ELASTICITY THEORY										
1	Course Title:	ELASTICITY THEORY								
2	Course Code:	INS5011								
3	Type of Course:	Optional								
4	Level of Course:	Second Cycle								
5	Year of Study:	1								
6	Semester:	1								
7	ECTS Credits Allocated:	6.00								
8	Theoretical (hour/week):	3.00								
9	Practice (hour/week):	0.00								
10	Laboratory (hour/week):	0								
11	Prerequisites:									
12	Language:	Turkish								
13	Mode of Delivery:	Face to face								
14	Course Coordinator:	Prof. Dr. BABÜR DELİKTAŞ								
15	Course Lecturers:	Prof. Dr. Babür DELİKTAŞ								
16	Contact information of the Course Coordinator:	bdeliktas@uludag.edu.tr 224 2900744 Uludağ Univ. Müh.Mim Fak. İnşaat Müh. Böl. Görükle, Bursa								
17	Website:	http://insaat.uludag.edu.tr								
18	Objective of the Course:	To provide theoretical framework for determination of the stress, strain, and displacement distribution in an elastic solid under the influence of external forces. Following the usual assumptions of linear, small-deformation theory, to establish the formulation for a mathematical model that allows solutions to elasticity problems that have applications in many engineering and scientific fields.								
19	Contribution of the Course to Professional Development:	 Be able to extend skills of scientific problem solving in engineering mechanics problems related to field of interest Be able to describe the general features of elastic systems. Be able to overview of elastic analysis methods and able to do analytical solutions to typical structural problems. Be able to derive approximation formulas using more advanced methods Be able to check the sufficiency of the strength, stiffness and stability of structural and machine elements Be able to solve elasticity problems faced in the field of interest by using the equations of elasticity theory and able to interpret the results in a way to develop new strategies 								
20	Learning Outcomes:									
		1	Be able to extend skills of scientific problem solving in engineering mechanics problems related to field of interest							
		2	Be able to describe the general features of elastic systems.							
		3	Be able to overview of elastic analysis methods and able to do analytical solutions to typical structural problems.							
		4	Be able to derive approximation formulas using more advanced methods							
		5	Be able to check the sufficiency of the strength, stiffness and stability of structural and machine elements							

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21 Course Content:	
Course Content:	
Week Theoretical Practice	
1 Introduction	
2 Mathematical Preliminaries Vectors, Indicial Notations, Coordinate Transfromation, Cartesian Tensors	
3 Analysis of Strains Deformation, Displacement Transformation, Components of Strain	
4 Analysis of Strains principal Strains, Equation of Compatibility	
5 Analysis of Stresses	
Activites Number Duration (hour	Total Work Load (hour)
Theoretical 14 3.00	42.00
Practicals/Labs 0 0.00	0.00
Self study and preperation 14 4.00	56.00
Homeworks 14 3.00	42.00
Projects 14 1.00	14.00
Field Studies 0 0.00	0.00
Midterni exams Problems 3.00	3.00
Others 14 1.00	14.00
Findal E Charge Theorems 1 3.00	3.00
Total Work Load	177.00
Total work load/ 30 hr	5.80
ECTS Credit of the Course	6.00
Cross Section	
12 Flexure Flexure of Rectangular, Cylindrical Beams	
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22	Textbooks, References and/or Other Materials:		 Theory of Elasticity, S. P. Timoshenko and J. N. Goodier, 3rd Edition, McGraw Hill Book Company, 1970, 1987. Elasticity in Engineering Mechanics, 2nd Edition, A. P. Boresi and K. P. Chong, John Wiley & Sons, 2000. Advanced Strength and Applied Elasticity, A. C. Ugural and S. K. Fenster, 2nd Edition, Elsevier Science Publishing Co., Inc., 1987. Elasticity: Theory, Applications and Numerics, by M.H. Sadd, Elsevier Butterworth-Heinemann, 2005. 						
23	Assesment								
TERM L	EARNING ACTIVITIES	NUMBE R	WEIGHT						
Midterr	n Exam	1	25.00						
Quiz 0			0.00						
Home work-project 10			25.00						
Final Exam 1			50.00						
Total		12	100.00						
Contrib Succes	ution of Term (Year) Learning Activitie ss Grade	es to	50.00						
Contrib	ution of Final Exam to Success Grade	Э	50.00						
Total			100.00						
Measu Course	rement and Evaluation Techniques Us	sed in the	Midterm and Final Exams						

24 ECTS / WORK LOAD TABLE

25	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	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ÖK2	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ÖK3	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	
ÖK4	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	
ÖK5	4	3	0	0	5	0	0	0	0	0	0	0	0	0	0	0	
ÖK6	4	4	4	4	4	0	0	0	0	0	0	0	0	0	0	0	
LO: Learning Objectives PQ: Program Qualifications																	
Contrib ution Level:	ontrib 1 very low tion evel:				2 low			3 Medium			4 High			5 Very High			