AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title		Laboratory Technical and Practices							
Course Code		VFT563		Couse Level		Second Cycle (Master's Degree)			
ECTS Credit	4	Workload	100 *(Hours)*	Theory	1	Practice	2	Laboratory	0
Objectives of the Course		Some of the analysis used in pharmacology and toxicology area, application of several instruments and laboratory working rules are examined.							
Course Content		Basic rules in the laboratory, pharmacology and toxicology laboratory performed various analyzes (pesticides, mycotoxins, etc.) and associated equipment (HPLC, TLC, spectrophotometry, centrifugation, etc.) and working principles of the materials studied.							
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	40
Final Examination	1	60

Recommended or Required Reading	
1	Principles and Methods of Toxicology, A. Wallace HAYES, Edward BROTHERS; Ann Arbor Press, 2001.
2	Modern Toxicology, Ernest HODGSON, Patricia E. LEVI; Elsevier, London, 1987.
3	Handbook of Experimental Pharmacology – 199; Comparative and Veterinary Pharmacology, Fiona CUNNINGHAM, Jonathan ELLIOTT, Peter LEES (Editors); Springer Press, 2009.
4	Plant Phenolics and Human Health: Biochemistry, Nutrition, Pharmacology, Cesar G FRAGA (Editor); A John Willey & Sons Inc. Publication, 2010.
5	Principles of Biochemical Toxicology, 3rd Edition, John TIMBRELL; Taylor & Francis Group Press, London, 2000….
6	Veteriner Hekimliğinde Toksikoloji, Prof. Dr. Sezai KAYA, Prof. Dr. İbrahim PİRİNÇCİ, Prof. Dr. Ayhan ÜNSAL, Prof. Dr. Ali BİLGİLİ, Prof. Dr. Ferda AKAR, Prof. Dr. Abdullah DOĞAN, Doç. Dr. Ender YARSAN; Medisan Yayınevi, 2002.

Week	Weekly Detailed Course Contents	
1	Theoretical	Basic rules in the laboratory
	Practice	The introduction of materials used in laboratory
2	Theoretical	The introduction of materials used in laboratory
	Practice	Maintenance and cleaning of materials used in the laboratory
3	Theoretical	Risks of solid chemicals used in laboratory
	Practice	And properties of solid chemicals used in laboratory, the recognition
4	Theoretical	Risks of liquid and volatile chemicals used in laboratory
	Practice	The liquid used in the laboratory and volatile chemicals and their properties, the recognition
5	Theoretical	Basic laboratory equipment and their working principles
	Practice	Use of basic laboratory equipment
6	Theoretical	Basic laboratory equipment and their working principles
	Practice	Use of basic laboratory equipment
7	Theoretical	Article discussion
	Practice	Paper presentation
8	Intermediate Exam	Midterm exam
9	Theoretical	Toxicological methods for investigation of samples
	Practice	Toxicological sample preparation
10	Theoretical	Effective examination of the sample analysis methods
	Practice	Toxicological sample preparation
11	Theoretical	Advanced analysis techniques and devices used
	Practice	Advanced analysis techniques and the use of the devices used
12	Theoretical	Thin layer chromatography (TLC)

12	Practice	ITK analysis of the specimen
13	Theoretical	High performance liquid chromatography (HPLC)
	Practice	HPLC analysis of the specimen
14	Theoretical	Gas chromatography (GC)
	Practice	GC analysis of the specimen
15	Theoretical	Article discussion
	Practice	Paper presentation

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	10	2	1	30
Lecture - Practice	10	3	2	50
Midterm Examination	1	6	2	8
Final Examination	1	10	2	12
			Total Workload (Hours)	100
			[Total Workload (Hours) / 25*] = **ECTS**	4

**25 hour workload is accepted as 1 ECTS*

Learning Outcomes

1	Learn about the basic rules that must be followed in the laboratory.
2	Recognize and learn about the risks of chemicals used in the laboratory.
3	Acquires knowledge about the basic devices used in laboratory and their working principles.
4	Laboratory equipment for the various analyzes (HPLC, TLC, GC, spectrophotometer, centrifuge, etc.) and learn about the working principles of materials.
5	To find out and use resources about the profession in the area.

Programme Outcomes *(Veterinary Pharmacology and Toxicology Master's Without Thesis)*

1	to be able to comprehend expert knowledge on field of pharmacology and toxicology in veterinary medicine
2	to be able to define expert knowledge on interdisciplinary interaction in pharmacology and toxicology
3	to be able to formulate ideas to solve complex problems using theoretical and practical information gained throughout the pharmacology and toxicology education.
4	to be able to integrate and interpret information in the area of pharmacology and toxicology with information in different fields and, if the need arises, provides scientific information and solutions to solve problems.
5	to be able to develop and use strategies in his/her field of expertise in Master’s Program of Pharmacology and Toxicology
6	to be able to comprehend methods of obtained and submitted scientific knowledge
7	to be able to analyse current information related to his/her field of expertise (scientific information, procedures etc.) and use them when necessary
8	to be able to apply technological tools in social relationships of vocational and professional environment.
9	to be able to review, evaluate and interpret any data (field observations, available scientific information etc.) towards a specific purpose.
10	to be able to comprehend 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
11	to be able to identify expert knowledge on the function and basic toxicological features of poison, classifications and types of poisoning, toxicokinetic, general principles of treatment of poisoning.
12	to be able to define and use laboratory equipment in a pharmacology and toxicology laboratory.

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	4			
P5				4	
P6					5
P7			4	4	5
P8				5	
P9					5
P12	5	5	5	5	