



AYDIN ADNAN MENDERES UNIVERSITY
GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES
FIELD CROPS
FIELD CROPS
FIELD CROPS MASTER
COURSE INFORMATION FORM

Course Title	Tissue Culture Applications in Horticulture								
Course Code	ZBB506	Course Level			Second Cycle (Master's Degree)				
ECTS Credit	8	Workload	196 (Hours)	Theory	2	Practice	2	Laboratory	0
Objectives of the Course	The aim of this course is to acquire information about tissue culture applications in horticultural crops to the students at the Science Institute.								
Course Content	Importance of tissue culture, laboratory techniques, organogenesis, somatic embryogenesis, disease-free plant production, micropropagation, embryo culture, anther and pollen culture, protoplast culture and somatic hybridisation, secondary metabolite production, germplasm conservation, somaclonal variation in horticultural crops.								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Experiment								
Name of Lecturer(s)	Prof. Gonca GÜNVER DALKILIÇ								

Assessment Methods and Criteria

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

Recommended or Required Reading

1	Babaoğlu M., Gürel E., Özcan S. 2001. Bitki Biyoteknolojisi 1: Doku Kültürü ve Uygulamaları. Selçuk Üniversitesi Vakfı Yayınları, Konya. 374s.
2	Hatipoğlu R. 1997. Bitki Biyoteknolojisi. Çukurova Üniversitesi Genel Yayın No:190, Ders Kitapları No:A-58, Adana. 176s.
3	Gamborg, O.L. and G.C. Phillips. 1995. Plant Cell, Tissue and Organ Culture, Springer-Verlag, Berlin, Germany, 358p.

Week	Weekly Detailed Course Contents	
1	Theoretical	Basic tissue culture laboratory techniques
	Practice	Introduction of laboratory
2	Theoretical	Micropropagation
	Practice	Nutrient media introduction
3	Theoretical	Organogenesis and somatic embryogenesis
	Practice	Calculation of ingredients
4	Theoretical	Embryo culture
	Practice	Sterilisation
5	Theoretical	Disease-free plant production
	Practice	Preparation of nutrient stocks
6	Theoretical	Callus culture
	Practice	Preparation of nutrient media
7	Theoretical	In vitro pollination and fertilisation
	Practice	Organ culture
8	Intermediate Exam	Midterm Exam
9	Theoretical	Haploid plant production
	Practice	Meristem culture
10	Theoretical	Cell culture
	Practice	In vitro pollination
11	Theoretical	Germplasm conservation
	Practice	Embryo culture
12	Theoretical	Secondary metabolite production and somaclonal variation
	Practice	Sub-culture and observation-1
13	Theoretical	Protoplast culture and somatic hybridisation
	Practice	Sub-culture and observation-2



14	Theoretical	Tissue culture applications in horticultural crops-1
	Practice	Sub-culture and observation-3
15	Theoretical	Tissue culture applications in horticultural crops-2
	Practice	Sub-culture and observation-4
16	Final Exam	Final Exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	4	2	84
Lecture - Practice	14	5	2	98
Midterm Examination	1	6	1	7
Final Examination	1	6	1	7
Total Workload (Hours)				196
[Total Workload (Hours) / 25*] = ECTS				8

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	To be able to perform tissue culture, practical applications
2	To be able to understand and interpret the problems encountered in tissue culture
3	To be able to examine and evaluate developments
4	To be able to use their acquired knowledge in practice
5	To be able to reach information sources

Programme Outcomes (Field Crops Master)

1	To be able to improve and deepen the level of expertise in field crops on the basis of the departments licenses qualifications.
2	To be able to recognize the subjects related to field crops, to be able to solve these and make interpretation.
3	To be able to have the skills of acting independently, to have power to decide and to create.
4	To be able to work in teams between departments
5	To be able to give briefing about latest information of Field Crops in written, oral and visual ways.
6	To be able to take responsibility for developing the new approaches and to formulate a solution facing unforeseen complex situations of applications,
7	To be able to defend the original opinions in both Turkish and in foreign languages by using these languages and communicating effectively.
8	To be able to contribute to science by producing knowledge for the aim of improving quality, efficiency and sustainability
9	To be able to apply breeding methods in order to improve new varieties for Field Crops.
10	To be able to maintain and select the appropriate statistical methods within the framework of the study, evaluation of scientific ethics; to convert the results into a report/dissertation and to offer them by producing scientific publications.

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	3	3	3	4	4
P2	3	3	3	4	4
P3	3	3	3	4	4
P4	3	3	3	4	4
P5	3	3	3	4	4
P6	3	3	3	4	4
P7	3	3	3	4	4
P8	3	3	3	4	4
P9	3	3	3	4	4
P10	3	3	3	4	4

