DISCIPLINE SHEET

Course name	**Elements of Mechanics and Mechanisms**
Field of study	Electrical Engineering
Specialization	Electronics and Telecommunications
Discipline code	51380607
Teacher (Name & e-mail address)	Prof.dr.ing. **Vistrian MĂTIEŞ**
Collaborators	S.l.dr.ing. Sergiu-Dan STAN
Department	Mechanisms, Precision Mechanics and Mechatronics
Faculty	Mechanics

Sem.	Course name	Course	Applications			Course	Aplications			Indiv. Study	TOTAL	Credit	Assessment
		[hours/week]				[hours/week							
			S	L	P		S	L	P				
9	**Engineering**	**2**	**1**	**-**	**-**	**28**	**14**	**-**	**-**	**78**	**120**	**4**	**Colocviu**

Learning Outcomes:

Knowledge/understanding:

- The lecture aims giving the students the knowledge regarding the structural synthesis and dimensional of the planar and spatial mechanisms, the kinematic analysis of mechanisms, the cam mechanisms synthesis, of gears, the basic knowledge of the kinethostatics and dynamics of mechanisms.

Theoretical Skills:

- After lecture the students will be able to: apply the knowledge, participating efficient in transdisciplinary research-design teams, to analize and evaluate experimental data from the mechanical engineering field; to understand and analize critical comparatively technical solutions specific in the field of mechanical engineering.

Practical Skills:

- After lecture the students will be able to: communicate written and oral, with specialists in the field of mechanical engineering, to use methods and measuring systems of functional parameters of different mechanical systems, to use the mathematics, proper methods and software packages to simulate the different mechanical systems.

Requirements (if any**)**

General knowledge of physics, mathematics, information technology.

A. Titles of lectures	
1-2.	Introduction in Mechatronics. Basic structure of mechatronic systems.
3-4.	Structural analysis of mechanisms
5.	Kinematic analysis of mechanisms
6-7.	Basics of mechanical structure design
8-9.	Cam mechanisms and gear mechanisms
10-11.	Dynanics of mechanical systems. Modeling and simulation.
12-13.	Robots and robotics
14.	Mechanical structures in electrical and electronic engineering

B1. Titles of applications	
1-2. 3-4 5. 6-7.	Structural and kinematic analysis of mechanisms Experimental study of mechanisms and mechanical transmissions Modeling and simulation of mechanisms and mechanical structures Design of mechanisms and mechanical structures

B2. Laboratory (Room/surface, address)
C 304/50 m^2, D018/ 120 m^2 B-dul Muncii 103-105

C. Individual study

1. Study of the synthesis of mechanisms
2. Kinematics and dynamics of machines
3. Gears

Structure of	Study of	Homework,	Study of	Time for	Study of	Total time of individual

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individual study	course materials	project work	seminar / lab. materials	examination	additional reference materials	work
No. of hours	14	2	7	2	5	30

D. Strategy and teaching methods
For the lecture it will be combined the classical teaching, as well as using posters to include kinematic scheme and constructibe of the representative technical systems. Also, it is used the videoprojector for the presentation of animations and films.

References
In Technical University of Cluj-Napoca library
1.Demian ,Tr., Mecanisme de mecanica fina,EDP.Bucuresti, 1981.
2. Demian, Tr., s.a, Elemente constructive de mecanica fina, EDP,Bucuresti,1984.
3.Handra-Luca,V., Mecanisme, Ed.UT Pres,Cluj-Napoca,1981.
4.Maties,V.,s.a., Actuatori in mecatronica, Ed.Mediamira,Cluj-Napoca,2000.
5.Maties,V.,s.a., Tehnologie si educatie mecatronica,Ed.Todesco,Cluj-Napoca,2001.
6.Szekely,E., Dali, A., Mecanisme,Ed.UT Pres,Cluj-Napoca,1993.
In other libraries
1. Dudiță,Fl., ş.a., Mecanisme articulate, inventică, cinematică, Ed.Tehnică, Bucureşti, 1989.

Assessment	
Assessment method	Exam consists in the written and oral exam (1,5 ore).
Note components	Exam (nota E); Laboratory (nota L);
Calculation formula	N=0,7E+0,3L; Condition to obtain credits: N>5; E>5; L>5

Discipline responsible,
Prof.dr.ing. Vistrian MĂTIEŞ