Name of Course	**MECHANICS II. (DYNAMICS)**
Course Code	**MSB257AN-EA-00, MSB257AN-GY-01**
Allotment of Hours per Week	**1 lecture, 2 practice**
Number of Credits	**4**
Program	**Civil Engineering BSc**
Evaluation	**EXAM**
Semester	**Spring 2019/2020**
Prerequisites	**Mechanics I**
Department	**Department of Civil Engineering**
Instructor	**Dr Adél Len**

INTRODUCTION, GENERAL COURSE DESCRIPTION

Introduction into the fundamentals of the dynamics - kinematics and kinetics of a particle and of the rigid body, mechanical vibrations.

LEARNING OBJECTIVES

Methodology: The aim of the course is to introduce the students into the following themes: Kinematics and kinetics of a particle. Constrained motion. Kinematics and kinetics of rigid bodies. Work and power theorems. Energy and conservation of energy. Central and eccentric impact. Analysis of the free and forced vibrations with and without damping.

Schedule:

Topic 1	**Kinematics of a particle**
Topic 2	**Kinematics of the rigid body**
Topic 3	**Instantaneous and finite motions**
Topic 4	**Rigid body in plane motion**
Topic 5	**Kinetics of a particle 1**
Topic 6	**Kinetics of a particle 2**
Topic 7	**Kinetics of rigid body 1**
Topic 8	**Kinetics of rigid body 2**
Topic 9	**Collisions, Free vibrations without damping**
Topic 10	**Free vibrations with damping**
Topic 11	**Forced vibration without damping**
Topic 12	**Forced vibrations with damping**

ATTENDANCE AND GRADING

Attendance:

Attending is required all classes, and will impact the grade (max. 10%). Unexcused absences will adversely affect the grade, and in case of absence from more than 30% of the total number of lesson will be grounds for failing the class. To be in class at the beginning time and stay until the scheduled end of the lesson is required, tardiness of more than 20 minutes will be counted as an absence. In the case of an illness or family emergency, the student must present a valid excuse, such as a doctor's note.

Grading:

Accumulated knowledge is tested in one midterm exam (topic: Kinematics, Kinetics) and a final exam (topic: Mechanical vibrations), both containing theoretical questions and exercises. Both exams have to reach the minimum acceptable level (55% of

the maximum points). Failed or skipped midterm exam can be repeated once (first week of the exam period). The final exam can be repeated twice in the exam period. Registering for the final exam is only possible with the completed midterm exam.

Offered exam grade:

Evaluation in percents	Numeric grade
89%-100%	5
77%-88%	4
66%-76%	3
55%-65%	2
0-54%	1

READINGS AND REFERENCE MATERIALS

- J.L. Meriam, L.G. Kraige: Engineering Mechanics, Dynamics. John Wiley and Sons. 2003

- Beer, F.P., Johnston, E. R.: Vector Mechanics for Engineers. Dynamics, McGraw-Hill, 2004

- Tongue, B.H., Sheppard, S.D.: Dynamics. Analysis and Design of Systems in Motion, John Wiley ans Sons, 2005

- William T. Thomson: Theory of Vibration with application, Chapman & Hall

2019/2020. 2. FÉLÉV		SZORGALMI IDŐSZAK, OKTATÁSI HETEK														VIZSGAIDŐSZAK				
		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	1.	2.	3.	4.	5.
Előadás tematika sorszáma		-	1,2	-	3,4	-	5,6	-	7,8	-	9,10	-	-	-	11, 12	-					
Gyakorlat/Labor sorszáma		-	1,2	-	3,4	-	5,6	-	7,8	-	9,10	-	-	-	11, 12	-					
Zárthelyi dolgozat													Midterm exam								
Otthoni munka	kiadása																				
	beadási határidők																				
Jegyző-könyvek	beadási határidők																				
Egyebek	pl. beszámolók,																				
	stb.																				
Aláírás / Félévközi jegy megadása																	Signature				
Vizsgák tervezett időpontjai																	Exam		Exam	Exam	