Information sheet for the course
Fundamentals of Biochemistry and Microbiology

University: *Alexander Dubček University of Trenčín*	
Faculty: *Faculty of Industrial Technologies in Púchov*	
Course unit code: *MI-P-36*	**Course unit title:** *Fundamentals of Biochemistry and Microbiology*
Type of course unit: *compulsory*	
Planned types, learning activities and teaching methods: *Lecture: 2 hours weekly/26 hours per semester of study; face to face* *Seminar: 1 hour weekly/13 hours per semester of study, face to face* *Laboratory tutorial: 0*	
Number of credits: *4*	
Recommended semester: *6th semester in the 3rd year full-time* *8th semester in the 4th year part-time*	
Degree of study: *the 1st degree of study (Bachelor's degree)*	
Course prerequisites: *none*	
Assessment methods: *short answer test and exam*	
Learning outcomes of the course unit: *Development of the ability to review, consolidate, extend and apply the biochemistry and microbiology knowledge and techniques learnt, including in a professional context; skills to explain biochemical processes in environmental area, to define rules of microorganisms in ecosystems, in biremediation processes.* ***On completion of the unit, students should be able to:*** *• Outline the basic concepts of biochemistry and microbiology;* *• Demonstrate skills in solution of different environmental problems; xenobiotics, pollutants and human and microbial biochemistry* *• Explain how biochemistry and microbial information is used as a tool in environmental management;* *• Outline the issues relating to human interaction with the environment, new method of identification of microorganisms*	
Course contents: *The aim of this course is to present and describe fundamental principles of environmental relations together with chemical processes in biological systems. Influence of pollutants on biotic and abiotic factors.* *1. biochemistry, introduction, 2. carbohydrates. 3. lipids. 4. aminoacids* *5. peptides, proteins, function in biological systems* *6. enzymes, vitamines, 7. nucleic acids, function in biological systems* *8. chemical structure of biopolymers, biomembrans* *9. genetic code, 10. metabolic ways and their disruption through pollutants and poisons,* *11. microorganisms, morphology and physiology, 12. Applied microbiology, bioremediations, 13. biofilms, 14. symbiotic relations between microorganisms and environment, 15. new technologies in microbiology*	
Recommended of required reading: *1. ŠKÁRKA B., FERENČÍK M.: BIOCHÉMIA, ALFA BRATISLAVA 1981, ISBN 063-576-87.*	

2. MUSIL J., NOVÁKOVÁ O.: BIOCHEMIE V OBRAZECH A SCHÉMATECH, AVICENUM PRAHA, 1990, ISBN 08 -109-89.
3. BALOG, M., TATARKO, M. A KOL. : ODHALENÉ TAJOMSTVÁ CHEMIE, VEDA, BRATISLAVA, 2007, ISBN 978-80-224-0957-5
4. BETINA, V.: Mikrobiológia 1. STU Bratislava, 1996
5.KAPRÁLEK, F.: Mikrobiologické praktikum, UK Praha, Karolinum, 1999
6. JÚDOVÁ,J., RULÍK, M., HOLÁ, V.: Mikrobiálna ekológia, Belianum Banská Bystrica, 2013

Language: *Slovak, English*

Remarks:

Evaluation history:

A	B	C	D	E	FX

Lecturers: *prof. RNDr. Mariana Pajtášová, PhD., RNDr. Jana Júdová, PhD.*

Last modification: 31.3.2015

Supervisor: *prof. Ing. Darina Ondrušová, PhD.*