Course Unit Descriptor

Study Programme: Agronomy

Course Unit Title: Genetic resources of forest trees and their directed use

Course Unit Code: 19.AGR019

Name of Lecturer(s): Prof. Saša Orlović

Type and Level of Studies: DAS

Course Status (compulsory/elective): elective

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: 7

Prerequisites: -

Course Aims:

To point out to students the necessity of conservation and directed use of forest genetic resources, as well as to teach them procedures and methods of reconstruction and improvement of existing and creation of their new taxa. The generally accepted rule that at the basis of evolutionary processes, as a source of adaptation in all species is genetic diversity, points to the necessity of acquiring knowledge and training students to recognize desirable characters for which breeding is carried out. In addition to the characters that were more recognized in the past (growth speed, trunk straightness, sensitivity to diseases and pests), in recent times more attention is paid to sensitivity to drought, high and low temperatures, and oxidative stress. In addition, it is necessary to know the processes by which the relationship between plants and habitat conditions is seen, that is, knowledge of the ecophysiology of forest species in order to encourage better adaptation to changed habitat conditions.

Learning Outcomes:

Acquiring the necessary knowledge of forest genetic resources, ecophysiology and adaptation with the aim of directed use in changed conditions.

Syllabus:

Theoretical teaching

1. Forest genetic resources in the international and domestic context 2. Threats to forest genetic resources 3. Population genetics, evolution and forest genetic resources 4. Genetic research and application in the conservation of forest genetic resources 5. Strategies for the conservation of forest genetic resources 6. Conservation of genetic resources (in situ) 7. Ex situ conservation and use of genetic resources 8. Forest genetic resources and breeding of forest trees 9. Adaptation 10. Individual adaptability 11. Population adaptability 12. How to protect and evaluate the potential for adaptation 13. Ecophysiology

Required Reading:

Mataruga, M., Isajev, V., Orlović, S. (2013). Šumski genetički resursi – Univerzitet u Banjoj Luci, Šumarski fakultet p.397

Borojević, Slavko (1992): Principi i metode oplemenjivanja biljaka – Naučna knjiga, Beograd. p. 1-378.

Eriksson, Gosta, Ekberg, Inger (2001): An Introduction fo Forest Genetics – Swedish University of Agricultural

Sciences, Genetic Centre, Departmant of Forest Genetics, Upsala, Sweden. p. 99-124

Weekly Contact Hours:8	**Lectures:4**	**Practical work:4**

Teaching Methods:

Lectures combined with interactive teaching, seminars, consultations and mentoring work with students.

Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	points	**Final exam**	points
Active class participation		written exam	
Practical work		oral exam	60
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.