Biotechnical Faculty / PLANT PRODUCTION / BEEKEEPING

Course:	BEEKEEPING			
Course ID	**Course status**	**Semester**	**ECTS credits**	**Lessons** (Lessons+Exercises+Laboratory)
4809	Mandatory	5	4	2+1+0
Programs	PLANT PRODUCTION			
Prerequisites	None.			
Aims	Introducing students to bee products and methods of their extraction. Beekeeping technology using different types of hives. Treatment with bee products or their mixtures with medicinal plants.			
Learning outcomes	Describe the sociological structure of a bee colony. Learn about the anatomy of bees. Explain beekeeping technology using DB and LR hives. Determine the best ways of wintering bee colonies Assess the strength and preparation of bee colonies for the next season. Recommend bee products (honey, pollen, propolis, royal jelly, beeswax, bee venom) as highly medicinal. Prepare for independent beekeeping.			
Lecturer / Teaching assistant	Prof. dr Vučeta Jaćimović – Professor			
Methodology	Lectures, exercises, seminar essays, colloquiums and final exam.			
Plan and program of work				
Preparing week	Preparation and registration of the semester			
I week lectures	History of beekeeping.			
I week exercises	Taxonomy of bees. Species and races of bees.			
II week lectures	Types of beehives, then and now. Beekeeping equipment and supplies.			
II week exercises	The anatomy of a bee.			
III week lectures	Beekeeping technology with DB and LR hives.			
III week exercises	The position and arrangement of the apiary.			
IV week lectures	Apiary work calendar.			
IV week exercises	First inspections of bee colonies.			
V week lectures	Colloquium I.			
V week exercises	Bee pasture. Improvement of bee pasture.			
VI week lectures	Wintering of bees. Pre-spring and spring development of the colony.			
VI week exercises	Preparation of syrup and enriched patties for bee feeding.			
VII week lectures	Artificial multiplication of bee colonies using DB and LR hives.			
VII week exercises	Methods of reproduction of bee colonies.			
VIII week lectures	Production of virgin bee colonies. Growing of bee queens for personal use and for the market.			
VIII week exercises	Methods of introducing bee queens.			
IX week lectures	Honey plants and bee nutrition. Organic cultivation of apiary crops.			
IX week exercises	Protecting bees of the most common diseases.			
X week lectures	Retake Colloquium I. Preparation for honey harvesting.			
X week exercises	Protecting bees of the most common pests.			
XI week lectures	Medicinal properties. Nutritional and medicinal properties of pollen. Propolis - natural antibiotic.			
XI week exercises	Learning about four methods of Varroa protection.			
XII week lectures	Colloquium II.			
XII week exercises	The annual cycle of a bee colony.			
XIII week lectures	Royal jelly and beeswax. Bee venom - apitoxin. Treatment with bee venom.			
XIII week exercises	Presentation of seminar essays.			
XIV week lectures	Indirect benefits of bees. Cooperation between fruit growers and beekeepers.			

XIV week exercises	The most common methods of harvesting bee products.
XV week lectures	Retake Colloquium II.
XV week exercises	Protection of bees from pesticide use.
Student workload	

Per week	**Per semester**
4 credits x 40/30=5 hours and 20 minuts 2 sat(a) theoretical classes 0 sat(a) practical classes 1 excercises **2 hour(s) i 20 minuts** of independent work, including consultations	Classes and final exam: **5 hour(s) i 20 minuts x 16 =85 hour(s) i 20 minuts** Necessary preparation before the beginning of the semester (administration, registration, certification): **5 hour(s) i 20 minuts x 2 =10 hour(s) i 40 minuts** Total workload for the subject: **4 x 30=120 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) **24 hour(s) i 0 minuts** Workload structure: **85 hour(s) i 20 minuts (cources), 10 hour(s) i 40 minuts (preparation), 24 hour(s) i 0 minuts (additional work)**
Student obligations	Students are required to attend lectures, complete their seminar essay, participate in all laboratory and field exercises and take both colloquiums.
Consultations	One hour per week, by arrangement with students.
Literature	Jovan Kulinčević and R. Gačić (1991): Beekeeping, Belgrade. Mića Mladenović, Gvozden Stevanović (2003): Breeding of high quality bee queens. Agricultural. Faculty, Zemun. Veroljub Umeljić (1999): In the world of bees. Colour Press, Lapovo, Kragujevac. Josip Belčić, Đuro Sulimanović (1982): Golden Book of beekeeping. Institute Matica Hrvatska, Zagreb. Bilaš.G.D., Krivcov.N.I., LebedevV. I. (2000): Calendar of beekeepers. Bee queens Beekeepers Society, Niš. Branko and Renata Relić (2004): Rational management of the apiary. Parthenon, Belgrade. Jovan Kulinčević (2006): Beekeeping. Parthenon, Belgrade.
Examination methods	Activity during lectures = 5 points; Seminar essay: 5 points; Colloquium: 2x 20 points= 40 points; Final exam = 50 points.
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