AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Biosensors						
Course Code	BYK622		Couse Level	Third Cycle (Doctorate Degree)			
ECTS Credit	5	Workload	125 *(Hours)*	Theory	3	Practice	0	Laboratory	0

Objectives of the Course	It is aimed to teach that biosensors are analytical measurement systems formed by the combination of a physicochemical signal transmitter or an optical, electrochemical, thermometric, piezoelectric, magnetic signal transmitter and a biological material, and where and for what purposes the biosensors can be used.
Course Content	Biosensor definition, types of biosensors, Calorimetric biosensors, calorimetric biosensor applications, potentiometric and amperometric biosensors, optical biosensors, optical biosensors applications, piezo-electric biosensors, Immunosensors, Immunosensors applications.
Work Placement	N/A
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Discussion
Name of Lecturer(s)	

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

Recommended or Required Reading

1	biosensors: Jon cooper
2	Biosensors :Rajmohan Joshi,

Week	Weekly Detailed Course Contents	
1	Theoretical	Identification of biosensor
2	Theoretical	Brief historical development of biosensors
3	Theoretical	Biosensors according to signal generating species
4	Theoretical	Biomolecules used in biosensors and immobilization methods
5	Theoretical	Enzyme based amperometric biosensor systems
6	Theoretical	Enzyme based potentiometric biosensor systems
7	Theoretical	Enzyme based optical biosensor systems
8	Intermediate Exam	Biosensors midterm exam
9	Theoretical	Enzyme based calorimetric biosensor systems
10	Theoretical	Inhibition based biosensor systems
11	Theoretical	Organic phase biosensor systems
12	Theoretical	Microbial biosensors
13	Theoretical	Biosensors in food analysis
14	Theoretical	Biosensors in environmental analysis
15	Theoretical	Current uses of biosensors in medicine
16	Final Exam	Biosensors final exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	4	2	84

Midterm Examination	1	18	2	20
Final Examination	1	19	2	21
			Total Workload (Hours)	125
			[Total Workload (Hours) / 25*] = **ECTS**	5
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	To be able to examine and compare the advantages / disadvantages of biosensors
2	To be able to evaluate, compare and interpret research results for biosensors
3	Understanding what a biosensor is
4	Learn how to prepare a biosensor
5	Obtaining information about signal transduction systems used in biosensors

Programme Outcomes *(Biochemistry (Medical) Doctorate)*

1	To have basic theoretical knowledge about biochemistry and to help understanding biochemistry
2	To have the basic laboratory knowledge, apparatus and methods used in biochemistry
3	Analysis: To be able to analyze information critically
4	Synthesis: To be able to synthesize and adapt the knowledge in the field from different directions
5	Evaluation: To critically evaluate research in the field

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
P2	4	4	4	4	4
P3	5	4	5	5	5
P4	4	5	4	4	5
P5	5	5	5	5	4