

The title of the course	Mathematics I
Faculty	Faculty of Management and Transport
The level of studies	Bachelor Studies or Engineering Studies
Semester	Winter or summer
The form of classes and number of hours	15 h
Classes conducted for Polish students. Erasmus students can join them	No
Language of instruction	English
The number of ECTS	2 ECTS Lectures and Exercises with the teacher 15h Student's own work: <ul style="list-style-type: none"> • Homeworks 25 h • Preparation for the test 10 h TOTAL: 50 h
Teacher	Jarosław Jabłonka, PhD
The aims of the course (maximum 500 characters)	Learning and mastering the basic concepts of linear algebra and mathematical analysis of functions of one variable. Discussion of matrix calculus and determinants and the application of these concepts to solving systems of linear equations. Overview of the application of calculus to study functions. Showing the applications of mathematical methods in solving technical and economic problems.
The content of the course: main topics and key ideas	Complex Numbers Matrix Calculus Systems of Linear Equations. Real function of one variable. The limit of function. Differential calculus of functions of one variable. Applications of mathematics in economics and technology.
Didactics methods	Lecture Method Content-Focused Methods Problem Solving Methods Creative Thinking
Course requirements	No
Literature (basic and supplementary)	Robbiano L., Linear Algebra for Everyone, Springer-Verlag Italia, 2011 Nair Thamban M., Singh A., Linear Algebra, Springer Nature, Singapore Pte Ltd., 2018 Petersen P., Linear Algebra, Springer Science+Business Media, New York, 2012 Olver P. J., Shakiban Ch., Applied Linear Algebra, Springer International Publishing AG, 2018

	<p>Hirst K. E. , Calculus of One Variable, Springer-Verlag London Limited, 2006 Lax P. D., Terrell M. S., Calculus With Applications, Springer Science+Business Media, New York 1976, 2014</p>
<p>The effects of the education</p> <ul style="list-style-type: none"> - knowledge - skills - social competences 	<p>Knowledge: A Student knows:</p> <ul style="list-style-type: none"> • the basic concepts of algebra concerning vectors, matrices and systems of linear equations • the basic concepts of the calculus differential function of one variable. <p>Skills: A Student:</p> <ul style="list-style-type: none"> • performs operations on vectors and matrices. • solves systems of linear equations. • designates the limits of sequences and functions • performs operations on complex numbers • calculates derivatives and extremes of functions of one variable. <p>Social competences: A Student can organize her/his work, respecting ethical and professional standards.</p>