

Biotechnical Faculty / PLANT PRODUCTION / PLANT PHYSIOLOGY

Course:	PLANT PHYSIOLOGY			
Course ID	Course status	Semester	ECTS credits	Lessons (Lessons+Exercises+Laboratory)
2857	Mandatory	2	5	3+0+2
Programs	PLANT PRODUCTION			
Prerequisites	No prerequisites required			
Aims	Students will through theoretical and practical work learn the basics of plant physiology			
Learning outcomes	After getting the passing grade, the student will be able to: 1. Identify basic physiological processes in plants 2. Explain metabolism compartments in the cell, the significance of water regime of plants, process of photosynthesis and respiration. 3. Describe the symptoms of shortage of most important mineral elements 4. Describe the principles of growth and development of plants, the role of phytohormones, physiology of seeds and fruits 5. Explain the plant resistance to the effects of biotic factors. 6. Recognize the connection between the results of experimental work and theoretical knowledge 7. Students are able to critically reflect on the themes of the program, teamwork and evaluation of teaching.			
Lecturer / Teaching assistant	Gordana Sebek, PhD; Biljana Lazovic, PhD -teachers Dragana Petrovic, PhD -assistant			
Methodology	Theoretical and practical			
Plan and program of work				
Preparing week	Preparation and registration of the semester			
I week lectures	Introduction. Concept, significance and the task of plant physiology. Cell organelles. Tissue culture.			
I week exercises	Introducing students to work in the lab. Laboratory glassware and instruments.			
II week lectures	Water regime of plants. Receiving and disclosure of water.			
II week exercises	The cell as an osmotic self-regulatory system. Osmometer. Artificial differential membrane.			
III week lectures	Mineral nutrition, content of elements, division, mechanism of ion adoption. Significance of macroelements.			
III week exercises	The permeability of the cytoplasmic membrane. Permeability of live and dead cells. Permeability cells for weak and strong acids and bases.			
IV week lectures	Significance of major elements in the life processes of plants. Symptoms of macroelements' shortage and excess.			
IV week exercises	Observing the flow plasmolysis and deplasmolize. Measurement of osmotic potential of the cell sap with the method of plasmolysis.			
V week lectures	First test			
V week exercises	Measurement of water potential of plant tissue with the method of view.			
VI week lectures	Respiration. Glycolysis, Krebs cycle, substrate for respiration. Make-up first test			
VI week exercises	Determination of the leaf surface. Exam task 1			
VII week lectures	Photosynthesis. Chloroplasts.			
VII week exercises	Determining the concentration of chlorophyll in plant material with spectrophotometric method.			
VIII week lectures	Photosynthetic pigments. The importance of sunlight for photosynthesis.			
VIII week exercises	Saharaza (Invertase)			
IX week lectures	Dark phase of photosynthesis. Reductive photosynthetic cycle. Photorespiration.			
IX week exercises	Determining the intensity of breathing.			
X week lectures	Secondary products of photosynthesis. Indicators of photosynthesis			
X week exercises	Determination of the water and the dry matter of plants. Determination of mineral matter			
XI week lectures	Second test.			
XI week exercises	Detection of K, P, Mg, Ca and Fe in the ash.			
XII week lectures	Growth and development of plants. Factors of importance to growth Make-up second test			
XII week exercises	The movements in plants.			

XIII week lectures	Physiologically active substances. Auxins, gibberellins.					
XIII week exercises	Exam task 2					
XIV week lectures	Pollination and fertilization. Physiology of seeds. Chemical composition of seeds. Sleep process and germination of seeds.					
XIV week exercises	Examination of pollen and seed germination					
XV week lectures	Plant resistance to environmental conditions. Movements of plants					
XV week exercises	Practical part of the exam					
Student workload						
Per week			Per semester			
5 credits x 40/30=6 hours and 40 minuts 3 sat(a) theoretical classes 2 sat(a) practical classes 0 excercises 1 hour(s) i 40 minuts of independent work, including consultations			Classes and final exam: 6 hour(s) i 40 minuts x 16 =106 hour(s) i 40 minuts Necessary preparation before the beginning of the semester (administration, registration, certification): 6 hour(s) i 40 minuts x 2 =13 hour(s) i 20 minuts Total workload for the subject: 5 x 30=150 hour(s) Additional work for exam preparation in the preparing exam period, including taking the remedial exam from 0 to 30 hours (remaining time from the first two items to the total load for the item) 30 hour(s) i 0 minuts Workload structure: 106 hour(s) i 40 minuts (courses), 13 hour(s) i 20 minuts (preparation), 30 hour(s) i 0 minuts (additional work)			
Student obligations			Lessons attendance is mandatory for students, as well as doing all laboratory exercises, exam tasks, both tests, practical part of the exam and the final exam.			
Consultations			In agreement with the students			
Literature			Literature: Kastori, R.: 'Fiziologija biljaka', Novi Sad, 2005; Kastori R., Maksimović I.: 'Ishrana biljaka', Novi Sad, 2008; Nešković M., Konjević R., Čulafić Lj.: 'Fiziologija biljaka', Beograd 2003; Sarić M.: 'Fiziologija biljaka', Beograd, Nauka, 1991.; Taiz L., Zeiger E.: 'Plant physiology' 5th ed. 2010.			
Examination methods			The forms of testing and grading: - student engagement on lectures 4 points - the practical part of the exam 8 points - exam tasks 1 and 2 8 points - first test 15 points - second test 15 points - final exam 35 + 15 points			
Special remarks						
Comment						
Grade:	F	E	D	C	B	A
Number of points	less than 50 points	greater than or equal to 50 points and less than 60 points	greater than or equal to 60 points and less than 70 points	greater than or equal to 70 points and less than 80 points	greater than or equal to 80 points and less than 90 points	greater than or equal to 90 points