

Course Syllabus

Academic year: 2018-2019

Institution	University of Petroșani
Faculty	Mechanical and Electrical Engineering
Field of study	Industrial engineering
Level	Bachelor
Program of study	Machine Building Technology

Course	Algebra, analytical and differential geom.
Code	2BB2OF12
Year of study (semester)	I (II)
Number of hours	56
Number of credits	4
Professor	Assoc. Prof., Ph.D. NOAGHI Sorin

No.	Topic
	Vector spaces
1.	Definition of vector space, examples, subspaces; Linear dependence and independence, basis, size; Euclidean vector spaces, orthogonality.
	Linear applications
2.	Definition, properties, operations, linear applications between dimensional finite spaces; Vectors and their own values, the diagonal shape of the matrix of an endomorphism.
3.	Linear, biliary, and square shapes.
	Vector geometry
4.	Vector vectors free vector vector space; Scalar, vector and mixed product.
	Right and space plan
5.	Cartesian landmark, landmark change, space plan, right in space

	Cones
6.	Definition, customizations, reduction of conical cones, intersections, straight lines and particular points
	Cuadrices
7.	Definition customizations, reduction of quadrics to canonical form, representation, intersections
	Differential geometry of curves in plan and space
8.	Parameterized curves, curve curvature, curve orientation; Frenet benchmark, torsion; Fundamental theorems of differential curve theory.
	Differential surface geometry
9.	Tangent and normal surface parameterized surfaces, surface orientation, fundamental operator, bi-linear shapes associated with normal curvature, asymptotic curves, main directions, curvature lines; Total curvature and average curvature; Motion equations of the natural mark; Gauss's theorem; Fundamental theorems of differential surface theory; Geodetic curves.