Title	Genetic engineering of physiological processes in plants		
Code	3MN24NAK18M		
Prerequisites	Plant physiology and plant molecular biology (MSc)		
Description	The course aims at reviewing biotechnological strategies and methods applied in nowadays horticulture and also gives overview on how biotechnology may intervene into physiological processes of plants. The studies will improve straightforward thinking in finding solutions for practical problems of divergent plant production systems. Modern technics of research and applications in horticultural biotechnology will be presented with theoretical and practical examples. These include metabolic engineering by changing fluxes of divergent metabolites, also by using plants as bioreactors. Biotechnological interventions into hormonal and stress responses by gene technology and conventional means will be covered. Modification of the plant's generative phase by traditional and recombinant techniques of biotechnology will also be presented. Specific emphasis will be put on improving water relations and mineral nutrition. Practical classes play major role in acquiring knowledge and experience necessary for understanding and doing biotechnological experiments. Classical, and modern molecular methods will be both presented as being able to characterize and change physiological processes in plants.		
Lecturers	Dr. István Papp, Kissné Dr. Erzsébet Bába, Dr. Anita Szegő; Dr. Iman Mirmazloum, invited teachers from Departments of the Faculty of Horticultural Science		
Semester	2nd, spring	***Contact hours/week***	1+4 (block)
Level	MSc	**ECTS**	
Teaching and Learning Methods:	lectures and practical classes		
Reading:	Ed. Stewart, Plant biotechnology and genetics Wiley 2008 Eds Altman and Hasegawa, Plant Biotechnology and Agriculture Academic Press 2017		
Assessment:	exam		