

Course Unit Descriptor

Study Programme: Agroecology and Environmental Protection;Phytomedicine;Horticulture;Landscape Architecture; Crop Science; Fruit Science and Viticulture		
Course Unit Title: Plant Physiology		
Course Unit Code: 3OAG3O12,		
Name of Lecturer(s): Full Professor Ivana V. Maksimović, , (practice) Teaching assistant Milena Rajić, Assistant professor Marina I. Putnik- Delić		
Type and Level of Studies: Bachelor Studies		
Course Status (compulsory/elective): Compulsory		
Semester (winter/summer): Winter		
Language of instruction: English		
Mode of course unit delivery (face-to-face/distance learning): face to face		
Number of ECTS Allocated: 6		
Prerequisites: None		
Course Aims: The aim of the course is to provide students with knowledge about the functioning of the organism of higher plants, as well as on the impact of environmental factors on physiological processes. Also, students will learn how and to what extent certain physiological processes can be controlled, which is important for agricultural production.		
Learning Outcomes: The outcome is knowledge about physiological processes in higher plants and abiotic and biotic factors affecting them, with the aim to apply this knowledge in practice.		
Syllabus: <i>Theory</i> Physiology of plant cells: types, structure, compartmentality. Biomembranes. Organelles. Chemical and physical properties of plant cells. Tissue culture. Water regime: features, uptake, transport and transpiration. Factors affecting water regime. Plant water requirements, the impact of the lack of water. Mineral nutrition: content, classification and physiological role of essential and beneficial elements in plants. Mechanism of the uptake and transport of mineral nutrients and organic compounds. Mineral nutrition and yield. Photosynthesis: importance, photosynthetic pigments, absorption and transformation of light. Photophosphorilation. C3, C4 and CAM photosynthetic paths. Photorespiration. Transport of assimilates. Photosynthesis and yield. Respiration: glycolysis, Krebs cycle, oxidative phosphorylation, energy balance. Alternative pathways and ecology of respiration. Growth and differentiation: phytohormones, cell growth and development. Biological rhythms, differentiation, correlations, abscission, senescence and death. Seed physiology: pollen, pollination, fertilization. Regulation of seed and fruit development. Seed germination and factors affecting it. <i>Practice</i> Contents of practical work accompanies lectures (Physiology of the cell, water regime, mineral nutrition, photosynthesis, respiration and enzymes, growth and development).		
Required Reading: Taiz L, Zeiger E, Møller IM, Murphy A (2014) Plant Physiology and Development, Sixth Edition, Sinauer Associates.		
Weekly Contact Hours: 7	Lectures: 60	Practical work: 45
Teaching Methods: Lectures and students group work		

Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	Final exam	points
Active class participation	5	written exam	2x15
Practical work		oral exam	40
Preliminary exam(s)	25	