

## PESTS OF STORED PRODUCTS

1	Course Title:	PESTS OF STORED PRODUCTS
2	Course Code:	BTK3606-S
3	Type of Course:	Optional
4	Level of Course:	First Cycle
5	Year of Study:	3
6	Semester:	6
7	ECTS Credits Allocated:	4.00
8	Theoretical (hour/week):	1.00
9	Practice (hour/week):	2.00
10	Laboratory (hour/week):	0
11	Prerequisites:	It is recommended to be preferred by the students who succeed at the lessons; Entomology, Insect Morphology, Insect Systematics, Control Methods of Plant Pests.
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. İSMAİL ALPER SUSURLUK
15	Course Lecturers:	-
16	Contact information of the Course Coordinator:	susurluk@uludag.edu.tr (0 224) 294 15 79 Uludağ Üniversitesi, Ziraat Fakültesi, Bitki Koruma Bölümü
17	Website:	
18	Objective of the Course:	To describe insect species which are harmful on stored products and to learn control methods with these pests.
19	Contribution of the Course to Professional Development:	The graduates of plant protection who take this course will have detailed information about the problems they face due to their mastery of animal pests in storages.
20	Learning Outcomes:	
	1	To learn names of stored products pests.
	2	To describe species of stored products pests.
	3	To learn life cycle and behavior of stored products pests.
	4	To learn damage type of pests on products and which pest species is detrimental on which stored products.
	5	To learn control methods against different stored products pests.
	6	To learn using of what kind of pesticides and pesticides application methods against stored products pests.
	7	To solve of problems about stored products pests which exists storage, factory, silo, bakery, food production places and house.
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	9	-
	10	-
21	Course Content:	
	<b>Course Content:</b>	
Week	Theoretical	Practice

1	General information about pests of stored products is explained. About species of Thysanura and Cockroaches are taught.	General information about pests of stored products is explained. About <i>Lepisma saccharina</i> , <i>Thermobia domestica</i> (Thysanura:Lepismatidae) and <i>Acheta domestica</i> (Orthoptera:Gryllidae) are given information. Shapes of these pests are drawn. Samples of insects are scanned via microscope. Samples of <i>Blatta orientalis</i> , <i>Periplaneta Americana</i> , <i>Periplaneta australasiae</i> (Dictyoptera: Blattidae) are scanned. Related slides are shown. Morphological and biological differences of between these species are explained.		
2	Species of Psocoptera, <i>Tenebriodes mauritanicus</i> and skin insects are taught.	Samples of <i>Blatella germanica</i> and <i>Supella longipalpa</i> (Dictyoptera: Blattellidae) are scanned. Related slides are shown. Morphological and biological differences of between these species are explained.		
3	Carpet beetles, <i>Tenebriodes mauritanicus</i> , <i>Rhyzopettha dominica</i> and <i>Lasioderma serricorne</i> are taught.	Samples of <i>Liposcelis divinatorius</i> belong to order of Psocoptera, <i>Sitophilus granarius</i> and <i>Sitophilus oryzae</i> (Coleoptera: Curculionidae) are scanned. Related slides are shown. Morphological and biological differences of between these species are explained.		
4	Bread beetle, <i>Stegobium paniceum</i> , <i>Oryzaephilus surinamensis</i> , <i>Leomophloeus ferrugineus</i> , <i>Tenebrio molitor</i> are taught.	Samples of <i>Rhyzopettha dominica</i> (Coleoptera: Bostrichidae), <i>Tenebrio molitor</i> (Coleoptera: Tenebrionidae), <i>Tribolium confusum</i> , <i>Tribolium castaneum</i> , <i>Gnathocerus cornutus</i> ) are scanned. Related slides are shown. Morphological and biological features of these species are informed.		
5	<i>Cryptolestes ferrugineus</i> , <i>Tribolium castaneum</i> , Horned beetle and <i>Carpophilus</i> spp. are taught.	Samples of <i>Tenebroides mauritanicus</i> (Coleoptera: Trogossitidae), <i>Trogoderma granarium</i> , <i>Dermestes lardarius</i> , <i>Dermestes maculatus</i> , <i>Dermestes frischii</i> , <i>Anthrenus verbasci</i> , <i>Attagenus piceus</i> (Coleoptera: Dermestidae) are		
Activites		Number	Duration (hour)	Total Work Load (hour)
Theoretical	<i>Sitophilus zeamais</i> are taught.	14	1.00	14.00
Practicals/Labs		14	2.00	28.00
Self study and preparation		5	10.00	50.00
7	Repeating courses and midterm exam	Samples of <i>Stegobium paniceum</i> , <i>Lasioderma serricorne</i>		
Homeworks		0	0.00	0.00
Projects		0	0.00	0.00
Field Studies		0	0.00	0.00
Midterm Exams	<i>Ephestia kuehniella</i> , <i>Ephestia elutella</i> and <i>Ephestia cautella</i> are taught.	Slides of <i>Ptinus fur</i> , <i>Ptinus tectus</i> , <i>Niptus hololeucus</i> (Coleoptera: Ptinidae) are shown. Shapes of these pests		
Others		0	0.00	0.00
Final Exams		species are informed.	15.00	15.00
Total Work Load				117.00
Total work load/ 30 hr		Related slides are shown. Morphological and biological		3.90
ECTS Credit of the Course				4.00
10	<i>Sitotroga cerealella</i> , <i>Tinea granella</i> , <i>Tinea granella</i> and <i>Anthrenus verbasci</i> are taught.	Samples of <i>Ephestia figulella</i> , <i>Prodenia interpunctella</i> , <i>Pylalis farinalis</i> (Lepidoptera: Pylalidae) are scanned. Related slides are shown. Morphological and biological features of these species are informed.		
11	Species of mites, mousses and rats are taught.	Samples of <i>Paralipsa gularis</i> (Lepidoptera: Pylalidae) and <i>Sitotroga cerealella</i> (Lepidoptera: Gelechiidae) are scanned. Related slides are shown. Morphological and biological features of these species are informed.		
12	Ecology and biological agents of pests of stored products are taught.	Samples of <i>Tinea granella</i> , <i>Tineola biselliella</i> and <i>Tinea pellionella</i> (Lepidoptera: Tineidae) are scanned. Related slides are shown. Morphological and biological features of these species are informed.		
13	Control methods of pests of stored products are taught.	Practice Exam		
14	-	-		

<b>22</b>	Textbooks, References and/or Other Materials:	<p>Alternatives to pesticides in stored-product IPM (Edited by B. SUBRAMANYAM, D. W. HAGSTRUM)</p> <p>Depolanmış ürün Zararlıları (Prof. Dr Erol YILDIRIM, Prof. Dr. Hikmet ÖZBEK, Prof. Dr. İrfan ARSLAN)</p> <p>Zirai Mücadele Teknik Talimatları (Dr. Mete AYDEMİR)</p>
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<b>23</b>	Assesment
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TERM LEARNING ACTIVITIES	NUMBER	WEIGHT
Midterm Exam	1	40.00
Quiz	0	0.00
Home work-project	0	0.00
Final Exam	1	60.00
Total	2	100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00
Contribution of Final Exam to Success Grade		60.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course	Assessment is made as 1 midterm and 1 final exam and evaluated with relative evaluation.	

<b>24</b>	<b>ECTS / WORK LOAD TABLE</b>
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<b>25</b>	<b>CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS</b>															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	0	2	0	0	4	0	0	0	0	0	0	0	0	0	0	0
ÖK3	0	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0
ÖK4	0	3	0	0	2	0	0	0	0	0	0	0	0	0	0	0
ÖK5	2	0	0	0	0	3	0	0	4	4	0	0	0	0	3	0
ÖK6	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK7	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK8	0	4	0	0	5	0	5	0	4	0	0	4	0	2	0	4
ÖK9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>LO: Learning Objectives    PQ: Program Qualifications</b>																
<b>Contribution Level:</b>	<b>1 very low</b>			<b>2 low</b>			<b>3 Medium</b>			<b>4 High</b>			<b>5 Very High</b>			