SUBJECT PRESENTATION FORM

Subject name	Mechanics II
Field of study	Civil Engineering
Main field of study	CCIA
Subject code	41321108
Subject main teacher	Prof.dr.ing. Pavel ALEXA – pavel.alexa@staff.utcluj.ro
Colaborators	Ovidiu PRODAN
Department	Structural Mechanics
Faculty	Civil Engineering

Sem.	Type of subject	Course	Applications			Course	Applications			Individual Study	TOTAL	Credits	Type of examination
		[classes/week]				[classes/semester.]							
		C	S	L	P	C	S	L	P				
2	**Fundamental**	**2**	**1**	**-**	**-**	**28**	**28**	**-**	**-**	**22**	**78**		**Exam**

Achieved abilities:
Theoretical knowledge, (What the students must know)
Knowledge of Statics Knoledge of differential equations
Achieved skills: (What they can do)
Motion of a material system (particel, body, systems of bodies) Application of principles of Analytical Mechanics (D'Alambert, Virtual work) Method of virtual displacements
Achieved abilities: (What types of equipments and instruments they know how to use)
Application of analytical principles (energetical, virtual work) in Mechanics

Previous requirements (if necessary)
- Mechanics I - Differential equations

A. Course (course titles +curriculum)	
1	Principles of Dynamics; Velocity; Acceleration
2	Scalar components of velocity and acceleration
3	Kinematics of particle; Kinematics of rigid body; Simple motion
4	Rotation about fixed axis
5	Plane motion
6	Displacements diagram in plane motion
7	Dynamics of free and constrained particle
8	Impulse; Theorems of impulse
9	Kinetic moment; Theorems of kinetic moments
10	Kinetic energy; Theorems of kinetic energy
11	Principle of D'Alembert; Kineto - static method
12	Principle of virtual work
13	Method of virtual displacements for systems in motion
14	Method of virtual displacements for systems in equilibrium

B1. Applications – **WORKS** (list of works, tutorial works, contents of the year end project)	
1	Velocity and acceleration
2	Scalar components of velocity and acceleration
3	Kinematics of particle Kinematics of rigid body; Simple motions
4	Rotation about fixed axis
5	Plane motion
6	Plane motion; Displacements diagrams
7	Dynamics of free and constrained particle
8	Impulse

9	Kinetic moment
10	Kinetic energy
11	Kineto – static method
12	Method of virtual work – systems in motion
13	Method of virtual work – systems in equilibrium with 1 dof
14	Method of virtual work – systems in equilibrium with 0 dof

B2. Laboratory room (Room/surface, address) 108/58m^2 , str. Daicoviciu nr.15, clăd.V/turn, et.1; 504/58m^2		
Equipment	Equipment description	Year of purchase
Computers : Room 108: 14 pcs.	PC- Procesor Pentium IV/3GHz/Mem.1024MB/ HDD 200GB/DVD-RW/Monitor TFT 19"/Tast.+Mouse;	2006

C. Individual study (topics of the bibliographical studies, summarized materials, projects, applications etc.)

1. Differential equations
2. Initial conditions in Dynamics
3. Displacement diagrams in plane motion of a system of plates

Structure of the Individual study	Course study	Solving homeworks, labs, projects	Training, applications	Time alloted for examinations	Bibliographical supplementary study	Total number of classes for individual study
No. of classes	7	5	5	2	3	22

D. Teaching methods and strategies

Classical method and internet
Interactive lectures
The applications and homework aim at building up engineering thinking.
Weekly group and individual office hours

Bibliography

1. lecture notes

In UTC-N library

2. G. M. Barsan, P. Alexa, I. Bors – Mecanica. Cinematica si Dinamica
3. Maclean and Nelson - Engineering Mechanics, Statics and Dynamics, Shaum's series in Engineering

Multimedia teaching aids

4.

In other libraries

5. -

Examination and grading procedure	
Examination procedure	Exam: written paper (1 hour – theoretical part; 2 hours - applications) Home work – 20% of the total / final mark.
Components of the grade	Theory (nota T); Application (nota A); Tutorial (nota L)
Formula for calculating the grade	N=0,4T+0,4A+0,2L; Credits: T≥4,5 şi A≥4,5 şi L≥4,5

Subject coordinator,
Prof.dr.ing. Pavel ALEXA