Course Unit Descriptor

Study Programme: Organic agriculture

Course Unit Title: Plant Breeding and Seed Production

Course Unit Code:19.ORG007

Name of Lecturer(s): Velimir N. Mladenov

Type and Level of Studies: undergraduate studies

Course Status (compulsory/elective): compulsory

Semester (winter/summer): winter

Language of instruction: serbian

Mode of course unit delivery (face-to-face/distance learning): face to face

Number of ECTS Allocated: 6

Prerequisites: Genetics

Course Aims:

To familiarize the student with theoretical and practical knowledge in the field of plant breeding and seed production, which can be used in creating new varieties in organic production.

Learning Outcomes:

The goal of the study program is to educate and train students for professional and initial scientific work in the field of organic seed production and breeding in organic plant production. The student should acquire more detailed knowledge and understanding, first of all, scientific, but also professional basis for further work in the field of plant breeding and seed production in organic plant production.

Syllabus:

Theory

Definition and importance of the subject. Plant Breeding in organic production. Genetic base of organic breeding of self-pollinating and cross-pollinating plants. Ways of plant breeding. The concept of creating new varieties. Parent selection for hybridization. Crossbreeding methods and their importance for success in hybridization. Inbreeding and exploitation of heterosis. Selection methods. Application of biotechnology in plant breeding. Selection for individual traits and genetic gain from selection. Genetic composition and adaptability of varieties. Introduction and definition of organic seed production. Task and organization of seed production in organic production. Economic and economic importance of seed production in organic production. Legal regulations in the field of organic seed production. Biological and morphological characteristics of seeds. Agro-technical measures in organic seed production. Seed processing and storage. Examination of seed quality. Seed production in organic agriculture.

Practice

The technique of conducting experiments. Heritability and genetic gain from selection. Examining combinatorial abilities. Methods of evaluating the properties of arable and vegetable plants. Adaptability of varieties. Recognition of newly created varieties. Hybridization technique and creation of inbred lines. Field practice: familiarization and practical work in the greenhouse and in the field. Anatomy and morphology of seeds. Calculation of needs for certain categories of seeds. Examination of seed goods, Examination of germination and hectoliter weight. Biochemical examination of seeds. Quarantine weeds and seed diseases. Field practice.

Required Reading:

1. Borojević S.: Principi i metodi oplemenjivanja biljaka. Naučna knjiga, Beograd, 1992.

2. Милошевић, Мирјана, Кобиљски, Б.: Семенарство. Институт за ратарство и повртарство, Нови Сад, 2011.

Weekly Contact Hours: 75	**Lectures:** 45	**Practical work:** 30

Teaching Methods:

The theoretical part of the teaching is conducted in the faculty lecture halls. Teaching is conducted through teacher lectures and student group work within the given topics.

Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	points	**Final exam**	points
Active class participation	10	written exam	30
Practical work	10	oral exam	20
Preliminary exam(s)	30	…….	
Seminar(s)			

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