

Biotechnical Faculty / MEDITERRANEAN FRUIT GROWING / IRRIGATION AND FERTILIZATION

Course:	IRRIGATION AND FERTILIZATION			
Course ID	Course status	Semester	ECTS credits	Lessons (Lessons+Exercises+Laboratory)
10771	Optional	3	5	2+0+1
Programs	MEDITERRANEAN FRUIT GROWING			
Prerequisites	None			
Aims	Introduce students to the significance of irrigation and fertilization, the impact of irrigation and fertilization on the yield quantity and quality of fruit crops, and the methods of irrigation and fertilization.			
Learning outcomes	After passing this exam, the student will be able to: Calculate evapotranspiration; Differentiate water sources and quality for irrigation; Interpret the principles of irrigation regimes for fruit crops; Describe the significance of macro and micro-nutrients; Select appropriate fertilizers and irrigation methods; Assess the impact of irrigation and fertilization on the environment.			
Lecturer / Teaching assistant	Doc. dr Mirko Knežević , mr Miloš Šturanović			
Methodology	Lectures, exercises, preparation of elaborate, consultations, independent work, colloquia and final exam			
Plan and program of work				
Preparing week	Preparation and registration of the semester			
I week lectures	Soil and its fertility; Liquid phase of the soil; Gaseous phase of the soil; Adsorptive capacity and soil reaction			
I week exercises	Methods of fertility control			
II week lectures	Energy state of water in the soil; Determination of soil water content; Determination of water potential in the soil; Water movement in unsaturated soil			
II week exercises	Determination of pF curve			
III week lectures	Evapotranspiration			
III week exercises	Calculation of evapotranspiration using the Penman-Monteith method			
IV week lectures	Sources and quality of water for irrigation			
IV week exercises	Determination of water quality for irrigation			
V week lectures	Principles of irrigation regimes for fruit crops			
V week exercises	Calculation of required irrigation water quantities			
VI week lectures	Macro and micro-nutrients			
VI week exercises	Methods for determining macro-nutrient elements			
VII week lectures	Colloquium I			
VII week exercises	Methods for determining micro-nutrient elements			
VIII week lectures	Irrigation systems and methods; Components of irrigation systems			
VIII week exercises	Selection of an appropriate irrigation system			
IX week lectures	Organic fertilizers; Mode of action and possibilities of application through irrigation			
IX week exercises	Calculation of the amount of applied organic fertilizer in the system			
X week lectures	Mineral fertilizers; Mode of action and possibilities of application through irrigation			
X week exercises	Calculation of the amount of applied mineral fertilizer in the system			
XI week lectures	Water-soluble and liquid fertilizers			
XI week exercises	Calculation of the amount of applied fertilizer in the system			
XII week lectures	Field practice			
XII week exercises	Field practice			
XIII week lectures	Drip irrigation and fertigation; Colloquium II			
XIII week exercises	Calculation of appropriate fertilizer doses and irrigation water quantities for drip irrigation			

XIV week lectures	Drip irrigation and fertigation system					
XIV week exercises	Calculation of appropriate fertilizer doses and irrigation water quantities for the drip irrigation system					
XV week lectures	Impact of irrigation and fertilization on the environment; Possibilities of sustainable development and application in organic production of fruit crops					
XV week exercises	Calculation of leaching due to inadequate irrigation.					
Student workload						
Per week	Per semester					
5 credits x 40/30=6 hours and 40 minuts 2 sat(a) theoretical classes 1 sat(a) practical classes 0 excercises 3 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 (cources), 13 hour(s) i 20 minuts (preparation), 30 hour(s) i 0 minuts (additional work)					
Student obligations	Students are required to attend classes and exercises, do homework and colloquiums.					
Consultations	In agreement with the students.					
Literature	Rudić, D.: Melioracije, Poljoprivredni fakultet, Beograd-Zemun, Nemanjina 6 (1999) Rudić, D., Đurović N.: Odvodnjavanje, Univerzitet u Beogradu, Poljoprivredni fakultet, Beograd-Zemun, Nemanjina 6 (2006) Sričević, R.: Navodnjavanje, Univerzitet u Beogradu					
Examination methods	Attendance and class participation: 5 points; Midterm exam: 2x15 points (30 points total); Homework assignments: 15 points; Final exam: 50 points; A passing grade is achieved by accumulating a minimum of 50 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