AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Membrane, Nerve and Muscle Physiology								
Course Code	VFZ501		Couse Level	Second Cycle (Master's Degree)					
ECTS Credit	6	Workload	150 *(Hours)*	Theory	2	Practice	2	Laboratory	0
Objectives of the Course	To comprehend mechanisms about the formation of cell membrane potential difference and the related mechanism for transmitting of impuls, and the comprehend principles of physiology of the nervous system, physiological properties of muscle types								
Course Content	The membrane structure, ion and molecules transport from cell membrane, the membrane potential and action potential, contraction in skeletal muscle and in smooth muscle, heart muscle function								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Experiment, Demonstration, Discussion, Case Study, Individual Study, Problem Solving								
Name of Lecturer(s)									

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	1	38
Final Examination	1	60
Quiz	4	1
Term Assignment	1	1

Recommended or Required Reading	
1	Reece W.O. (2008) Dukes Veteriner Fizyoloji Cilt I ve II, Onikinci Baskı (Türkçe Çeviri). Ed: Yıldız S. Medipres, Malatya
2	Guyton AC, Hall JE (2001) Tıbbi Fizyoloji Onuncu baskı (Türkçe Çeviri). Ed: Çavuşoğlu H. Nobel Tıp Kitabevi, İstanbul
3	Noyan A. (2003). Yaşamda ve Hekimlikte Fizyoloji. 13. baskı, Meteksan-Ankara
4	Randall D., Burggren W., French K, Fernald R., (1997). Eckert Animal Physiology. Mechanisms and Adaptations. 4th Ed., New York
5	Willmer P., Stone G., Johnston I. (2005). Environmental Physiology of Animals. 2nd Ed. Blackwell Publishing
6	Despopoulos A., Silbernagl S. (2003). Color Atlas of Physiology 5th Ed. Thieme, Stuttgart New York
7	Vander et al. (2001). Human Physiology: The Mechanism of Body Function, 8th Ed. The McGraw-Hill Companies

Week	Weekly Detailed Course Contents	
1	Theoretical	Molecular organization of cell membrane
	Practice	Transport in biological membranes: Diffusion
2	Theoretical	Particles transport in the cell membranes
	Practice	Transport in biological membranes: Osmosis
3	Theoretical	Active and passive transport
	Practice	Transport in biological membranes: Filtration
4	Theoretical	Basic concepts related to the transport of the stimulus
	Practice	Transport in biological membranes: Active transport
5	Theoretical	Conduction in synapses
	Practice	The formation stimulus in cell
6	Theoretical	Spinal reflexes
	Practice	The effect of electrical and mechanical stimulation on the cell -I

7	Theoretical	Exitation in the nevre fiber
	Practice	The effect of electrical and mechanical stimulation on the cell -II
8	Theoretical	Midterm
	Practice	Mid term
9	Theoretical	Discuss the results of the reflexes
	Practice	Creation of thermal and chemical stimulation to the action potential in the cell
10	Theoretical	Properties of the skeletal, smooth and cardiac muscles
	Practice	Stimulus inhibition in the cell
11	Theoretical	Formation of action potential in skelatal muscle
	Practice	Reflex arc
12	Theoretical	Contraction mechanisim of the skeletal muscle
13	Theoretical	Neuromusclar junction
	Practice	EMG-II
14	Theoretical	Energy sources of muscle contraction
	Practice	Contraction curve and physiological evnts in skeletal muscle
15	Theoretical	Sensory receptors of skeletal muscle
	Practice	Tetanus, fatigue and stair case

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	1	2	42
Lecture - Practice	14	1	2	42
Assignment	2	2	1	6
Term Project	1	13	1	14
Quiz	4	2	1	12
Midterm Examination	1	15	1	16
Final Examination	1	17	1	18
			Total Workload (Hours)	150
			[Total Workload (Hours) / 25*] = **ECTS**	6
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	To have knowledge about structure of cell membrane on the basis of molecular
2	To have knowledge about ion Exchange in the cell membrane, bioelectrical events in the cell, impulse formation and its conduction
3	To be learned function of reflex arc
4	To gain ability about establish and to run experimental design in the nervous system physiology
5	To comprehend structures fo skeletal, smooth and cardiac muscle

Programme Outcomes *(Physiology (Veterinary Medicine) Master)*	
1	Understands and defines the interdisciplinary interaction with the associated fields
2	Uses theoretical and practical information learned in the education

3	Creates solution proposals by using background education
4	Combines and interprets the information from different disciplines, and creates solution proposals and scientific information to contribute the solution process, when needed
5	Involves in professional organizations and institutions related with the educational background
6	Takes responsibility for individual and group work, and do the assignments in line with the skills
7	Communicates with the professionals out of the field when it is necessary, and contributes to the solution as a team member
8	Understands the production and publishing methods of scientific information
9	Determines the source and the type of information that is needed related with the field and chooses the activities that s/he wants to participate, by using his/her critical thinking abilities that is developed in the education
10	Excels technological devices both for professional and social purposes
11	Compiles any kind of data related with the field (field observations, produced scientific information etc.) and analyzes and interprets the results according to the aims of the research
12	Determines the environmental health rules and applies them for prevention
13	Applies the knowledge gained in professional level with the awareness of the needs of the region and the country, and develops a defense capability
14	Conceptualizes the phenomena and the events related with the field, studies scientific methods and techniques, interprets results; analyzes and hypothesizes methods in accordance with the results and designs solution or treatment alternatives addressing the problems
15	Follows up the updates of information in the field by using all kinds of sources (scientific information, legislations etc.), and uses when needed

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	1	1	1	1	1
P2	3	3	3	3	3
P3	3	3	3	3	3
P4	1	1	1	1	1
P5	1	1	1	1	1
P6	1	1	1	1	1
P7	1	1	1	1	1
P8	1	1	1	1	1
P9	2	2	2	2	2
P10	1	1	1	1	1
P11	4	4	4	4	4
P12	1	1	1	1	1
P13	1	1	1	1	1
P14	2	2	2	2	2
P15	3	3	3	3	3