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| <b>Study Programme:</b> Soil, plant and genetics, <b>Module:</b> Soil and Plant Nutrition  |                    |                          |        |
| <b>Course Unit Title:</b> Methods of Soil Analysis   |                    |                          |        |
| <b>Course Unit Code:</b> 19.ZB1009   |                    |                          |        |
| <b>Name of Lecturer(s):</b> professor Maja Manojlović, professor Simonida S. Đurić, associate professor Vladimir Ćirić   |                    |                          |        |
| <b>Type and Level of Studies:</b> Master   |                    |                          |        |
| <b>Course Status (compulsory/elective):</b> Elective   |                    |                          |        |
| <b>Semester (winter/summer):</b> winter  |                    |                          |        |
| <b>Language of instruction:</b> English  |                    |                          |        |
| <b>Mode of course unit delivery (face-to-face/distance learning):</b> Face-to-face   |                    |                          |        |
| <b>Number of ECTS Allocated:</b> 5   |                    |                          |        |
| <b>Prerequisites:</b>  |                    |                          |        |
| <b>Course Aims:</b> is acquiring knowledge of the student about the methods used for soil analysis   |                    |                          |        |
| <b>Learning Outcomes:</b> Education and training of students for professional and scientific work in the field soil science - pedology, agrochemistry and microbiology.  |                    |                          |        |
| <b>Syllabus:</b>   |                    |                          |        |
| Theory: Soil Survey: Description of morphological properties of the soil. Collection of soil samples. Methods of investigation of physical-mechanical properties of the soil: soil texture, adhesion, soil resistance, soil plasticity. Chemical methods of soil testing. Microbiological methods: The number of bacteria, mushrooms, protozoa and algae in soils of various chemical and physical properties. Number of physiological groups of microorganisms as indicators of the content of carbon, nitrogen, phosphorus and sulfur in the soil. Soil sampling for microbiological testing.  |                    |                          |        |
| Practice: Bonding: mechanical composition of soil adhesion, adhesion, soil resistance to cutting, soil resistance to shearing, soil plasticity, soil erosion. Chemical methods: Formation of humus composition. Determination of removable-adsorbed cations, anions, sums of adsorbed base cations, capacity of adsorbed base cations. Electrode conductivity, SAR-ratio sodium, calcium and magnesium ESP-percentage interchangeable-adsorbed sodium. Determination of organic carbon. Methods for fractionation of phosphorus. EUF method. Determination of trace elements. Microbiological methods: Sampling and seeding of microorganisms. Counting colonies of certain groups of microorganisms. Calculating the number of microorganisms in grams of soil. |                    |                          |        |
| <b>Required Reading:</b>   |                    |                          |        |
| 1. World Reference Base for Soil Resources – A framework for international classification, correlation and communication. Food and Agriculture Organization of the United Nations, Rome, 2006. World soil resources reports 103.   |                    |                          |        |
| 2. Guidelines for Soil Description. Fourth edition. Food and Agriculture Organization of the United Nations, Rome, 2006.   |                    |                          |        |
| <b>Weekly Contact Hours:</b>   | <b>Lectures: 2</b> | <b>Practical work: 2</b> |        |
| <b>Teaching Methods:</b>   |                    |                          |        |
| <b>Knowledge Assessment (maximum of 100 points):</b>   |                    |                          |        |
| <b>Pre-exam obligations</b>  | points             | <b>Final exam</b>        | points |
| Active class participation   | 5                  | written exam             | 30     |
| Practical work   | 5                  | oral exam                | 30     |
| Preliminary exam(s)  | /                  | .....                    |        |
| Seminar(s)   | 30                 |                          |        |

