



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Thermodynamic							
Course Code		VBY632		Couse Level		Third Cycle (Doctorate Degree)			
ECTS Credit	5	Workload	125 (<i>Hours</i>)	Theory	2	Practice	0	Laboratory	0
Objectives of the Course		To teach energy exchange between organism, cell or two substances that react with each other with enviroment in which theirs located.							
Course Content		Entropi, entalpi, free energy, chemical energy, reaction cinetics.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion, Individual Study					
Name of Lecturer(s)		Prof. Funda KIRAL							

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	30
Final Examination	1	60
Quiz	2	5
Assignment	4	5

Recommended or Required Reading

1	Termodinamik prensipleri, Saraç, Celal
2	Biyokimya , Halkerston, Ian D. K.
3	Biyokimya , Kolancı, Çiğdem

Week	Weekly Detailed Course Contents	
1	Theoretical	Terms of chemical thermodynamics
2	Theoretical	Heat Units
3	Theoretical	Source of energy
4	Theoretical	Chemical energy
5	Theoretical	Entalpi
6	Theoretical	Entropi
7	Theoretical	Free energy
8	Intermediate Exam	Midterm exam
9	Theoretical	First rule of thermodynamics
10	Theoretical	Second rule of thermodynamics
11	Theoretical	Thirs rule of thermodynamics
12	Theoretical	Exchange of free energy
13	Theoretical	Transfer of ATP ve phospat groups
14	Theoretical	High energy compounds
15	Theoretical	Endergonic ve egsergonik reakssions
16	Final Exam	Final exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	15	2	1	45
Assignment	4	2	1	12
Reading	6	5	0	30
Quiz	2	5	1	12
Midterm Examination	1	10	2	12



Final Examination	1	12	2	14
Total Workload (Hours)				125
[Total Workload (Hours) / 25*] = ECTS				5
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	To learn chemical thermodynamics concept.
2	To know the reaction that to give and used energy in living cells.
3	To understand features of thermodynamics
4	To have knowledge about exergonic and endergonic reactions
5	To have knowledge about high energy compounds

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	5	5
P4	5	5	5	5	5
P5	5	5	5	5	5
P17	5	5	5	5	5

