AGRIGULTURAL BIOTECHONOLGY

1	Course Title:	AGRIGULTURAL BIOTECHONOLGY
2	Course Code:	TOHZ225
3	Type of Course:	Compulsory
4	Level of Course:	Short Cycle
5	Year of Study:	2
6	Semester:	3
7	ECTS Credits Allocated:	4.00
8	Theoretical (hour/week):	3.00
9	Practice (hour/week):	2.00
10	Laboratory (hour/week):	0
11	Prerequisites:	None
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. AYDIN TÜRKEÇ
15	Course Lecturers:	
16	Contact information of the Course Coordinator:	Doç.Dr. Aydın Türkeç Uludağ Üniversitesi Mustafakemalpaşa Meslek Yüksekokulu Mustafakemalpaşa/BURSA aturkec@uludag.edu.tr 0224 613 3102
17	Website:	
18	Objective of the Course:	Learning of the latest techniques in plant molecular biology and its effect in agricultural structure of Turkey
19	Contribution of the Course to Professional Development:	
20	Learning Outcomes:	

	1	Know about history and defination of agricultural biotechnology and its use
	2	Understand the importance of agricultural biotechnology in Turkey
	3	Study about molecular structure of DNA
	4	Know about princibles of gen isolation and cloning
	5	Know about fundamentals of plant transformation methods
	6	Know about transgenic plants
	7	Know about plant transformation technigues
	8	Learn about molecular markers and their applications
	9	
	10	

21	Course Content:	
	Course Content:	
Week	Theoretical	Practice
1	Aims of lesson, introduction to agricultural biotechnology definitions, applications	Study on application of agricultural biotechnology
2	Production of Global transgenic crops and improvement	Equipments and and instruments and their use

3	DNA izolasyon tekniklerinin verilmesi	Molecular structure of the DNA and chromosomes
4	Molecular structure of the gene and protein biosythesis	DNA and protein biosythesis
5	methods of DNA isolation	Gene isolation methods
6	Steps involved in gene cloning	components of gene cloning and their functions
7	Aplication of agricultural biotechnology-advantages and limitations	Vectors for gene transfer
8	Polymerase Chain Reaction (PCR) – procedure and applications	Applications of PCR
9	Gene cloning and manipulation techniques	Preparation of plazmid DNA, restriction enzymes and electrophoresis
10	Principles of gene transformation	Gene transformation thecniques
11	Methods of gene transfer – indirect method of gene transfer	Agrobacterium - mediated gene transfer method
12	Methods of gene transfer – direct methods of transformation	Particle bombardment /chemical method, electroporation, microinjection
13	Transgenic plants- applications in crop improvement	Genetic engineering for insect , dieases and herbiside resistance
14	Molecular markers and their applications	Applications of molecular markers

22	Textbooks, References and/or Other Materials:	Bitki Biyoteknoloji (Genetik mühendisliği ve uygulamaları) Selçuk üniversitesi Vakfı Yayınları. 2001. Editörler: S. Özcan, E.Gürel, M. Babaoğlu Moleküler Biology .Bios Scientific Publishers Limited. 1998. ISBN: 81-85617-68-6P.C. Turner,A.G. McLennnan, A.D: Bates, M.R.H. White Biochemistry. Bios Scientific Publishers Limited. 1998. ISBN: 81-85167-63-5 B.D. Hames, N.M. Hooper, J.D. Houghton
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	1	40.00
Quiz	0	0.00
Home work-project	0	0.00
Final Exam	1	60.00
Total	2	100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00
Contribution of Final Exam to Success Grade		60.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		

24	**ECTS / WORK LOAD TABLE**

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	14	2.00	28.00
Self study and preperation	4	2.00	8.00
Homeworks	0	0.00	0.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	18.00	18.00
Others	0	0.00	0.00
Final Exams	1	24.00	24.00
Total Work Load			120.00
Total work load/ 30 hr			4.00
ECTS Credit of the Course			4.00

25	**CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS**															
	PQ1	**PQ2**	**PQ3**	**PQ4**	**PQ5**	**PQ6**	**PQ7**	**PQ8**	**PQ9**	**PQ10**	**PQ11**	**PQ12**	**PQ13**	**PQ14**	**PQ15**	**PQ16**
ÖK1	4	3	2	2	5	3	3	3	3	3	2	2	4	3	2	3
ÖK2	4	3	2	2	5	3	3	3	3	3	2	2	4	3	2	3
ÖK3	4	3	2	2	5	3	3	3	3	3	2	2	4	3	2	3
ÖK4	4	3	2	2	5	3	3	3	3	3	2	2	4	3	2	3
ÖK5	4	3	2	2	5	3	3	3	3	3	2	2	4	3	2	3
ÖK6	4	3	2	2	5	3	3	3	3	3	2	2	4	3	2	3
ÖK7	4	3	2	2	5	3	3	3	3	3	2	2	4	3	2	3
ÖK8	4	3	2	2	5	3	3	3	3	3	2	2	4	3	2	3
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	**1 very low**		**2 low**			**3 Medium**			**4 High**			**5 Very High**				