

AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title	Strength of Ma	aterials							
Course Code	BSM204		Couse Level		First Cycle (Bachelor's Degree)				
ECTS Credit 3	Workload	75 (Hours)	Theory		3	Practice	0	Laboratory	0
Objectives of the Course	-The aim this course is to introduce the basic concepts of strength of materials -To present the basic fundamentals of agricultural machines designTo teach stress and strain formulas -To give important design parameters about basic stresses on selected agricultural machines (Tension, Compression, Shear, Torsion, Deflection, Combined Stresses) -To teach stress and strain relations -To give selection materials for Agricultural Machines (Criteria for Selection, Endurance-Limit Modifying Factors, Reliability alternative Solutions -To teach the concepts of safe carrying capacity under critical section and/or critical load conditionsTo teach techniques of sizing or resizing of loaded cross sections, connections and attachments -To give practical information in which such an analysis can be used in a real system.					asic ortant on, election of eliability, or critical and m.			
Course Content	To introduce the concepts of overall strength of materials. To introduce the machine elements used in general. The basic types of stress. Defining of one, two and three-dimensional state of stress. Tension stress Torsion Combined stress Effect of axial force and the normal stresses of the system of aquations to describe the analytical and Mohr circle and to obtain appropriate material strength for design purpose. Shear-type effects of shear force and shear stress and to introduce the concept of applications for simple problem representation. Transmission systems used in machines. Stress analysis will emerge in beams subjected to bending moment of inertia. Simple bending and cross-section determination. Hyper static problems in axial loaded rods. Thermal stresses and deformations Analysis of the combined strength Buckling of columns Critical stress - frailty relations					sed in ension quations purpose. r simple beams static ength			
Work Placement	Vork Placement N/A								
Planned Learning Activities and Teaching Methods Explanation (Presentation), Problem Solving									
Name of Lecturer(s)									_

Prerequisites & Co-requisitie	S			
Prerequisite	BSM105/B	SM201		
Assessment Methods and Cr	iteria			
Method		Quantity	Percentage (%)	

40

60

Recommended or Re	equired Reading

Midterm Examination

Final Examination

1 Mechanical Engineering Design. Mc Graw Hill Book Co. New York, 631p. İnan, M. 1970 (New Edition), Cisimlerin Mukaveti, İstanbul 560p. Srivastava, A.J. et al, 1993. Engineering Principles of Agricultural Machines. ASAE Textbook No.6

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Week	Weekly Detailed Course Contents				
1	Theoretical	To introduce the concept of overall strength of materials.			
2	Theoretical	Defining of one,two and three-dimensional state of stress. The basic types of stress. Tension stress.			
3	Theoretical	Shear stress Torsion Combined stress			
4	Theoretical	Effect of axial force and the normal stresses of the system.			
5	Theoretical	The equations to describe the analytical and Mohr circle and to obtain appropriate material strength for design purpose.			
6	Theoretical	The equations to describe the analytical and Mohr circle and to obtain appropriate material strength for design purpose			
7	Theoretical	Shear-type effects of shear force and shear stres and to introduce the concept of applications for simple problem representation (Midterm Exam)			
8	Theoretical	Shear-type effects of shear force and shear stres and to introduce the concept of applications for simple problem representation			
9	Theoretical	Transmission systems used in machines			
10	Theoretical	Stress analysis will emerge in beams subjected to bending moment of inertia			
11	Theoretical	Simple bending and cross-section determination.			
12	Theoretical	Hyper static problems in axial loaded rods. Thermal stresses and deformations			
13	Theoretical	Analysis of the combined strength Buckling of columns Critical stress - frailty relations			



Course Information Form

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Theoretical

Analysis of the combined strength Buckling of columns Critical stress - frailty relations

Workload Calculation					
Activity	Quantity		Preparation	Duration	Total Workload
Lecture - Theory	14		2	2	56
Midterm Examination	1		8	1	9
Final Examination	1		8	2	10
Total Workload (Hours)					75
[Total Workload (Hours) / 25*] = ECTS				3	
*OF hours would and in accounted on 4 FOTO					

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	To use the basic principles of strength of materials and use them in the designed system.
2	Know the basic types of stress and to use design.
3	To be able to analyze stresses in beams under combined axial abd eccentric loads and bending
4	To know selection and calculation of shafts.
5	To able to analyze stresses in two dimensions and understand the concepts of principal stresses and the use of different methods to solve dimensional stress problems.

