	MECHANICAL	VIBRA	ATIONS AND ACOUSTIC						
1	Course Title:	MECHAI	VICAL VIBRATIONS AND ACOUSTIC						
2	Course Code:	MAK3044							
3	Type of Course:	Optional							
4	Level of Course:	First Cycle							
5	Year of Study:	3							
6	Semester:	6							
7	ECTS Credits Allocated:	3.00							
8	Theoretical (hour/week):	2.00							
9	Practice (hour/week):	0.00							
10	Laboratory (hour/week):	0							
11	Prerequisites:	None							
12	Language:	Turkish							
13	Mode of Delivery:	Face to face							
14	Course Coordinator:	Prof. Dr. OSMAN KOPMAZ							
15	Course Lecturers:	Prof. Dr. OSMAN KOPMAZ							
16	Contact information of the Course Coordinator:	okopmaz@uludag.edu.tr +90 224 294 19 62 Uludağ Üniversitesi, Mühendislik Mimarlık Fakültesi, Makine Mühendisliği Bölümü, Görükle, 16059 Bursa							
17	Website:								
18	Objective of the Course:	Vibration is a significant phenomenon in engineering systems. Teaching the theory about mechanical vibrations which are getting increasingly important in modern systems, and its applications, and giving basic principles of acoustics are among the goals of this course.							
19	Contribution of the Course to Professional Development:								
20	Learning Outcomes:								
		1	Students who take this course can classify, model and analytically or numerically solve general vibration problems in engineering practice.						
		2	They are informed about sound, noise, noise measurement, and noise reduction.						
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21	Course Content:								
		Co	ourse Content:						
Week	Theoretical		Practice						

1	Basic concepts of elementary vibratic System parameters. Mass, stiffness a damping. Equations of motion. Frequ	on theory and ency, single								
	degree of freedom.	Single								
2	Derivation of equation of motion in a conservative one-degree-of-freedom	system.								
3	Undamped and damped vibrations of system with one degree of freedom. frequency and period. Viscous damp Logarithmic decrement. 1st take-hom	[:] a Natural ing. ne.								
4	System with dry friction. Definition of mass. Forced vibrations of undamper with one degree of freedom. Frequer response spectrum.	effective d system icy								
5	Forced vibration in a damped system Isolation and transmissibility. Vibratio isolation.	n. In								
6	Response periodic and non-periodic excitation. Convolution and Duhamel integrals. 2nd take-home.									
7	Systems with two degree of freedom. Undamped case. Natural vibration m	odes.								
8	Repeating courses and midterm exar	n								
9	Coordinate transformations. Natural coordinates. System response to initi conditions excitation. Beat phenomer	al na.								
Activit	es			Number	Duration (hour)	hour) Total Work Load (hour)				
Theore	Madal matrix. Coupling. Orthogonalit	y in		14	2.00	28.00				
Practica	als/Labs			0	0.00	0.00				
Self stu	and semificities and method mathees. I contraine	d and		14	2.00	28.00				
Homew	vorks			5	6.00	30.00				
Project	Sound. Hearing. Audible sound interview	/al. /er		0	0.00	0.00				
Field S	tudies			0	0.00	0.00				
Mi d3 ern	Rexertseration. Insertion loss. Transn	nission		1	1.50	1.50				
Others				0	0.00	0.00				
Final E	Setting and characteric som council	oise.		1	1.50	1.50				
Total W	/ork Load					89.00				
Total w	Watenals? ⁰ hr		N	. Seto, Mechanical Vit	rations, McGraw-H	ifl·§čhaum.				
ECTS	Credit of the Course					3.00				
23	3 Assesment									
TERM L	EARNING ACTIVITIES	NUMBE R	W	EIGHT						
Midtern	n Exam	1	20.00							
Quiz		0	0.00							
Home v	work-project	5	30.00							
Final E	xam	1	50.00							
Total		7	100.00							
Contrib Succes	ution of Term (Year) Learning Activitiess Grade	es to	50.00							
Contrib	ution of Final Exam to Success Grade)	50.00							

Total									100.00							
Measurement and Evaluation Techniques Used in the Course																
24 ECTS / WORK LOAD TABLE																
25	5 CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ1 0	PQ11	PQ12	PQ1 3	PQ14	PQ15	PQ16
ÖK1	4	4	4	0	0	0	4	0	0	0	0	0	0	0	0	0
ÖK2	4	4	4	0	0	0	4	0	0	0	0	0	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contrib ution Level:	1 \	1 very low 2 low					3	Medi	um	4 High			5 Very High			