

MOLECULAR BIOLOGY TECHNIQUES IN HORTICULTURE

1	Course Title:	MOLECULAR BIOLOGY TECHNIQUES IN HORTICULTURE	
2	Course Code:	BAB5025	
3	Type of Course:	Optional	
4	Level of Course:	Second Cycle	
5	Year of Study:	1	
6	Semester:	1	
7	ECTS Credits Allocated:	6.00	
8	Theoretical (hour/week):	2.00	
9	Practice (hour/week):	2.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:	-	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Prof. Dr. HATİCE GÜLEN	
15	Course Lecturers:	Prof.Dr. Meryem İpek Doç.Dr. Ahmet İpek	
16	Contact information of the Course Coordinator:	hsgulen@uludag.edu.tr 224-2941477 Uludağ Üniversitesi Ziraat Fakültesi Bahçe Bitkileri Bölümü Nilüfer/Bursa	
17	Website:		
18	Objective of the Course:	The purpose of this course is to advanced information about molecular biology techniques and their use in Horticulture in theory and laboratory practices.	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	Learn molecular biology topics in advanced level
		2	Learn the techniques in molecular biology
		3	Learn the laboratory analysis used in molecular biology.
		4	Learn the applications of molecular biology in horticulture
		5	Learn molecular biology techniques in plant breeding
		6	Learn the application of molecular biology techniques in growing horticultural crops
		7	Develop innovative solutions using molecular biology techniques in horticulture
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		10	
21	Course Content:		
		Course Content:	
Week	Theoretical	Practice	
1	Giving outlines and the textbooks of the course.	Giving outlines of the practice	
2	Structure of enzymes and proteins	Enzyme extraction, determination of enzyme activity	
3	Enzyme markers	Native-PAGE	

4	Protein markers-I	Protein extraction and protein content
5	Protein markers-II	SDS-PAGE
6	Structure of DNA and RNA-I	DNA extraction
7	Structure of DNA and RNA-II	RNA extraction-I
8	Structure of genes-I	RNA extraction-II
9	Structure of genes-II	DNA concentration
10	PCR techniques-I	RAPD
11	PCR techniques-II	SSR-I
12	PCR techniques-III	SSR-II
13	PCR techniques-IV	Data analysis-I
14	PCR techniques-V	Data analysis-II

22	Textbooks, References and/or Other Materials:	Acquaah, G. 1992. Practical Protein Electrophoresis for Genetic Research. Dioscorides Press, Theodore R.Dudley, PhD., General Editor, Portland, Oregon, 131 p. Alberts, B., Bray, D., Lewis, J., Raff, M., Roberts, K. And Watson, J.D. 1994. Molecular Biology of The Cell. Garland Publishing, Inc., New York & London, 1294 p. Eriş, A. Ve Gülen, H. Moleküler Biyoloji (Temel Bilgiler). Uludağ Üniv. Ziraat Fak. Ders Notları No: , 136 s. Özcan, S., Gürel, E. Ve babaoğlu, M. 2001. Bitki Biyoteknolojisi-II (Genetik Mühendisliği ve Uygulamaları). Selçuk Üniv. Vakfı. Yay., Konya, 456 s. Temizkan, G. Ve Arda, N. 1999. Moleküler Biyolojide Kullanılan Yöntemler. Nobel Tıp Kütüphanesi Ltd. 226 s.
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Activites			Number	Duration (hour)	Total Work Load (hour)
TERM LEARNING ACTIVITIES					
Theoretical	NUMBER	WEIGHT	14	2.00	28.00
Practicals/Labs			14	2.00	28.00
Self study and preperation	0	0.00	14	1.00	14.00
Homeworks			3	12.00	36.00
Final Exam	1	50.00	0.00	0.00	0.00
Field Studies			0	0.00	0.00
Contribution of Term (Year) Learning Activities to Success Grade			50.00	0.00	0.00
Others			0	0.00	0.00
Contribution of Final Exam to Success Grade			50.00	72.00	72.00
Final Exams			1		
Total Work Load					178.00
Total workload in 30hr					5.93
Measurement and Evaluation Techniques Used in the					
ECTS Credit of the Course					6.00

24 ECTS / WORK LOAD TABLE

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	0	4	0	5	0	5	3	2	0	4	0	0	0	0	0	0
ÖK2	0	4	0	5	0	5	3	2	0	4	0	0	0	0	0	0
ÖK3	0	4	0	5	0	5	3	2	0	4	0	0	0	0	0	0
ÖK4	0	4	0	5	0	5	3	2	0	4	0	0	0	0	0	0

ÖK5	0	4	0	5	0	5	3	2	0	4	0	0	0	0	0	0
ÖK6	0	4	0	5	0	5	3	2	0	4	0	0	0	0	0	0
ÖK7	0	4	0	5	0	5	3	2	0	4	0	0	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	1 very low			2 low			3 Medium			4 High			5 Very High			