AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Recombinant DNA Technology I								
Course Code	TBY401		Couse Level	First Cycle (Bachelor's Degree)					
ECTS Credit	4	Workload	100 *(Hours)*	Theory	2	Practice	0	Laboratory	2
Objectives of the Course	Aim of this Course is to familiarize students with the most frequently used methods in Recombinant DNA Technology and Genetic Engineering from both a theoretical and experimental point of view								
Course Content	Definition of Recombinant DNA and Gene Engineering, General Application Areas, Molecular Methods Used in Recombinant DNA Technology, Polymerase Chain Reaction, Cloning and Expression of Genes, DNA Cutting Enzymes, Cloning and Expression Vectors Used in Gene Transfer, DNA Gel Electrophoresis, Gene Transfer Methods, DNA Sequence Analysis								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Experiment, Discussion								
Name of Lecturer(s)	Lec. Murat Kemal AVCI								

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	70

Recommended or Required Reading	
1	Principles of Gene Manipulation and Genomics, Seventh Edition, Sandy B., Primrose, Richard M. Twyman, Madlen, MA; Oxford: Blackwell Pub., (2013)
2	Gene Cloning and DNA Analysis An Introduction Fourth Edition T.A Brown, Wiley-Blackwell Pub. (2020)
3	An Introduction to Genetic Engineering, Third Edition, Desmond S. T. Nicholl Cambridge University Press (2008)

Week	Weekly Detailed Course Contents	
1	Theoretical	Introduction and some basic concepts
	Preparation Work	Having knowledge from source books
2	Theoretical	Recombinant DNA Technology and Genetic Engineering and Their Applications
	Preparation Work	Having knowledge from source books
3	Theoretical	Polymerase Chain Reaction
	Preparation Work	Having knowledge from source books
4	Theoretical	Enzymes used in gene cloning
	Preparation Work	Having knowledge from source books
5	Theoretical	Vectors used in gene cloning
	Preparation Work	Having knowledge from source books
6	Theoretical	Gene cloning
	Preparation Work	Having knowledge from source books
7	Theoretical	Gel Elecrophoresis of DNA
	Preparation Work	Having knowledge from source books
8	Intermediate Exam	Midterm exam
9	Theoretical	Gene Transfer Techniques 1
	Preparation Work	Having knowledge from source books
10	Theoretical	Gene Transfer Techniques 2
	Preparation Work	Having knowledge from source books
11	Theoretical	DNA Sequence Analysis 1
	Preparation Work	Having knowledge from source books
12	Theoretical	DNA Sequence Analysis 2
	Preparation Work	Having knowledge from source books
13	Theoretical	Gene expressions and its vectors 1
	Preparation Work	Having knowledge from source books
14	Theoretical	Gene expressions and its vectors 1

14	Preparation Work	Having knowledge from source books
15	Preparation Work	Having knowledge from source books
	Final Exam	Final exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	13	1	2	39
Laboratory	13	1	2	39
Midterm Examination	1	10	1	11
Final Examination	1	10	1	11
			Total Workload (Hours)	100
			[Total Workload (Hours) / 25*] = **ECTS**	4

**25 hour workload is accepted as 1 ECTS*

Learning Outcomes

1	To learn the application areas of basic analysis techniques used in Molecular Biology in Recombinant DNA Technology.
2	To know the historical progress of discovery and use of DNA, RNA and protein
3	At the end of this course students learn basic methods of gene cloning and manipulation for protein expression
4	At the end of this course students learn how recombinant DNA technology is used in genetic engineering to modify prokaryotic and eukaryotic cells
5	Students gain information about practical and biotechnological applications of recombinant DNA technology

Programme Outcomes *(Agricultural Biotechnology)*

1	To be able to develop skills in identifying, modeling and solving problems in agricultural biotechnology
2	To be able to synthesize life and engineering sciences for the effective resource planning of agricultural biotechnology applications
3	To be able to interpret about living organisms structure, metabolic and physiological processes in order to propose biotechnological solutions to the agricultural problems
4	To be able to analyze genomic, metabolomic and proteomic information via bioinformatic tools.
5	To have the ability to analyze collected data and interpret the results.
6	To have the ability of individual working ability and to make independent decisions, to work in inter-disciplinary and interdisciplinary teamwork, to communicate by expressing their ideas orally and in writing, clearly and concisely
7	To have the awareness of professional liabilities and ethics
8	To be able to follow current national and international problems

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	3	5	5	5
P2	4	4	4	5	5
P3	5	4	5	5	5
P4	5	5	5	5	5
P5	4	5	5	5	5
P6	3	5	4	4	4
P7	4	5	3	4	5
P8	5	5	4	5	5