



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Nanobiosensors							
Course Code		KİM669		Course Level		Third Cycle (Doctorate Degree)			
ECTS Credit	8	Workload	200 (Hours)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		Having knowledge about nanobiosensors. To learn the properties and functions of nanomaterials used in nanobiosellers. Having knowledge about biomedical, diagnostic, environmental and food applications of nanobiosensors.							
Course Content		Classification and functions of nanomaterials used in nanobiosensors. Enzyme nanobiosensors. Nanoselector genosensor and immunosensor applications. Electrochemical nanobiosensors. Biomedical, diagnostic, environmental, agricultural and food applications of nanobiosensors.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion, Case Study, Individual Study					
Name of Lecturer(s)									

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	20
Final Examination	1	35
Assignment	3	45

Recommended or Required Reading

1	Lecture notes
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Week	Weekly Detailed Course Contents	
1	Theoretical	Merging of Nanotechnology with Biosensors: Nanobiosensors and Advantages
2	Theoretical	Selection and optimization of nanomaterials for sensor technology
3	Theoretical	Classification and Functions of Nanobiosensors
4	Theoretical	Nanoparticle based sensors and applications
5	Theoretical	Nanotube based sensors and applications
6	Theoretical	Nanowire and nanofiber based sensors and applications
7	Theoretical	Graphene based nanobiosensors and applications
8	Theoretical	Quantum dot based nanobiosensors and applications
9	Theoretical	Enzyme nanobiosensors
10	Theoretical	Midterm exam
11	Theoretical	Genosensor and immunosensor applications of nanomaterials
12	Theoretical	Electrochemical nanobiosensors
13	Theoretical	Biomedical and diagnostic applications of nanobiosensors
14	Theoretical	Environmental applications of nanobiosensors
15	Theoretical	Agriculturel and food applications of nanobiosensors
16	Theoretical	Final exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	3	42
Assignment	7	0	10	70
Midterm Examination	1	34	2	36
Final Examination	1	50	2	52
Total Workload (Hours)				200
[Total Workload (Hours) / 25*] = ECTS				8

*25 hour workload is accepted as 1 ECTS



Learning Outcomes

1	Understanding of significance of nanobiosensors and applications.
2	To have knowledge about the types and functions of nanobiosensors.
3	Having knowledge about nanobiosensors' medical applications.
4	Having knowledge about nanobiosensors' environmental applications.
5	Having knowledge about nanobiosensors' food applications.

Programme Outcomes (Chemistry Doctorate)

1	Depending on the master degree competences, develops, insights and innovates current and advanced knowledge and/or research in proficiency level.
2	Gains high skill levels in using research methods in the field of his/her study.
3	Comprehends the interaction between disciplines related to his/her field. Reaches to original results using his/her expertise in order to analyze, synthesize and evaluate new and complicated ideas.
4	Enlarges the boundaries of his/her field of knowledge by publishing at least one research paper in national and/or international peer-reviewed journals.
5	Defends his/her original opinions related to his/her field before authority and communicates effectively illustrating his/her competence.
6	May communicate and debate written, orally and visually in European Language Portfolio level C1.
7	Follows the developments in computer software and information and communication technologies developed for his/her research area and uses these in order to solve research problems.
8	Collaborates for scientific research with national and international research teams.
9	Contributes to the course of creation and maintenance of knowledge based society and by introducing the scientific, social and cultural developments to the society he/she is living in.

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	3	3	3	3	3
P5	4	4	4	4	4
P7	3	3	3	3	3

