AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Enzyme Histochemistry								
Course Code	VHE641		Couse Level	Third Cycle (Doctorate Degree)					
ECTS Credit	5	Workload	125 *(Hours)*	Theory	2	Practice	2	Laboratory	0
Objectives of the Course	The aim of course is to teach enzyme distribution of cells, hyrolytic enzymes, esterases, oxydative enzymes, dehyrogenases and staining methods.								
Course Content	Enzyme distribution of cells, hyrolytic enzymes, esterases, oxydative enzymes, dehyrogenases and staining methods.								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Demonstration, Discussion, Individual Study								
Name of Lecturer(s)									

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

Recommended or Required Reading	
1	1. Culling C.F.A.,Allison R.T., Barr W.T. (1985) Cellular PathologyTechnique. London.
2	Luna L.G. (1968) Manual of HistologicStainingMethods of theArmedForcesInstitute of Pathology
3	Sheenan D. C., Hrapchak B.B. (1973) Theoryandpractice of Histotechnology. MosbyCompany
4	Demir R. (2001) Histolojik Boyama Teknikleri. Palme Yayıncılık

Week	Weekly Detailed Course Contents	
1	Theoretical	What is enzyme? The properties of the enzymes.
	Practice	To prepare solutions for enzyme stains
2	Theoretical	Structure of the enzymes
	Practice	To prepare solutions for enzyme stains
3	Theoretical	Classification of enzymes
	Practice	Preparation of the enzyme solution required for staining
4	Theoretical	Enzymes' tasks
	Practice	Lead acid phosphatase implementation of the method
5	Theoretical	The working mechanism of enzymes
	Practice	Lead acid phosphatase implementation of the method
6	Theoretical	To the study of factors affecting enzyme
	Practice	Gomori method
7	Theoretical	Redistribution of the enzyme in cells
	Practice	Alpha Naphthyl Acetate Esterase in tissue (ANAE) method
8	Intermediate Exam	Midterm exam
9	Theoretical	Hydrolytic enzymes
	Practice	Alpha Naphthyl Acetate Esterase in tissue (ANAE) method
10	Theoretical	Esterases
	Practice	Alpha Naphthyl Acetate Esterase (ANAE) method in blood
11	Theoretical	Oxidative enzymes
	Practice	Naphthol AS-D cloraesteraz method for neutrophils
12	Theoretical	Dehydrogenases
	Practice	Naphthol AS-D cloraesteraz method for neutrophils
13	Theoretical	Staining methods
	Practice	For eosinophil peroxidase positive reaction Undritz
14	Theoretical	Staining metods
	Practice	For eosinophil peroxidase positive reaction Undritz

15	Theoretical	Article discussion
	Practice	Article presentation
16	Final Exam	Final Exam

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	1	14
Lecture - Practice	14	0	2	28
Assignment	2	10	1	22
Midterm Examination	1	25	1	26
Final Examination	1	34	1	35
			Total Workload (Hours)	125
			[Total Workload (Hours) / 25*] = **ECTS**	5
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	The student gains knowledge about enzymes.
2	Define the structure and functions of enzymes
3	The student learns enzyme distribution of cells.
4	The student learns staining methods of enzymes.
5	Histochemical determination and evaluation of enzymes

Programme Outcomes *(Histology and Embryology (Veterinary Medicine) Doctorate)*	
1	Gains expert knowledge on the function and basic histological features of cells, tissues and systems in animals.
2	Gains expert knowledge on the stages of embryonal and fetal development in both mammals and birds.
3	Based on his/her training during the Master of Science program, he/she has in depth knowledge in the field of histology/embryology as well as in areas related to his/her area of expertise.
4	Using basic knowledge gained during the undergraduate and master of science program, develops ,critically evaluates and tests novel ideas in his/her area of expertise.
5	Endowed with theoretical and practical knowledge as for the scientific research and methodology to be able to conduct an independent research project.
6	Has theoretical knowledge concerning skills (leadership, entrepreneurship, ability to reach information technologies, organization, industrial correspondence etc.). Knows laws and regulations concerning his/her area of expertise and related subjects.
7	Determines and uses laboratory equipment and consumables in a histology laboratory. Has the ability to solve problems in his/her area of expertise.
8	Has the ability to design and develop scientific methodology concerning new developments in his/her area of expertise. Has the ability to put established methods in use to tackle current problems in his/her area of expertise.
9	Designs and conducts an independent research project on his/her own.
10	Critically evaluates and reaches to a synthesis of new ideas in his/her area of expertise and related fields.
11	Uses and develops modern technologies in his/her area of expertise towards the industry in a systematic and critical manner.
12	Performs his/her expertise with the recognition of the rights and responsibilities obtained with the completion of doctorate program in histology/embryology.
13	Is able to break down new and immature ideas into simple components and suggest alternative solutions by using his/her ability to recognize possible relationships among these components.
14	If the need arises, designs an interdisciplinary research project , forms a team, leads and finalizes the research project to solve an old or a new problem in the field of histology/embryology.
15	Attends to activities such as congresses, panels, symposiums, workshops, seminars, journal clubs in his/her area of expertise, shares information in his/her area of expertise and contributes to the solution of a problem by interacting with experts in other fields.
16	Expands a growing body of information in his/her area of expertise by publishing scientific articles in national and international journals.
17	Is in recognition of taking professional and ethical responsibilities.
18	Develop new ideas and methods that has the potential to ignite social and cultural progress or add values to the information society by using practical and theoretical knowledge gained throughout his/her training and his/her skill to work independently and to take responsibilities.
19	Makes the concept of life-long learning a matter of principle and recognizes the fact that evidence-based information is the most important gain of education.

20	Provides information and manages information exchanges on issues of public and animal health in committees with the aim of defining and solving a problem using his/her expertise.

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

	L1	L3	L4
P1	4	4	4
P7	4	4	4
P10	3	3	3
P20	3	3	3