AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Advanced Plant Tissue Culture Applications						
Course Code	ZBY515		Couse Level	Second Cycle (Master's Degree)			
ECTS Credit	7	Workload	179 *(Hours)*	Theory	2	Practice	2	Laboratory	0
Objectives of the Course	To teach plant tissue culture methods for plant breeding						
Course Content	Laboratory setup, callus cultures, suspension cultures, haploid cell cultures, anther cultures, plant protoplasts, single cell cloning, somatic embryogenesis, organogenesis, tissue culture in vascular differentiation, production of secondary products, cultures cariostomy, phytopathology tissue culture						
Work Placement	N/A						
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Experiment, Demonstration, Discussion, Individual Study						
Name of Lecturer(s)	Assoc. Prof. Yelda EMEK						

Assessment Methods and Criteria

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

Recommended or Required Reading

1	Bitki Biyoteknolojisi, Rüştü Hatipoğlu, Adana, 2012
2	Dixoon, R.A.1985. Plant Cell culture: a practical approach. IRL Press Limited, England, ISBN 0-947946-22-5
3	Bitki Biyoteknolojisi 1. M. Babaoğlu, E. Gürel, S. Özcan. Selçuk Üniversitesi Vakfı Yayınları.

Week	Weekly Detailed Course Contents	
1	Theoretical	Introduction
	Practice	Laboratory introduction
2	Theoretical	History of biotechnology
	Practice	Laboratory safety
3	Theoretical	Laboratory organizations and sterilizations
	Practice	Display of sterilization
4	Theoretical	Preparation of culture media
	Practice	Preperation of stock solutions
5	Theoretical	Selection of media
	Practice	Preperation of medium
6	Theoretical	Callus cultures, suspension cultures
	Practice	Seed sterilization and sowing
7	Theoretical	Haploid cell cultures
	Practice	Clonal reproduction
8	Practice	Embryo culture
	Intermediate Exam	Midterm exam
9	Theoretical	Anther culture
	Practice	Anther culture
10	Theoretical	Plant protoplasts
	Practice	Explant culture from external explants
11	Theoretical	Single cell cloning
	Practice	Introducing gene cloning vectors
12	Theoretical	Genetic transformations
	Practice	Gene transfer studies
13	Theoretical	Genetic transformations
	Practice	Gene transfer studies
14	Theoretical	Somatic embriogenesis, organogenesis

14	Practice	Subculture studies
15	Theoretical	Production of seconder product, karyo protection of cultures
	Practice	Subculture studies
16	Final Exam	Final exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	6	2	112
Lecture - Practice	14	2	2	56
Midterm Examination	1	4	1	5
Final Examination	1	5	1	6
			Total Workload (Hours)	179
			[Total Workload (Hours) / 25*] = **ECTS**	7

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	Students learn tissue culture techniques used in plant breeding
2	Students can apply plant tissue culture applications individually
3	Have knowledge about the past and future of plant tissue culture
4	To be able to make plant breeding by using plant tissue culture techniques
5	Prepare projects in the field of plant tissue cultures

Programme Outcomes *(Agricultural Biotechnology Master)*

1	Students learn various techniques and evaluates resources about agricultural biotechnology
2	Make the necessary projects in agricultural biotechnology and to conduct a study of the basic level independently
3	Students learns how to conduct a scientific research and prepares themself for the scientists in the direction of their ideals.
4	Students may reveal new ideas in social and scientific issues and can benefit from the ideas and produce something new winning independent and teamwork skills.
5	Students can use its products for the benefit of humanity, they can produce technology and collaborate with industry

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	5	5	5	5	5
P2	5	5	5	5	5
P3	4	4	5	4	5
P4	4	5	3	4	5
P5	4	5	2	3	5