Course title	*Mathematics 2*
Course code	*EEIB210*
Module coordinator	*Miriam Heinrich*
Lecturer	*Prof. Dr. Thomas Westermann*
Level of course	*Bachelor*
Recommended prerequisites	
Type of course	*Lecture*
Weekly lecture hours (SWS)	*6*
ECTS credits	*7*
Workload	*in total 180 h, 90 h course attendance, 90 h self-study*
Assessment (grading; pass/fail)	*graded*
Regular cycle	*Summer semester*
Language of instruction	*English*
Contents:	• *Matrices* • *Linear mappings* • *Eigenvalue problems* • *Integral calculus* • *Improper integrals* • *Series* • *Taylor series* • *Fourier series* • *First order differential equations*
Learning outcome (competencies):	*The participants can understand and interpret mathematically formulated issues. They can apply the concepts taught to unknown tasks by* • *recognizing and solving eigenvalue problems • determining and interpreting mapping matrices, null spaces, and image spaces of linear mappings* • *applying matrix or determinant rules to solve systems of linear equations* • *explaining the concept of integration and solve unknown integrals, as well as solving type integrals using the product rule or the substitution rule* • *explaining the concept of improper integrals and calculate them* • *explaining number series and function series and applying convergence rules* • *calculating and interpreting Taylor and Fourier series of given functions.* • *recognizing various first-order differential equations and solving them reliably using the methods presented to be able to apply the mathematical tools in engineering subjects and in practice.*
Teaching methods	☒Lecture ☐Group work ☐Exercises ☐Simulation ☐Video feedback ☐Others: Please click here for inserting text
Assessment methods	*Written exam*
Recommended reading	*Westermann, T: Mathematics for Engineers (Part 2), iMath 2021, 1st Edition*

	• Problems: iMath-Problems App, Apple App Store/Android PlayStore • www.home.hs-karlsruhe.de/~weth0002 • Goebbels, S. und Ritter, S.: Mathematik verstehen und anwenden, Springer-Spektrum 2013, 2. Auflage • Westermann, T: Mathematik für Ingenieure, Springer 2020, 8. Auflage
Additional information	Please fill in
Recognition of credits	Will be filled in by coordinators