



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title	Technical Properties of Biological Materials								
Course Code	ZTM536	Course Level			Second Cycle (Master's Degree)				
ECTS Credit	8	Workload	200 (Hours)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	By introducing the biological material, explaining the physico-mechanical properties of these materials, demonstrating the practical measurements of these properties and introducing the processes applied to the biological material								
Course Content	The concept of material and biological material, physical properties of biological material; some measurements related to dimensions and shape properties, volume, density and specific gravity measurements, porosity measurements, agricultural, behavior of material under force, rheological properties Utilization of biological material properties in engineering, cleaning, classification, crushing, grinding, mixing and conveying applications								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Experiment, Discussion, Individual Study, Problem Solving								
Name of Lecturer(s)	Prof. Cengiz ÖZARSLAN								

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

Recommended or Required Reading

1	Physical Properties of Plant and Animal Materials. 1986. Mohsenin, N. N., Gordon and Breach Science Publishers Inc
2	Biyolojik Malzemenin Teknik Özellikleri. 1993. Tunalıgil, B. H., A.Ü. Ziraat Fakültesi Yayınları : 1305
3	Biyolojik Malzeme Bilgisi. 2000, Alayunt, F.N., Ege Ü.Ziraat Fakültesi Yayınları Nu:541, ISBN:975-483-464-4

Week	Weekly Detailed Course Contents	
1	Theoretical	The concept of materials and biological materials
	Preparation Work	
2	Theoretical	The physical properties of the biological material
	Preparation Work	
3	Theoretical	Surface area measurements
	Preparation Work	
4	Theoretical	Volume, density and specific gravity measurements
	Preparation Work	
5	Theoretical	Porosity measurements
	Preparation Work	
6	Theoretical	Behavior under the strength effect of the agricultural material
	Preparation Work	
7	Theoretical	Behavior under the strength effect of the agricultural material
	Preparation Work	
8	Intermediate Exam	Midterm exam
9	Theoretical	rheological properties
	Preparation Work	
10	Theoretical	Friction in biological materials
	Preparation Work	
11	Theoretical	Benefit from the material properties of biological engineering
	Preparation Work	
12	Theoretical	Processes applied to biological material
	Preparation Work	
13	Theoretical	Cleaning, sorting applications



13	Preparation Work	
14	Theoretical	Crushing, grinding and mixing applications
	Preparation Work	
15	Theoretical	Transport and transmission applications
	Preparation Work	
16	Final Exam	Final exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	1	2	42
Lecture - Practice	14	2	2	56
Assignment	14	0	4	56
Project	1	0	20	20
Midterm Examination	1	10	3	13
Final Examination	1	10	3	13
Total Workload (Hours)				200
[Total Workload (Hours) / 25*] = ECTS				8

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	Learning the concepts related to biological material
2	To be able to calculate the properties of biological material
3	Ability to make measurements related to biological material defining properties and to interpret them
4	To be able to apply the properties of biological material in engineering
5	To be able to apply the properties of biological material in engineering

Programme Outcomes (Agricultural Machinery Master)

1	Identification, formulation and solving the problems in the field of Agricultural Machinery
2	The ability to use modern engineering tools and techniques
3	The ability to use the information, which is obtained by following the scientific and technological developments, in the academic life and practice.
4	The ability to evaluate multi-faced relationship between them by understanding interaction among agricultural technology, soil, plants and animals
5	Professionalism and ethical responsibility
6	The ability to work in disciplinary and multi-disciplinary teams
7	The ability to communicate effectively
8	The ability to do research for accessing information and to use data base and other resources
9	The ability to do analyze and interpret the experimental results and the design of experiment
10	The ability to identify and interpret knowledge of current professional issues and events
11	The ability to get aware the universal and social effects of engineering solutions and applications
12	Accordance with the requirements of science and technology, ability to use scientific knowledge creative

Contribution of Learning Outcomes to Programme Outcomes 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

	L1	L2	L3	L4
P1		5	5	5
P2	2	5	5	5
P3		3		
P4	3	3	3	3
P6	4	3	3	5
P8	4	4	4	
P9		5	5	5
P10	4	4	4	5
P11	3	3	3	3
P12	3	3	3	3

