

Study Programme:
Course Unit Title: SUSTAINABILITY IN IRRIGATED AGRICULTURE
Course Unit Code: 19ДАГ002И057
Name of Lecturer(s): Full professor Borivoj Pejić, Ph.D.
Type and Level of Studies: doctoral studies program
Course Status (compulsory/elective): elective
Semester (winter/summer): summer
Language of instruction: english
Mode of course unit delivery (face-to-face/distance learning): face-to-face
Number of ECTS Allocated: 10
Prerequisites: none
<p>Course Aims:</p> <p>Students specialization on theoretical, scientific and practical aspects of agriculture production in irrigation conditions on the principles of sustainability, as concerns application of irrigation without harmful consequences</p>
<p>Learning Outcomes:</p> <p>To obtain knowledge, skills and competitions necessarily to perform irrigation without harmful effects as well as to obtain high yields of growing plants which could legitimate the money invested in irrigation equipment</p>
<p>Syllabus:</p> <p><i>Theory</i></p> <p>Definition and importance of irrigation. History of irrigation in the World and Serbia. Problems of irrigation. Factors that condition irrigations. Crop water requirements and evapotranspiration. Water balance and irrigation water requirements. Quality of the irrigation water. Soil and water: general physical properties of the soil, soil water categories, soil water constant and their use in irrigation practice, capillary potential of the soil - pF curve, air in the soil, soil permeability, infiltration. Plant and water: critical water period of agricultural crops (yield response factor K_y). Plant-water-soil: water availability, optimal level of soil moisture, irrigation rate, soil, air and physiological drought. Agronomic evaluation of different irrigation methods. Irrigation scheduling. Special agricultural use of irrigation (frost protection, “cooling“ watering). Fertiligation. Exploitation elements of irrigated fields. Protection and conservation of water resources used for irrigation following sustainable principles (deficit irrigation practices – regulated deficit irrigation and partial root zone drying as irrigation management techniques). Increase the productivity of water used in irrigation practice: irrigation water use efficiency (IWUE) and evapotranspiration water use efficiency (ETWUE). Irrigation of Field and Vegetable Crops, Fruit Trees and Vineyards, Lawns and Flowers, Meadows and Pastures, Irrigation of Double Crops, Irrigation Under Glass and Plastics.</p> <p><i>Practice</i></p> <p>Soil sampling. Methods for soil moisture determination. Determination of water constants and physical properties of soil. Calculation of water quantity in the soil and irrigation water requirements. pF curve determination and its practical use. Calculation of water balance and irrigation water requirements. Water balance as a basis for determination of irrigation schedule for different growing plants. Processing obtained results from the field experiments (statistical analysis). Collecting and studying of the literature important for writing of scientific paper. Writing of scientific paper.</p>
Required Reading:

1. Stewart, B.A. and Nielsen, D.R.. Irrigation of Agriculture Crops. Agronomy Monograph No 30. American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, USA, 1990.

2. Vučić, N.: Irrigation of agricultural crops. Faculty of agriculture, Novi Sad, 1976.

Weekly Contact Hours:

Lectures:60

Practical work: -

Teaching Methods:

Theoretical classes and practical work, work on the experimental field, students consultation with professor about all aspects of doctoral theses.

Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	points	Final exam	points
Active class participation	10	written exam	
Practical work		oral exam	50
Preliminary exam(s)		
Seminar(s)	40		

The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.