ADVANCED PLANT PHYSIOLOGY

1	Course Title:	ADVANCED PLANT PHYSIOLOGY	
2	Course Code:	TOP6952	
3	Type of Course:	Optional	
4	Level of Course:	Third Cycle	
5	Year of Study:	1	
6	Semester:	2	
7	ECTS Credits Allocated:	5.00	
8	Theoretical (hour/week):	3.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:	None	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Prof. Dr. A.VAHAP KATKAT	
15	Course Lecturers:	Doç.Dr. Hakan ÇELİK	
16	Contact information of the Course Coordinator:	vahap@uludag.edu.tr, 0 224 2941530, Uludağ Üniversitesi Ziraat Fakültesi Toprak Bilimi ve Bitki Besleme Bölümü	
17	Website:		
18	Objective of the Course:	To explain the mechanisms of organic matters synthesized in plants and physicochemical, biochemical and physiological mechanisms which are nedded for plant growth.	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	Can explain the events during the lifes of plants and changes in the active substances that effects these events.
		2	Can explain the problems of germination, growth and development in a plant. a result of changes in substances.
		3	Can recognise the cell organells and their structure.
		4	Can explain the interest of problems encountered between plant breeding and plant physiology.
		5	Can evaluate the effectiveness of various agricultural practices by physiological ways.
		6	Can explain the uptake and trasportation of the water in plants.
		7	Can explain the ways of losing water in plants.
		8	Can explain the uptake methods of plant nutrients.
		9	Can explain the mechanisms of transportation of plant nutritients in the plant.
		10	Can explain the kinds of photosynthesis metabolisms.
21	Course Content:		
	Course Content:		
Week	Theoretical		Practice

1	General information about plant cells and the cell structures, structures of cell organels and their functions in cell.	
2	Natural properties of enzymes, classification, structure, distribution in cell, catalatic effects, factors that affect to their activities.	
3	Structure and quantities of water, events that took place in the transport of water.Water potential, factors of forming the water potential of the cell, water potential difference and water input and output in cell, relation between turgor pressure and volume changes in cell.	
4	Transpiration mechanisms transpiration unit, speed and rate, stomatal structure, their size and distributions in plant, opening and closing mechanisms and factors that influence it, Detection methods of transpiration, transpiration reduction methods, loss of water in liquid form (Gutasyon-exudation).	
5	Soil and plant relations, ion absorbsion and changes in soil, soil pH , rooth growth and nutrient availability, nutient absorbsion sites of rooth and transportation of the nutrients to the rooth domain. Taking nutrients by plant roots, basic principles of nutrient absorption.	
6	Assimilation of nutrients in plants,Definition of Photosynthesis, importance and history, Pigments which are working in the formation	
7	photosynthesis,light reactions, the dark reactions Cyclic and acyclic phosphorilation, CAM plants, The synthesis of starch and	
9	Transportation photosynthesis products, phloem transport mechanisms, The plants.	
10	Aerobic and anaerobic respiration in plants, photosynthesis, effective respiration.	
11	Plant hormones and their functions,	
12	Distributions of plant hormones in plants, which are effective of plant growth and development	
13	Effects of stress conditions on plant growth. Stress varieties in plants.	
14	Interactions between product efficiency and physiologic and other metabolic events.	

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperations	14	2.00	28.00
Homeworks	7	8.00	56.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	0	0.00	0.00
Others	0	0.00	0.00
Final Exams	1	24.00	24.00
Total Work Load			150.00
Total work load/ 30 hr			5.00
ECTS Credit of the Course			5.00

22	Textbooks, References and/or Other Materials:	Kacar, B., Katkat, A.V. ve Öztürk, Ş. 2010. BitkiFizyolojisi. Nobel Yayın No: 848, 4. Baskı, s.556, Ankara. Salisbury, F.B. and C.W. Ross (1992). Plant Physiology. 4th ed. pp. 1-682. Wadsworth Publishing Company, Belmont, California, U.S.A. Taiz, L. and E. Zeiger (1998). Plant Physiology. 2nd ed. pp. 1-792. Sinauer Associates, Inc., Publishers, Sunderland, Massachusetts, U.S.A Eastin, J.D. 1969. Physiological Aspects of Crop Yield. American Society of Agronomy Crop Science Society of America. Madison, Wisconsin. USA.
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	0	0.00
Quiz	0	0.00
Home work-project	7	30.00
Final Exam	1	70.00
Total	8	100.00
Contribution of Term (Year) Learning Activities to Success Grade		30.00
Contribution of Final Exam to Success Grade		70.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		

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	0	2	0	0	0	0	2	2	5	0	0	2	0	0	0
ÖK2	5	0	2	2	0	0	2	2	2	5	0	0	2	0	0	0
ÖK3	5	0	2	2	0	0	2	2	2	5	0	0	2	0	0	0
ÖK4	5	0	2	2	0	0	2	2	2	5	0	0	2	0	0	0
ÖK5	5	0	2	3	0	0	2	2	2	5	0	0	2	0	0	0
ÖK6	5	0	3	3	0	0	2	2	2	5	0	0	0	0	0	0
ÖK7	5	0	0	0	0	0	0	2	2	5	0	0	2	0	0	0
ÖK8	5	0	0	0	0	0	0	2	2	5	0	0	2	0	0	0
ÖK9	5	0	0	0	0	0	0	3	2	5	0	0	2	0	0	0
ÖK10	5	0	0	0	0	0	0	2	2	5	0	0	2	0	0	0

LO: Learning Objectives PQ: Program Qualifications

Contribution Level:	1 very low	2 low	3 Medium	4 High	5 Very High