



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Biotechnology							
Course Code		BYL409		Course Level		First Cycle (Bachelor's Degree)			
ECTS Credit	4	Workload	99 (<i>Hours</i>)	Theory	2	Practice	0	Laboratory	0
Objectives of the Course		This course aims to teach industrially relevant microbiology; molecular biology, fermentation, cell culture, downstream processing and an overview of industrial organisms							
Course Content		Molecular genetics,recombinant DNA technology, cell fusions,embryonic manipulations, and other application areas of biotechnology							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation)					
Name of Lecturer(s)		Prof. Hacı Halil BIYIK							

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	70

Recommended or Required Reading

1	Brock Mikroorganizmaların Biyolojisi, Michael T. Madigan ve John M. Martinko, Çeviri Editörü Prof. Dr. Cumhur ÇÖKMÜŞ, Palme Yayıncılık, 2010.
2	Biotechnology, M. Arda, Kükem Derneği Yayınları, 1994
3	Biotechnology, A. Telefoncu, Ege Üniversitesi, 1995.
4	Gen Klonlama ve DNA Analizi-Giriş, Çeviri: F. Bardakçı Nobel Yayın Dağıtım, 2009.

Week	Weekly Detailed Course Contents	
1	Theoretical	The Basic principles of gene cloning and DNA analysis
2	Theoretical	Vectors for gene cloning: plasmids and bacteriophages
3	Theoretical	Purification of DNA from living cells
4	Theoretical	Manipulation of purified DNA
5	Theoretical	Introduction of DNA into living cells
6	Theoretical	Cloning vectors for E. coli
7	Theoretical	Cloning vectors for eukaryotes
8	Theoretical	Gene cloning and DNA analysis in agriculture
9	Theoretical	Industrial microorganisms and products
10	Theoretical	Fermentation characteristics
11	Theoretical	Important industrial products for health care Industry
12	Theoretical	Industrial production of antibiotics and penicillin
13	Theoretical	Enzymes as industrial product
14	Theoretical	Vinegar production
15	Theoretical	Citric acid production

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	15	0	2	30
Assignment	15	0	2	30
Seminar	1	0	10	10
Term Project	1	0	10	10
Project	15	0	1	15
Midterm Examination	1	0	2	2



Final Examination	1	0	2	2
Total Workload (Hours)				99
[Total Workload (Hours) / 25*] = ECTS				4
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	Learning cloning the basic stages with the basic principles of gen cloning and DNA analysis
2	Vectors for gene cloning: learning the properties of the vectors used in gene cloning with plasmids and bacteriophages
3	. Learning stages of DNA isolation with Purification of DNA from living cells
4	. Learning ready for the introduction of DNA cloning with Manipulation of purified DNA
5	Learning with Introduction of DNA into living cells the selection of suitable hosts for cloning
6	. Learning how to E. coli cloning with Cloning vectors for E. coli
7	Learning the selection of appropriate vector for eukaryotes with cloning vectors for eukaryotes
8	Learning the application of cloning in agriculture with gene cloning and DNA analysis in agriculture
9	Learning to obtain the steps of biotechnological products from microorganisms with Industrial microorganisms and products
10	. Learning Fermentation characteristics with Fermentation characteristics
11	Learning how are used in health from biotechnology with Important industrial products for health care Industry
12	Learning to obtain antibiotics from microorganisms with Industrial production of antibiotics and penicilin
13	Learning how enzymes obtained from microorganisms with enzymes as industrial product
14	Learning how the vinegar obtained from microorganisms with vinegar production
15	Learning how citric acid obtained from microorganisms with citric acid production

Programme Outcomes (German Language and Literature)

1	Students will have advanced knowledge in the field of German Language and Literature in the field of German Language and Literature.
2	To be able to understand the concepts, ideas and data related to German Language and Literature through scientific methods in which he / she has learned and learned; It provides suggestions that can be proved by scientific evidence, evidence or evidence.
3	To inform the German audience about the issues related to German Language and Literature; expresses his / her own thoughts, problems / problems, solution suggestions and methods in written and verbal way.
4	Students will be able to produce scientific studies to be accepted by the experts in the field of Languages, Literatures and Cultures.
5	It carries out advanced studies independently with learning, learning skills and critical thinking.
6	Develops strategic management and implementation plans in the field of German Language and Literature and evaluates the obtained results within the framework of quality processes and uses the obtained data in interdisciplinary studies.
7	Plans and manages the activities and projects for the professional development of the people he works with in the sense of social responsibility.
8	Students will be able to follow and use the German Language and Literature knowledge and gain the competency with their colleagues.
9	It has the competence to observe social, scientific and ethical values ??in the stages of collecting, interpreting and announcing data about German Language and Literature.
10	Uses and develops information and communication technologies with the knowledge of computer software and hardware required by German Language and Literature.
11	She is able to translate from German to Turkish and from German to German so that she can speak an equivalent language and grammar.
12	Obtains the basic professional knowledge related to the learning area.

