Course Unit Descriptor

Study Programme: Crop science; Organic agriculture; Water management

Course Unit Title: Irrigation of Agricultural Crops

Course Unit Code: 19.URV033

Name of Lecturer(s): Borivoj Pejić, full professor, Ksenija Mačkić, associate professor

Type and Level of Studies: undergraduate academic 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: 5

Prerequisites: none

Course Aims:

Education and training of students for working in crop production under irrigation, the most intensive form of agriculture.

Learning Outcomes:

Forming of academic experts for successful work in crop production under irrigation.

Syllabus:

Theory

Introduction, history of irrigation. Problems that follow irrigation. Principles of rational irrigation. Factors that condition irrigation. Crop water requirements. Water balance and irrigation water requirements. Assessing the quality of water for irrigation. Soil and water. Water availability for plants, irrigation rate, and drought. Agronomic evaluation of irrigation methods. Irrigation scheduling.

Irrigation of specific agricultural crops: wheat, corn, sugar beet, soybean, sunflower, alfalfa, tobacco, hop, potato, orchard, vineyard, meadows, and pastures. Irrigation of vegetable crops: cabbage, tomato, pepper, cucumber, watermelon, cantaloupe, lettuce, spinach, celery, parsley, carrot, beet, onion and garlic, leek, beans, peas, green beans. Irrigation of lawns, flowers, and ornamental plants. Irrigation and two harvests per year. Irrigations in greenhouses. Irrigation in frost protection and cooling watering. Exploitation elements of irrigated fields.

Practice

Soil sampling. Methods for soil moisture assessment. Determination of soil water constants. Determination of water and physical properties of the soil. Calculation of the amount of water in soil and irrigation rate. Construction of soil moisture characteristics curve - pF. Calculation of soil water balance and irrigation requirements. Determination of the irrigation schedule based on an everyday calculation of water consumption through plant evapotranspiration.

Required Reading:

1. Stewart, B.A. and Nielsen, D.R. (Eds.) (1990). Irrigation of Agricultural Crops. American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Madison, Wisconsin, USA.

2. Lascano, R.J and Sojka, R.E. (Eds.) (2007). Irrigation of Agricultural Crops, Second edition. American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Madison, Wisconsin, USA

Weekly Contact Hours:	**Lectures:** 3	**Practical work:** 2

Teaching Methods:

Lectures, practical classes, consultations, research work			
Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	**Final exam**	points
Test	10	oral exam	60
Practical exam	30		