Study Programme : PhD in Biology

Degree level: Doctoral degree

Course Title: Biotechnological Application of Microorganisms DNB007

Professor: Dr Zorica Svirčev

Elective Course

Number of ECTS: 15

Prerequisites: Ecology of Microorganisms, Bacteriology, Algology and Micology

Course Objective: Connecting the prerequisites knowledge with the application possibilities in different fields of Microbial Biotechnology.

Course Outcome: Bearing in mind the plan and program of the past two biotechnology courses (Biotechnology in basic studies and Microbial Biotechnology of Microbiological module), the outcomes and tasks of the course match the detailed analysis and possibility of introducing microorganisms into different areas of biotechnology: food industry, agriculture, medicine and pharmacy, chemical and cosmetic industries, bioremediation of water and land ecosystems, astrobiology and other areas.

Course Content:

Theoretical part: Performed through individual work with the student / team, the course would cover all fields and wider application of microorganisms in useful technologies, which are related to the problems of the selected topic for PhD dissertation; introduce the students to the actual implementation of specific microorganisms in biotechnology (groups of microorganisms used in the dissertation), with special emphasis on the importance and role of genetic and metabolic engineering.

Practical part: students will be able to overcome the most relevant and actual research methods and their implementation and introduction in the field of biotechnology that are relevant to the issue topic of students PhD.

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. Madigan MT., Martinko JM. (2006): BROCK – Biology of Microorganisms. Pearson, Prentice Hall (in English).
6. Duraković S., L Durakovic. (2003): Mycology in biotechnology. Kugler, Zagreb (in Croatian).

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

Methods of instruction: Lectures, practicals, consultations, seminars, colloquia prticipation in scientific meetings and seminars, visiting microbiological laboratories and active participation in research projects. Student choose two topics for seminar work which should be elaborated using internet or standard literature sources. With the use of contemporary literature and equipment, as well as web site, the student would be referred to the latest knowledge in the field of application of microorganisms in biotechnology and related topics to the issue of his doctoral dissertation, with the development of a project and seminars requirement.

Assessment (maximum number of points 100)

Requirements: During the semestar students' seminar works will be evaluated, and remarks will bee incorporated into summary remark making 60% of points. Another 30% they will gather through the oral exam, and 10% through the evaluation of their experimental reseaarch work.

Remark: