Biotechnical Faculty / PLANT PRODUCTION / MICROBIOLOGY

Course:	MICROBIOLOGY			
Course ID	**Course status**	**Semester**	**ECTS credits**	**Lessons** (Lessons+Exercises+Laboratory)
2858	Mandatory	2	5	3+0+1
Programs	PLANT PRODUCTION			
Prerequisites	There is NOT conditionality with other subjects.			
Aims	Introduction to morphology, physiology, ecology and systematics of microorganisms. As well as the role of microorganisms in nature, with special reference to soil microorganisms and phytopathogenic microorganisms that are of special interest to plants and crop production.			
Learning outcomes	After the student passes this exam, he will acquire basic knowledge about: 1. microbiology as a scientific discipline; 2. disciplines of microbiology; 3. different types of microorganisms; 4. morphological, physiological and ecological characteristics of microorganisms; 5. the role and distribution of microorganisms in nature; 6. the method of plant infection and transmission of microorganisms; 7. microbiological laboratories (purpose of laboratory, equipment, apparatus, techniques); 8. Microscopy techniques.			
Lecturer / Teaching assistant	assist. prof. Igor Pajović, PhD			
Methodology	Lectures, exercises, homework, tests, independent work, consultations, colloquiums and final exam.			
Plan and program of work				
Preparing week	Preparation and registration of the semester			
I week lectures	Introduction: subjects, disciplines, importance, historical development of Microbiology			
I week exercises	Overall Microbiology laboratory layout			
II week lectures	Morphology of microorganisms			
II week exercises	Professional positions in a microbiological laboratory			
III week lectures	Ecology of microorganisms			
III week exercises	General and specific instructions for work in microbiological laboratories			
IV week lectures	Colloquium I; Test 1; Physiology of microorganisms (metabolism, ferments, nutrition and respiration)			
IV week exercises	Laboratory equipment and dishes			
V week lectures	Remedial colloquium I; remedial 1st test; Physiology of microorganisms (growth, reproduction, movement and creation of conservation forms)			
V week exercises	Laboratory apparatus			
VI week lectures	Energy groups of microorganisms (special microorganisms)			
VI week exercises	Sterilization and preparation of instruments and materials for sterilization			
VII week lectures	The role and distribution of microorganisms in nature			
VII week exercises	Preparation of microbiological nutrient media			
VIII week lectures	Pathogenicity of microorganisms			
VIII week exercises	Microorganisms cultivation and growth			
IX week lectures	Soil microbiology			
IX week exercises	Isolation of microorganisms cultures			
X week lectures	Colloquium II; Test 2; Variability - Genetics of microorganisms			
X week exercises	Methods of preserving microorganisms cultures			
XI week lectures	Remedial colloquium II; remedial 2nd test; Basic systematics of Archaea			
XI week exercises	Microbiological microscopic preparations			
XII week lectures	Basic systematics of Bacteria			
XII week exercises	Fixed preparations; simple and complex staining			
XIII week lectures	Basic systematics of Fungi			
XIII week exercises	Microscopes			

XIV week lectures	Basic systematics of Algae
XIV week exercises	Microscopy techniques
XV week lectures	Basic systematics of Protozoa and non-cellular microorganisms
XV week exercises	Microscopy techniques
Student workload	

Per week	**Per semester**
5 credits x 40/30=6 hours and 40 minuts 3 sat(a) theoretical classes 1 sat(a) practical classes 0 excercises **2 hour(s) i 40 minuts** of independent work, including consultations	Classes and final exam: **6 hour(s) i 40 minuts x 16 =106 hour(s) i 40 minuts** Necessary preparation before the beginning of the semester (administration, registration, certification): **6 hour(s) i 40 minuts x 2 =13 hour(s) i 20 minuts** Total workload for the subject: **5 x 30=150 hour(s)** Additional work for exam preparation in the preparing exam period, including taking the remedial exam from 0 to 30 hours (remaining time from the first two items to the total load for the item) **30 hour(s) i 0 minuts** Workload structure: **106 hour(s) i 40 minuts (cources), 13 hour(s) i 20 minuts (preparation), 30 hour(s) i 0 minuts (additional work)**
Student obligations	Attending lectures and exercises, doing homework, tests, colloquiums and exams. If necessary, consultation one school hour during the week.
Consultations	Consultation 45 minutes during the week.
Literature	Literature: 1. Mirjana Jarak, Govedarica Mitar (2003): Microbiology, Faculty of Agriculture, Novi Sad; 2. Mirjana Jarak, Simonida Đurić (2006): Practical course in microbiology, Faculty of Agriculture, Novi Sad. Additional literature: 1. Bojanić Rašović Mirjana (2020): Microbiology for students of animal production, University of Montenegro, Podgorica (first part of the book).
Examination methods	Homework 1 point each = 10 points in total; - 2 tests of 5 points each = 10 points in total; - 2 colloquiums of 15 points each = 30 points in total; - final exam maximum 50 points. Note: homework, tests and colloquiums are mandatory. Grades and points: A (≥ 90 to 100 points); B (≥ 80 to < 90); C (≥ 70 to < 80); D (≥ 60 to < 70); E (≥ 50 to < 60) F < of 50. A passing grade is obtained if at least 5O points are accumulated cumulatively.
Special remarks	
Comment	

Grade:	F	E	D	C	B	A
Number of points	less than 50 points	greater than or equal to 50 points and less than 60 points	greater than or equal to 60 points and less than 70 points	greater than or equal to 70 points and less than 80 points	greater than or equal to 80 points and less than 90 points	greater than or equal to 90 points