



## AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Introduction to Agricultural Biotechnology							
Course Code		TBY101		Course Level		First Cycle (Bachelor's Degree)			
ECTS Credit	5	Workload	82 (Hours)	Theory	2	Practice	0	Laboratory	0
Objectives of the Course		The main objectives of this course; To provide information about "agricultural biotechnology" to the first year students . To provide information about the agricultural applications of biotechnological methods. To provide information about the Genetically modified organism.							
Course Content		Definition and history of Biotechnology, Worldwide importance of Biotechnology, Current Progresses, Application Areas and Technics of the Biotechnology, Molecular technics used in Biotechnology, Enzymes, Vectors, Genetic transformation, Validation of the genetic transformation, Molecular markers, Genetic mapping, Genetically Modified Organisms (GMO),Application fields of Genetically Modified Organisms in Agriculture, Benefits and Risks of GMOs for the environment and production, Legal Aspects of GMOs in practice							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion, Individual Study					
Name of Lecturer(s)									

### Assessment Methods and Criteria

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

### Recommended or Required Reading

1	Tekeoğlu M (2013) Introduction to Biotechnology. Palme Press
2	Akman B, Tuncer T (2012) Code of the life: Human Genome Project. ODTU Press
3	Bayraç et al (2011) Genetically Modified Organisms. ODTÜ Press

Week	Weekly Detailed Course Contents	
1	Theoretical	Definition and history of Biotechnology
	Preparation Work	Course Book / Additional advised sources
2	Theoretical	Worldwide importance of Biotechnology
	Preparation Work	Course Book / Additional advised sources
3	Theoretical	Current Progresses, Application Areas and Technics of the Biotechnology
	Preparation Work	Course Book / Additional advised sources
4	Theoretical	Molecular technics used in Biotechnology
	Preparation Work	Course Book / Additional advised sources
5	Theoretical	Enzymes
	Preparation Work	Course Book / Additional advised sources
6	Theoretical	Vectors
	Preparation Work	Course Book / Additional advised sources
7	Intermediate Exam	Midterm exam
8	Theoretical	Validation of the genetic transformation
	Preparation Work	Course Book / Additional advised sources
9	Preparation Work	Course Book / Additional advised sources
	Intermediate Exam	Mid-term exam
10	Theoretical	Molecular markers
	Preparation Work	Course Book / Additional advised sources
11	Theoretical	Genetic mapping
	Preparation Work	Course Book / Additional advised sources
12	Theoretical	Genetically Modified Organisms (GMO)
	Preparation Work	Course Book / Additional advised sources
13	Theoretical	Application fields of Genetically Modified Organisms in Agriculture



13	Preparation Work	Course Book / Additional advised sources
14	Theoretical	Benefits and Risks of GMOs for the environment and production
	Preparation Work	Course Book / Additional advised sources
15	Theoretical	Legal Aspects of GMOs in practice
	Preparation Work	Course Book / Additional advised sources
16	Final Exam	Final exam

### Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	1	2	42
Lecture - Practice	14	0	2	28
Assignment	1	1	1	2
Midterm Examination	1	4	1	5
Final Examination	1	4	1	5
Total Workload (Hours)				82
[Total Workload (Hours) / 25*] = <b>ECTS</b>				3.5

\*25 hour workload is accepted as 1 ECTS

### Learning Outcomes

1	Understands the concept of Biotechnology.
2	To have knowledge about molecular technics used in biotechnology
3	To have knowledge about genetic transformation
4	To understand the Genetically Modified Organism (GDO) concept
5	To have knowledge about legal aspects of GMOs in practice

### Programme Outcomes (Agricultural Biotechnology)

1	Mathematics, science and Agricultural Engineering, adequate knowledge of the subjects specific to the discipline of Agricultural Biotechnology; ability to use theoretical and applied knowledge in these fields in complex engineering problems.
2	Agricultural Engineering ability to define, formulate and solve complex problems in the field of Agricultural Biotechnology, to choose and apply appropriate analysis and modeling methods for this purpose.
3	Agricultural Engineering ability to design a complex system, process, device or product related to the field of Agricultural Biotechnology, under realistic constraints and conditions, in other words, by considering the available possibilities and the current state of the field, and the ability to apply modern design methods for this purpose.
4	Agricultural Engineering ability to choose and use modern tools necessary for the analysis and solution of complex problems encountered in Agricultural Biotechnology applications, the ability to use information technologies effectively.
5	Agricultural Engineering ability to design, conduct experiments, collect data, analyze and interpret results for the examination of complex problems or discipline-specific research issues in the field of Agricultural Biotechnology.
6	Ability to work effectively in disciplinary and multi-disciplinary teams; individual study skills.
7	Ability to write effective reports in the field and to understand written reports, to prepare design and production reports, to make effective presentations, to take and give clear and understandable instructions.
8	Awareness of the necessity of lifelong learning; the ability to access information, follow developments in science and technology, and constantly renew oneself.
9	Knowledge of ethical principles, professional and ethical responsibility, and standards used in engineering practices.
10	Agricultural Engineering Information about applications in business life such as project management, risk management and change management in the field of Agricultural Biotechnology; awareness of entrepreneurship, innovation; information about sustainable development.
11	Agricultural Engineering Information about the effects of Agricultural Biotechnology applications on health, environment and safety in universal and social dimensions and the problems of the age reflected in the field of engineering; awareness of the legal consequences of engineering solutions.

