Specification for the Subject Book

Curriculum		**Technology Engineering**	
Optional field (module)			
Type and level of studies		**Master of Professional Studies, second degree studies**	
Subject		**Applied Biotechnology**	
Teacher (lectures)		**dr Srdjan J. Tasic**	
Teacher / Associate (exercises)		**dr Srdjan J. Tasic**	
Teacher / Associate (for OTC)			
ECTS credits	**8**	**Subject status (compulsory / optional)**	**Optional**
Conditions	None		
Subject objectives	Acquiring knowledge about microorganisms that have biotechnological significance. Getting acquainted with raw materials and materials in biotechnology. Mastering the skills of cultivation of microorganisms. Design, management and control of biotechnological processes. Training students to apply knowledge		
Learning outcomes	Willingness to work independently and solve tasks and problems related to the basic elements of biotechnology. Ability to recognize the ethical and environmental significance and social impact of biotechnology. Understanding the importance of biotechnology as one of the key domains of civilization progress.		
Subject contents			
Theory classes	Introduction to Biotechnology, Microorganisms of Biotechnological importance, Structure and Function of Cells of Microorganisms, Raw and Other Materials in Biotechnology, Biochemical Engineering, Bioreactors, Management and Control of Biotechnological Processes, Primary and Secondary Metabolism and Their Products in Biotechnology, Biotechnology and Food Industry, Biotechnology and Agriculture, Biotechnology in Medicine and Pharmacy, Environmental Biotechnology, Molecular Biotechnology, Genetic Engineering, Genetically Modified Organisms (GMOs) and Genetically Modified (GM) Food.		
Practice Classes (exercises, OTC, study research work)	Division of Micro-organisms of Biotechnological importance, Methods for Isolation of Micro-organisms from the Environment, Types of Laboratory Apparatus for the Cultivation of Micro-organisms, Vineyard Column, Modern Bacterial Identification Systems (API system), Collections of Cultures in Biotechnology, Types of Materials in Biotechnology, Division of Raw Materials for Biotechnology, Visit to a Milk House which applies micro-organisms for the production of dairy products, Biosynthesis of Proteins, Antibiotics and Vitamins, Bioremediation in the Treatment of Contaminated soil, Chain reaction polymerization (PCR), Visit to the Institute of Molecular Genetics and Genetic Engineering (IMGGI), Genetically Modified Organisms Act (GMO), Bioinformatics.		
Literature			
1	С. Прентис, "Биотехнологија - нова индустријска револуција", Школска књига, Загреб, 1991.		
2	Д. Пејин, "Индустријска микробиологија", Технолошки факултет, Нови Сад, 2003.		
3	Д. Ђукић, В. Јемцев, "Микробиолошка биотехнологија", Дерета, Београд, 2003.		
4	W. D. Callister, "Materials Science and Engineering an Introduction", 8th edition, J. Wiley & Sons, Inc, NY, 2010.		
5	В. Марић, "Биотехнологија и сировине", Стручна и пословна књига, Загреб, 2000.		

Lectures	**Exercises**	**OTC**	**Study research**	**Other classes**
45	**45**	**0**	**–**	**–**

Teaching methods	Combined

Knowledge score (maximum points 100)			
Pre-exam responsibilities	**points**	**Final exam**	**points**
Class activity	**5**	**written exam**	
practical teaching	**5**	**oral exam**	**40**
colloquiums	**20+20**		
seminars	**10**		