

Study Programme : B.Sc. Biology			
Degree level: Bachelor degree			
Course Title: Biotechnology			
Professor: Dr Zorica Svirčev			
Required Course			
Number of ECTS: 7			
Prerequisites: -			
Course Objective: The goal of this course is to enable students to solve current problems of mankind in everyday life by finding solutions that already exist in nature or may be based on known natural laws derived in the laboratory due to metabolic activities of microorganisms.			
Course Outcome: Upon completion of the course of Biotechnology students are expected to: Resolve the problems and issues related to the basic elements of biotechnology; demonstrate an understanding of the structure of biotechnological processes; explain and anticipated the role and importance of biotechnology products; recognize the importance of ecological, ethical and social impact of biotechnology; clearly define the importance of biotechnology in various fields of medicine, agriculture, industry and ecology; independently work in the biotechnological laboratory.			
Course Content: <i>Theoretical part:</i> Introduction to Biotechnology. Fundamental biotechnology. Applicative biotechnology. Bioreactors. Processes in biotechnology. Biotechnology and food industries. Biotechnology and agriculture, biotechnology in medicine and pharmacy, in the production of energy. Biotechnology and ecology. Bioethics. <i>Practical part:</i> Isolation of microorganisms from the air / water / soil samples. Preservation of microorganisms and creation of culture collections. Co-cultivation of microorganisms and higher plants. Biological active metabolites of microorganisms. Biosynthesis and biodegradation. Manipulation of microbial cultures, tissue culture, replica-plating, antigenic analysis, bioinformatics. Application of microorganisms in the production of dairy products - visit a local dairy.			
Reading List: 1. Svirčev Z. (2005): Microalgae and Cyanobacteria in Biotechnology. Faculty of Sciences, University of N. Sad (in Serbian). 2. Pejin D. (2003): Industrial Microbiology. University of Novi Sad, Faculty of Technology (in Serbian). 3. Đukić D., Jemcević V. (2003): Microbial Biotechnology. Dereta, Beograd (in Serbian). 4. Kuburović M., Stanojević M. (1997): Biotechnology. Smeits, Beograd (in Serbian). 5. Prentice S (1991): Biotechnology-New Industrial Revolution. School Book, Zagreb (in Croatian).			
Total hours:			
Lectures: 3	Practicals:	Other: 2	Student research work:
Methods of instruction: Lectures, practicals, consultations, seminars, colloquia, field work, visit a local diary. Classes will be realized in the form of lectures and seminar work. Lectures are conducted using a computer presentation to a video projector, projection of films and slides, as well as the field continues. The exercises are carried out effectively in the laboratory and field teaching.			
Assessment (maximum number of points 100)			
Requirements	points	Final exam	points
Active participation in lectures	5	Practical exam	10
Active participation in practicals	5	Oral exam	40
Test(s) or	30	Seminar	10
Pre-exam testing			