Study Programme : B.Sc. BIOLOGY

Degree level: Bachelor degree

Course Title: Microbial Biotechnology MB24

Professor: Dr Zorica Svirčev

Elective Course

Number of ECTS: 6

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: After the completion of the course of Microbial Biotechnology students are expected to: create the tasks and solve the problems related to the biotechnology of microorganisms; show understanding of the structure and function of biotechnological processes in microorganisms; be able to recognize certain groups of biotechnological applications of microorganisms in various fields of medicine, agriculture, industry and ecology; work independently in biotechnological laboratory.

Course Content:

Theoretical part: The groups of microorganisms in relation to biotechnological applications. Definition and properties of designed microorganisms. Production of biomass. Biorectors. The general scheme of microbiological processes. Isolation and collection of microorganisms. Genetic engineering in biotechnology of microorganisms. The growth patterns of microorganisms. Production of primary and secondary metabolites. Possible application of different and specific groups of microorganisms in biotechnology: applied bacteriology, applied phycology, applied mycology and lichenology.

Practical part: Isolation of autochtonous strains of microorganisms. Maintenance of culture collections of bacteria, microalgae, cyanobacteria and fungi. Screening of isolates with specific properties of interest in biotechnology: medicine, pharmacy, agriculture, environmental protection. Application of microorganisms in the production of beer - visit a local brewery.

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., Jemcev 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 Serbian).

Total hours:				
Lectures: 2	Practicals: 1	Other:	Student research work: 5	

Methods of instruction: Lectures, practicals, consultations, seminars, colloquia, field work, visiting a local brewery .

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			

Remark: