Ministerul Educației și Cercetării
UNIVERSITY OF PETROSANI
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Course Syllabus

Academic year: 2020-2021

Institution	University of Petroşani
Faculty	Mechanical and Electrical Engineering
Field of study	Transports Engineering
Level	Bachelor
Program of study	Transports and Traffic Engineering

Course	**Mathematical Analysis**
Code	2TT1OF01
Year of study (semester)	I (I)
Number of hours	56
Number of credits	5
Professor	Prof., Ph.D. Wilhelm W. KECS

No.	Topic
1.	General Topology. Open and closed sets. Neighbourhood. Interior and closure of a set. Limit points. Metric. Topology of a metric space.
2.	Sequences of Numbers. Stolz-Cesaro Criterion.
3.	Series of Numbers. Convergence Tests for Series.
4.	Differential Calculus for Functions of One Variable. Taylor's Formula for Real Functions of One Variable.
5.	Sequences and Series of Functions. Power series
6.	Fourier series.
7.	Differential Calculus for Functions of Several Variables. Partial derivatives. Gradient, Divergence and Curl Operators.
8.	Maxima and Minima of Functions of Several Variables, Stationary Point,

	Lagrange's Method of Multipliers.
9.	Riemann-Stieltjes integral. Primitives. Improper integrals. Integrals depending on parameters. Special functions.
10.	Line integral. Line Integrals with respect to coordinates**.** Line integrals with respect to arc length
11.	Double integral. Green-Riemann formula
12.	Surface integral. Flux of vector field across a surface. Stokes' Theorem.
13.	Volume integral. Gauss-Ostrogradsky Theorem.