



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Electrophoresis and Application Fields							
Course Code		VBY635		Course Level		Third Cycle (Doctorate Degree)			
ECTS Credit	4	Workload	95 (<i>Hours</i>)	Theory	1	Practice	2	Laboratory	0
Objectives of the Course		Provide information about the working principle of electrophoresis, identify the types of electrophoresis, acquire the ability to apply theoretical knowledge into practice.							
Course Content		Cellulose acetate, and vertical and horizontal and vertical polyacrylamide gel electrophoresis applications in starch gel, gel staining techniques and evaluation of results							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Experiment, Demonstration, 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	Gel electrophoresis : Proteins: essential techniques (Gersten, D. M.)
2	Gel electrophoresis : essential data (Patel, D.)

Week	Weekly Detailed Course Contents	
1	Theoretical	General information on Electrophoresis
	Practice	Presentation of the laboratory equipment
2	Theoretical	Basic technical information
	Practice	Preparation of application plan
3	Theoretical	Areas of application
	Practice	Preparation of used Tools and equipment
4	Theoretical	Operating principles
	Practice	Preparation of Buffer solutions
5	Theoretical	Electrophoresis methods
	Practice	Preparation of protein samples
6	Theoretical	Electrophoresis types
	Practice	Separation of proteins by Acrylamide gel electrophoresis
7	Theoretical	Agarose gel electrophoresis
	Practice	Staining of proteins
8	Theoretical	Midterm exam
	Practice	Protein purification
9	Theoretical	Preparation of agarose gel electrophoresis
	Practice	SDS page enzyme electrophoresis
10	Theoretical	Cellulose acetate electrophoresis
	Practice	Evaluation of results
11	Theoretical	Vertical starch gel electrophoresis
	Practice	Application of starch gel electrophoresis
12	Theoretical	Gel staining techniques
	Practice	Application of agarose gel electrophoresis
13	Theoretical	Polyacrylamide gel electrophoresis
	Practice	Urine protein electrophoresis
14	Theoretical	Evaluation of the bands by densitometry
	Practice	Milk proteins electrophoresis



Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	1	1	28
Lecture - Practice	14	1	2	42
Assignment	4	3	0	12
Reading	2	0	2	4
Midterm Examination	1	3	1	4
Final Examination	1	4	1	5
Total Workload (Hours)				95
[Total Workload (Hours) / 25*] = ECTS				4

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	To grasp the principle of Electrophoresis apparatus
2	Having a basic knowledge of the technical characteristics of the devices
3	An ability to win on the device application
4	To have information about the use of electrophoresis
5	To have knowledge about electrophoresis applications in diagnosis of diseases

Programme Outcomes (Biochemistry (Veterinary Medicine) Doctorate)

1	Has a deep and broad knowledge about the field and the interdisciplinary area related with the field through the achievements gained in undergraduate and professional levels.
2	Has the knowledge to create original ideas, analyze them and develop definition/product/diagnosis methods by using the knowledge gained in undergraduate and/or professional experience, when needed.
3	Is knowledgeable about theories and practices in methodological and scientific research methods to run an independent research.
4	Excels in the laboratory, clinical and similar fields by using the theoretical and practical information gained in former education, and has the ability to create solutions in related fields.
5	Designs and develops scientific methodology for the advanced level/newly defined/emerged problems about the field.
6	Excels in the known scientific methods in the field for the advanced level/ newly defined/emerged problems.
7	Designs unique researches and implements independently.
8	Analyzes, synthesizes and evaluates the new ideas in related fields by using critical thinking.
9	Plans, creates teams and carries out the interdisciplinary research projects in order to create solutions to the known/newly defined problems.
10	Joins to congresses, panels, symposiums, workshops, seminars, article discussions and problem solving sessions in different disciplines, and exchanges information with the other professionals to contribute to the solutions.
11	Broadens the borders of scientific information by publishing scientific articles in national and/or international peer-reviewed journals.
12	Creates new ideas and methods to contribute to the technological, social and cultural progress, or to help the development of information society by using the theoretical, practical, independent research, abilities responsibly.
13	Designs and implements social projects with the awareness of creating an information society.
14	Compiles and interprets any type of data (field observation, scientific knowledge etc.) in accordance with the aims.
15	Develops and uses strategies about related topics with the field.
16	Implements and defends institutional and practical information and abilities in accordance with the needs of the country and the world, and changes when necessary.
17	Follows up and uses all the updates about the field (scientific information, legislations etc.), and has the qualification to change them.
18	Adopts lifelong learning as a principle and acknowledges that the information gained through research is the most valuable gain.

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	5			5	5
P2	5				
P3	5			5	5
P4		5	5		
P5			5	5	5
P8	5				



P10			5	5	5
P12	5	5		5	5

