



## AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Drug Use and Administration in Honey Bee Farming							
Course Code		VFT670		Course Level		Third Cycle (Doctorate Degree)			
ECTS Credit	6	Workload	145 ( <i>Hours</i> )	Theory	1	Practice	2	Laboratory	0
Objectives of the Course		To teach the importance of apiculture in Turkey, honey bee products, the drugs used in the treatment of bee diseases and regulations.							
Course Content		Basic principles of drug usage in apiculture, drug application methods, and regulations in apiculture are examined.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Experiment, Demonstration, Discussion, Individual Study, Problem Solving					
Name of Lecturer(s)									

### Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	30
Final Examination	1	70

### Recommended or Required Reading

1	Kaal, J. (1987) Natural Medicine from Honey Bees (Apitherapy), Kaal's Printing House, Amsterdam.
2	Brown, R. (1993) Bee Hive Product Bible, Paragon Press, Honesdale, Pennsylvania, USA.

Week	Weekly Detailed Course Contents	
1	Theoretical	The importance and the history of apiculture in Turkey
	Practice	Presentation of importance and the history of apiculture in Turkey (queen, worker and male bees)
2	Theoretical	The terms of apiculture
	Practice	Presentation of apiculture products-I
3	Theoretical	The anatomy, morphology, taxonomy and biology of the honeybee
	Practice	Presentation of apiculture products-II
4	Theoretical	Apiculture and environment relationship, mobile apiculture
	Practice	Presentation of beehive and beehive types
5	Theoretical	The products of apiculture (honey, pollen, propolis, royal jelly, bee venom)
	Practice	Presentation of bee pollen
6	Theoretical	Bee diseases
	Practice	Control of beehive and its examination techniques
7	Theoretical	(Midterm exam) Discussion
	Practice	Diagnosis of nosema disease and drug administration
8	Theoretical	The drugs used in nosema disease
	Practice	Diagnosis of varroa disease and drug administration
9	Theoretical	The drugs used in varroa disease
	Practice	Laboratory examination techniques of European and American foulbrood diseases
10	Theoretical	The drugs used in European and American foulbrood diseases
	Practice	Diagnosis of fungal infections in bees methods and drug administration
11	Theoretical	The drugs used in the treatment of fungal infections in bees
	Practice	Bee autopsies ve parasitic agents
12	Theoretical	The drugs used in the treatment of septicemia and dysentery in bees
	Practice	Websites of apiculture regulations and laws in Turkey
13	Theoretical	The other infections in bees
	Practice	Websites of apiculture regulations and laws in Turkey
14	Theoretical	Drugs used in the treatment of bee paralysis, Acarapis woodi, Braula ceaca and Tropilaelaps clarea in bees
	Practice	Websites of apiculture regulations and laws in the world



15	Final Exam	Final exam
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**Workload Calculation**

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	3	1	56
Lecture - Practice	14	3	2	70
Midterm Examination	1	7	1	8
Final Examination	1	10	1	11
Total Workload (Hours)				145
[Total Workload (Hours) / 25*] = <b>ECTS</b>				6

\*25 hour workload is accepted as 1 ECTS

**Learning Outcomes**

1	To learn the importance of apiculture in Turkey and honey bee products.
2	To learn the drugs used in the treatment of bee diseases and their applications.
3	To learn the regulations in apiculture.
4	To learn knowledge and propose suggestions on the area
5	To find out and use resources about the profession in the area.

**Programme Outcomes (Pharmacology and Toxicology (Veterinary Medicine) Doctorate)**

1	Gains expert knowledge on field of pharmacology and toxicology in veterinary medicine and, gains expert knowledge on interdisciplinary interaction in pharmacology and toxicology
2	To be equipped with the knowledge to develop original ideas about necessary issues in the field by using of both graduate and expertise levels knowledge, to be able to develop original definitions, products and diagnostic procedures, etc. via deepening and questioning these knowledge.
3	Develops and uses strategies in his/her field of expertise in PhD Program of Pharmacology and Toxicology
4	Reviews, evaluates and interprets any data (field observations, available scientific information etc.) towards a specific purpose.
5	Gains expert knowledge on the function and basic pharmacological features of pharmacology and sub-branches of science, relationship between the drug and poison, pharmacokinetic, effects of the drugs, the dose-intensity and dose-effect relationship.
6	Gains expert knowledge on the function and basic toxicological features of poison, classifications and types of poisoning, toxicokinetic, general principles of treatment of poisoning.
7	Can offer training to technical staff who will work in pharmacology and toxicology laboratory
8	Reach to competence to prepare courses at the undergraduate level
9	Determines and uses laboratory equipment and consumables in a pharmacology and toxicology laboratory.
10	To be able to plan an interdisciplinary project and build team for the known or new defined problems and to manage and complete such a project when necessary.
11	To share his/her knowledge in the field with others by attending at field-related or other congresses, panels, symposiums, workshops, seminars, article discussions and problem solving sessions, etc., and to contribute to the solution in the team by establishing relations with the experts in different fields.
12	To contribute the scientific knowledge in the field via publications in national and international peer-reviewed scientific journals.
13	Takes roles in vocational organizations and institution.
14	Forms ideas to solve complex problems using theoretical and practical information gained throughout the pharmacology and toxicology education.
15	To adopt lifelong learning as a principle and acknowledge that the information gained through research is the most valuable gain.
16	Knows and protects rights of ideas and industrial property (patent right)

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

	L1	L2	L3	L4	L5
P1	4	5	5		
P2					4
P3	5	4	5	4	5
P4			4	5	
P5	4	4			
P8	4	5	5		
P11				5	
P12					5



P13	5	4	4		
P14	5	4	5	4	

