

The Technical University of Košice, Faculty of Mechanical Engineering

Course unit title: **SELECTED CHAPTERS FROM MATHEMATICS**
Study programme: **Automotive Production**
Mechanical Engineering

Study period: **1st year, WT 2020/2021**
Faculty: **Faculty of Mechanical Engineering**
Level of study: **Bachelor**
Form of study: **Full time**
Evaluation: **Graded credit test**
Number of credits: **2**

Guaranteeing department: **DEPARTMENT OF APPLIED MATHEMATICS AND INFORMATICS**
Guarantor: **prof. RNDr. Martin BAČA, CSc.**

Week	Lectures	Tutorials
	Number of hours: 0 per week	Number of hours: 2 per week
1.		Matrices, operations with matrices. Determinants, calculating determinants.
2.		Gaussian elimination method. Cramer's rule. Inverse of a matrix.
3.		Domain of a function. Properties of functions. Inverse functions.
4.		Limit of a function.
5.		Derivative of a function.
6.		Higher-order derivatives. L'Hospital's rule.
7.		<i>Test.</i> Increasing and decreasing functions. Local extrema.
8.		Concavity and points of inflection.
9.		Standard integrals and rules of integrations.
10.		Integration by substitution. Integration by parts.
11.		Integration of rational functions.
12.		Integration of irrational functions.
13.		<i>Test.</i> Integration of rational function of sine and cosine.

Recommended reading:

1. Bača, M., Feňovčíková, A.: Mathematics 1, C-PRESS, Košice, 2010.
2. Eliáš, J., Horváth, J., Kajan, J.: Zbierka úloh z vyššej matematiky 1. a 2. časť, Alfa, Bratislava, 1995 (in Slovak).
3. Knežo, D., Andrejiová, M., Kimáková, Z.: Matematika 1, Časť A: Funkcia jednej premennej a jej diferenciálny počet, Technická univerzita, Košice, 2010 (in Slovak).
4. Knežo, D., Andrejiová, M., Kimáková, Z.: Matematika 1, Časť B: Neurčitý integrál, algebra, analytická geometria, Technická univerzita, Košice, 2010 (in Slovak).
5. Šoltés, V., Juhásová, Z.: Zbierka úloh z vyššej matematiky I, Olympia, Košice, 1992 (in Slovak).

Evaluation:**EVALUATION**

1st test:	50 points
2nd test:	50 points
<hr/>	
Graded credit test:	total points 100, required minimum 51

Attendance of lectures and classes is compulsory.

Košice, 18th September, 2020

Signature of guarantee

You can find these information on webpage
<http://www.sjf.tuke.sk/kamai/students/syllabi>