operations of matrices
- System of linear equations
- Application of matrices to engineering problems

Differential equations:

- Definition and types of differential equations
- Types of differential equations
- Study of linear differential equations
- Application of differential equations to engineering problems

Integral Transforms:

- Definition of Laplace- and Fourier Transform
- Properties of Laplace- and Fourier Transform
- Application of Integral Transforms to mathematical and engineering problems