Course Descriptions None 2025-2026

Course Title	Linear Algebra
Course Code	BENC1004
ECTS Credits	5,0
Assessment	Whole/Half Grades

Period

Period	Start	End	Mon	Tue	Wed	Thu	Fri
2	27-10-2025	12-12-2025		X		X	L

Level	Introductory
Coordinator	Niloufar Yousefimanesh For more information:n.yousefimanesh@maastrichtuniversity.nl
Language of instruction	English
Goals	* Students have the knowledge on the fundamental concepts of linear algebra, including vectors, matrices, systems of linear equations, eigenvalues, eigenvectors, linear transformations, and orthogonality. * Students will be able to look at the same problem from different angles and they will learn to switch their point of view (from geometric to algebraic and vice versa). * Students will recognize that linear algebra can be applied to problems from different disciplines. * Students will obtain the insight that various seemingly different questions all can boil down to the same mathematical problem of solving a system of equations. * Students can argue (in a sometimes abstract way) which approach may or may not work. * Students are able to give clear arguments to support their solutions in a mathematically correct manner. * Students will be able to understand and write the language of linear algebra.
Description	Linear Algebra is the second basic mathematics course of the program. Similar to Calculus, it builds on high school mathematics and prepares you for advanced engineering courses that focus on computational skills and techniques. This course focusses on the theory of linear transformations on linear vector spaces. The underlying fundamental concepts of matrices and vectors are explained and applied to problem solving. Rigorous reasoning with these concepts with attention to precision in formulation is a key aspect of the course. You gain insight into algebraic and geometric concepts including vectors, matrices, linear transformations, eigenvalues and eigenvectors, inner products and orthogonality. You learn to perform basic algorithmic calculations (matrices, equations...) and solve more abstract algebraic problems. You also gain insights into the applications of linear algebra in several engineering and scientific disciplines. (5.0 ECTS)
Literature	David C. Lay, Steven R. Lay, and Judi J. McDonald (2021). Linear Algebra and Its Applications (Sixth Edition). ISBN: 978-1-292-35121-6.
Prerequisites	No prerequisites are required.
Keywords	Linearity and linear independence, matrix algebra, determinants, vector spaces, eigenvalues and eigenvectors, orthogonality
Transitional Regulations	
Teaching methods	PBL / Lecture
Assessment methods	Written Exam / Assignment
Evaluation in previous academic year	For the complete evaluation of this course please click http://iwio-sbe.maastrichtuniversity.nl/rapporten.asp?referrer=codeUM

This course belongs to the following programme / specialisation

Bachelor Business Engineering	Year 1 Compulsory Courses