

NUTRITION OF CROPS GROWN IN SOILLESS CULTURE

1	Course Title:	NUTRITION OF CROPS GROWN IN SOILLESS CULTURE	
2	Course Code:	TOP6967	
3	Type of Course:	Optional	
4	Level of Course:	Third Cycle	
5	Year of Study:	1	
6	Semester:	1	
7	ECTS Credits Allocated:	6.00	
8	Theoretical (hour/week):	3.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:	No	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Prof. Dr. HALUK BAŞAR	
15	Course Lecturers:		
16	Contact information of the Course Coordinator:	E posta: bhaluk@uludag.edu.tr Telefon: 0 224 294 15 33 Adres: Uludağ Üniversitesi Ziraat Fakültesi Toprak Bilimi ve Bitki Besleme Bölümü 16059 Görükle/Nilüfer/BURSA	
17	Website:		
18	Objective of the Course:	To have information and experience how to manage and grow plants in soilless culture and hydroponics	
19	Contribution of the Course to Professional Development:	Contribution to nutrition of crops grown in hydroponics.	
20	Learning Outcomes:		
		1	To learn advantages and disadvantages of most common soilless culture methods used in all over the World.
		2	To have general information about usually used methods such as NFT (Nutrient Film Technique) and rockwool.
		3	To have information on nutrition of crops in soilless culture, preparation of nutrient solution and control of pH and EC.
		4	To prepare nutrient solutions containing certain amounts of nutrient elements
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21	Course Content:		
		Course Content:	
Week	Theoretical	Practice	
1	Comparison of soil and soilless growing, physical properties in preparation of growing media		

2	Some basic concepts related to physical characterization of growing medias, certain properties of growing medias in physical characterization, indirect and direct physical properties affecting plant growth			
3	Significance of air capacity in growing media, importance of oxygen in growing media, oxygen and propagation in plants			
4	Meaning of salt content and pH value in growing media			
5	Properties of organic substrates used as growing medias			
6	Properties of organic substrates used as growing medias			
7	Properties of organic substrates used as growing medias			
8	Properties of inorganic substrates used as growing medias			
9	Properties of inorganic substrates used as growing medias			
10	General evaluation. Midterm Exam			
11	Hydroponic methods; fluid (non aggregate) hydroponic methods such as nutrient film technique (NFT), modified NFT, aeroponics			
12	Aggregate hydroponic methods, open systems, bag culture, bed culture, rock wool, sand culture, perlite, bottom reservoir			
Activites		Number	Duration (hour)	Total Work Load (hour)
14	Theoretical; Nutrient solution injectors, nutrient elements	14	3.00	42.00
Practicals/Labs		0	0.00	0.00
Self study and preperation		14	6.00	84.00
Homeworks		0	0.00	0.00
Projects		(Basilmamış).2007.	0.00	0.00
Field Studies		2	8.00	16.00
Midterm exams		Hydroponics. J.B. Jones. 1990. CRC Press. Boca Raton, Florida 1990	0.00	0.00
Others		0	0.00	0.00
Final Exams		Worldbridge Press Publishing Co., California 1989. Media and Mixes for Container-Grown Plants. A.C. Bunt	0.00	0.00
Total Work Load				177.00
Total work load/ 30 hr		A Practical Guide to NFT. C.J. Molyneux. 1990. Blackpool, UK. 1987.		5.90
ECTS Credit of the Course				6.00
		Blackpool, UK. 1987.		
23	Assesment			
TERM LEARNING ACTIVITIES		NUMBE R	WEIGHT	
Midterm Exam		0	0.00	
Quiz		0	0.00	
Home work-project		0	0.00	
Final Exam		1	100.00	
Total		1	100.00	
Contribution of Term (Year) Learning Activities to Success Grade		0.00		
Contribution of Final Exam to Success Grade		100.00		

Total								100.00								
Measurement and Evaluation Techniques Used in the Course								Measurementand evaluation techniques used in the course is final exam.								
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	5	5	5	5	1	1	5	5	5	5	5	5	3	0	0	0
ÖK2	5	5	5	5	1	1	5	5	5	5	5	5	3	0	0	0
ÖK3	5	5	5	5	1	1	5	5	5	5	5	5	3	0	0	0
ÖK4	5	5	5	5	1	1	5	5	5	5	5	5	3	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	1 very low			2 low			3 Medium			4 High			5 Very High			