



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

Course Title	Soilless Culture								
Course Code	ZBB524	Course Level			Second Cycle (Master's Degree)				
ECTS Credit	8	Workload	200 (Hours)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	The main objective of this course is to let students to gain the introduction, advantages and methods of soilless culture, to have information about nutrition in soilless culture and to plan and apply plant growing in soilless culture by commercially, amateur and experimental, to solve the problems faced in soilless culture production.								
Course Content	The history of soilless culture, the status in the world and Turkiye, the reasons to use in greenhouses, the definition and classification of soilless culture systems, soilless culture techniques (Water culture-hydroponics, substrate culture), substrates used in soilless culture, Substrate culture in beds, substrate culture in bags, substrate culture in pots, plant nutrition and irrigation in substrate culture, flat water culture, flow water culture, aeroponics, nutrition in soilless culture, preparation and application of nutrient solution, solution-Media-plant analysis, the advantages and disadvantages of soilless culture (hydroponics), environmental effect, the future.								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Demonstration, Discussion, Project Based Study, 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	Sevgican, A. Örtü altı yetiştiriciliği Cilt II
2	Gül A., 2008. Topraksız Tarım. Hasad Yayıncılık, 144 s.
3	Savvas D., Passam H. (ed.), 2002. Hydroponic Production of Vegetables and Ornamentals. Embryo Pub., Greece, 463 s.
4	Gül A., Tüzel İ.H., Okur B., Tuncay Ö., Aykut N., Engindeniz S., 2000. Serada Topraksız Tarım Tekniği ile Hıyar Yetiştiriciliği. TÜBİTAK TARP Yayınları, 51 s.

Week	Weekly Detailed Course Contents	
1	Theoretical	Definition and history of soilless culture, the status in the world and Turkiye, the reasons to use in greenhouses, distribution of assignments for semester and weekly
2	Theoretical	Advantages and disadvantages of soilless culture, classification of soilless culture techniques, effect of environment,
3	Theoretical	Substrate culture and water culture methods
4	Theoretical	Substrates used in soilless culture and their properties,
5	Theoretical	Irrigation and nutrition in soilless culture
6	Theoretical	Nutrition in soilless culture, the contents of nutrient solutions, preparation of nutrient solutions,
7	Theoretical	Substrate culture
8	Intermediate Exam	Mid-term Exam
9	Theoretical	Substrate-Bed culture, The principles, advantages and disadvantages,
10	Theoretical	Bag/ Pot Soilless culture systems- The principles, advantages and disadvantages,
11	Theoretical	Water culture
12	Theoretical	Water culture (Hydroponics), water culture systems, advantages and disadvantages, principles of working of these systems, Factors to be taken into consideration during usage, (NFT-DFT)
13	Theoretical	Water culture systems (Hydroponics), advantages and disadvantages, principles of working of these systems, Factors to be taken into consideration during usage, (Flat water system)



14	Theoretical	Aeroponic systems, advantages and disadvantages, principles of working of these systems, Factors to be taken into consideration during usage,
15	Theoretical	Visiting commercial company, business management systems, presentation of term projects
16	Final Exam	Final Exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	4	2	84
Lecture - Practice	14	4	2	84
Term Project	1	10	0	10
Midterm Examination	1	10	1	11
Final Examination	1	10	1	11
Total Workload (Hours)				200
[Total Workload (Hours) / 25*] = ECTS				8

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	To be able to plan and recognize the soilless culture systems,
2	To be able to grow plants in soilless culture
3	To be able to solve the problems facing while production in soilless culture
4	to open the new inovations related to improve soilless culture, and to produce solutions.
5	To be able to follow to innovations.

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

