



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Environmental Biotechnology							
Course Code		CSAG517		Couse Level		Second Cycle (Master's Degree)			
ECTS Credit	8	Workload	200 (Hours)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		The aim of the course is to teach the biotechnological methods used in the detection of environmental pollution sources and the elimination of pollution, and to examine the mechanisms of biological destruction.							
Course Content		Definition of environmental biotechnology. Environmental microbiology, environmental biochemical dynamics. Carbon biogeochemistry, nitrogen and sulfur biochemistry dynamics. Biotechnological systems. Biotechnological analyzes. Biosensors. Removal of biotechnological contamination. Biodegradation of harmful contaminants. Bioremediation and biodegratation. Biotechnological processes for environmental protection.							
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	Unprinted lecture notes
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Week	Weekly Detailed Course Contents	
1	Theoretical	Introduction to environmental biotechnology.
2	Theoretical	Biotechnology, bioengineering and environmental biotechnology as a discipline.
3	Theoretical	Environmental systems. Environmental microbiology, environmental biochemical dynamics.
4	Theoretical	Carbon biogeochemistry, nitrogen and sulfur biochemistry dynamics.
5	Theoretical	Processes of environmental biochemical dynamics.
6	Theoretical	Thermodynamics of biotic and abiotic systems. Biochemical dynamic transport.
7	Theoretical	Biotechnological systems. Biotechnological analysis. Biosensors.
8	Theoretical	Environmental risks of biotechnology. Bioterrorism.
9	Theoretical	Removal of biotechnological impurities. Sampling and analysis.
10	Intermediate Exam	Midterm
11	Theoretical	Biodegradation of Dangerous Pollutants
12	Theoretical	Applied ecology. Bioremediation. Applied thermodynamics. Bioregulation and bioremediation. Biodynamics of bioremediation. The Biosorption. Aerobics biodegratation. Anaerobic biodegratation.
13	Theoretical	Environmental Biotechnology for the Conversion of Agricultural and Forestry Wastes to Feeder Biomass
14	Theoretical	Biotechnological Procedures for Environmental Protection
15	Theoretical	Nanotechnology and developing sciences. The nanoscale biotechnology.
16	Theoretical	Presentation of student homework
17	Final Exam	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	Having knowledge about environmental pollution sources.
2	Having knowledge about the use of biotechnological methods in environmental pollution abatement.
3	To have knowledge about biotechnological processes in environmental protection.
4	To be able to solve environmental health problems with scientific methods and to evaluate them with a critical approach
5	Being able to have theoretical and practical knowledge about the deterioration effects of the environment

Programme Outcomes (Environmental Health Interdisciplinary Master)

1	To be able to have theoretical and practical updated information in the field of environmental health.
2	To be able to solve problems related to environmental health with scientific methods and evaluate them with a critical approach,
3	To have the ability to produce, execute and finalize new projects for scientific research,
4	To be able to have theoretical and practical knowledge about environmental health, historical development and economic dimension of environmental health,
5	To be able to have theoretical and practical knowledge about the deterioration effects of environment,

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	4	5	4	3	2
P2	5	4	4	5	3
P3	4	5	4	4	4
P4	5	4	4	5	1
P5	5	4	4	4	2

