AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Cromatographic Analysis Methods in Pharmacology and Toxicology								
Course Code	VFT523		Couse Level	Second Cycle (Master's Degree)					
ECTS Credit	4	Workload	95 *(Hours)*	Theory	1	Practice	2	Laboratory	0
Objectives of the Course	This course aims to provide information about the chromatographic systems, high-pressure liquid chromatography, gas chromatography and thin layer chromatography to introduce types, components, and operating principles and instruments provide information about the ability to use and apply the information learned to give.								
Course Content	Chromatography history, applications, classification, high-pressure liquid krımatografi, gas chromatography, thin layer chromatography, components and principles of operation, method development-validation (validation) and characteristics of the chromatogram.								
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	Veterinary Pharmacology and Therapeutics, 8th Edition, Jim E. Riviere (Editor), Mark G. Papich (Editor), 2009.
2	Modern Pharmacology, 6th Edition, Lippincott Williams and Wilkins, 2004 (Ed. C.R. Craig and R.E. Stitzel)
3	Basic and Clinical Pharmacology, 9th Edition, McGraw-Hill, New York, 2004 (Ed. B. Katzung)
4	Goodman and Gilman's The Pharmacological Basis of Therapeutics 11th Edition, McGraw-Hill, 2006 (Eds. Brunton, Lazo, Parker, Buxton and Blumenthal)
5	Lippincott's Illustrated Reviews: Pharmacology, 3rd Edition, Lippincott Williams and Wilkins, 2005 (Eds. Howard, Mycek, Harvey &Champe)
6	The Veterinary Formulary edited by Yolande Bishop. London Pharmaceutical Press in association with the British Veterinary Association 2001.
7	Pharmacology. Franklin A. Ahrens. Baltimore, Md. London Williams & Wilkins 1996.
8	The physiological basis of veterinary clinical pharmacology J. Desmond Baggot. Oxford Blackwell Science 2001.
9	Veterinary pharmaclgy and therapeutics edited by H. Richard Adams. Ames, Iwa Iwa State University Press 2001.

Week	Weekly Detailed Course Contents	
1	Theoretical	History and applications of chromatography
	Practice	The materials used in pharmacology and toxicology analysis
2	Theoretical	Types and characteristics of Chromatography
	Practice	TLC application
3	Theoretical	Thin-layer chromatography (TLC) components and principles of operation,
	Practice	Parts of the introduction of GK
4	Theoretical	Gas chromatography (GC) components and principles of operation,
	Practice	Introduction to HPLC components
5	Theoretical	High-pressure liquid chromatography (HPLC) components and principles of operation,
	Practice	HPLC-conditioning
6	Theoretical	High-pressure liquid chromatography (HPLC), working principles,
	Practice	HPLC application
7	Theoretical	High-pressure liquid chromatography (HPLC) varieties
	Practice	HPLC application
8	Intermediate Exam	Mid-term exam
9	Theoretical	And properties of chromatographic columns
	Practice	GK application

10	Theoretical	HPLC to get ready for the operation and analysis
	Practice	GK application
11	Theoretical	chromatogram
	Practice	chromatogram evaluation
12	Theoretical	Chromatographic analysis method development
	Practice	chromatogram evaluation
13	Theoretical	Chromatographic analysis method validation (validation)
	Practice	Liquid-liquid phase extraction
14	Theoretical	HPLC signs of the fault, the fault detection and troubleshooting
	Practice	The solid-liquid phase extraction
15	Theoretical	discussion
	Practice	discussion
16	Final Exam	Final

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	2	1	42
Lecture - Practice	15	1	2	45
Midterm Examination	1	6	2	8
			Total Workload (Hours)	95
			[Total Workload (Hours) / 25*] = **ECTS**	4

**25 hour workload is accepted as 1 ECTS*

Learning Outcomes

1	To be informed about chromatographic systems
2	To be informed about working principles of the various chromatographic systems
3	The ability to use and apply the information learned to gain devices.
4	To find out and use resources about the profession in the area.
5	To give lectures and/or presentations and discuss with professionals in the area.

Programme Outcomes *(Veterinary Pharmacology and Toxicology Master)*

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		
P2		4			
P3					5
P4			5		4

P5					5
P6				5	5
P7				4	
P8					4
P9		5	5	5	5
P10	5	5	5		
P11	5	5	5		