Course Unit Descriptor

Study Programme: Food engineering; Biotechnology; Pharmaceutical engineering; Chemical engineering; Material engineering

Course Unit Title: Biology of production microorganisms

Course Unit Code: DSZI16

Name of Lecturer(s): Assoc. Prof. Dragoljub Cvetković, PhD; Ass. Prof. Aleksandra Ranitović, PhD

Type and Level of Studies: Doctoral academic studies

Course Status (compulsory/elective): Elective

Semester (winter/summer): -

Language of instruction: English

Mode of course unit delivery (face-to-face/distance learning): Face-to-face

Number of ECTS Allocated: 10

Prerequisites: No

Course Aims:

Acquiring the ability of scientific and academic skills in the field of production microorganisms - viruses, bacteria, algae, yeasts and fungi, as well as more detailed understanding of the interaction that organisms with environment.

Learning Outcomes:

Students are trained to understand theoretical and practical principles of production microorganisms (starter cultures) for different branches of food and pharmaceutical industries, as well as more detailed understanding specific interactions between microorganisms and selected cultural medium.

Syllabus:

Analysis of the general biological characteristics of different groups of production microorganisms. Analysis of the specific biological properties of a starter cultures with a special emphasis on the culture of yeasts and probiotic bacteria as well as the properties of mixed starter cultures. Characteristics starter cultures which are important for their use in different bioreactors. Searching scientific literature, processing, analysis and discussion latest findings in this field.

Required Reading:

1. Walker G.M.: Yeast Physiology and Biotechnology, Wiley, 1998.
2. Northrop R.B., Connor A.N. (2009): Introduction to Molecular Biology, Genomics and Proteomics for Biomedical Engineerng, CRC Press, Boca Raton
3. Snyder L., Champness W. (2003): Molecular genetics of Bacteria, 3rd ed., ASM press, Washington
4. M.T.Madigan, J.M. Martinko, J. Parker (1997): Brock Biology of microorganism, Eight edition, Prentice Hall Inc., New Jersey

Weekly Contact Hours: 6	**Lectures: 4**	**Practical work: 2**

Teaching Methods:

Lectures and students group work

Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	points	**Final exam**	points
Active class participation	10	written exam	-

Practical work	-	oral exam	30
Preliminary exam(s)	-	…….	
Seminar(s)	60		
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			