



<b>Course ID:</b> HTH475	<b>Course name:</b> INTRODUCTION IN BIOTECHNOLOGY		
<b>Cycle:</b> FIRST	<b>Year:</b> FOURTH	<b>Semester:</b> VII	<b>ECTS credits:</b> 3
<b>Course status:</b> MANDATORY		<b>Total course hours:</b> 30 Lectures: 30 Laboratory: /	
<b>Teaching participants:</b>	<b>Teachers and associates with expertise in the field to which the subject belongs</b> [do not enter names in this section. Leave the wording as indicated in this section]		
<b>Prerequisite for enrollment:</b>	-		
<b>Course aims:</b>	Fundamentals of genetic engineering, use of modern achievements and methodologies of biotechnology.		
<b>Thematic course units:</b>	Cell structure, morphology and function Microorganisms, the role of microorganisms in GI Microbial cultures and fermentation Nucleic acids Regulation of gene function Variability of hereditary material Genetic engineering Enzymes, Vectors in GI DNA sequencing, PCR Molecular markers Oligonucleotide synthesis Transfer of genes to bacteria, plants, animal cells Gene therapy Basics of forensic analysis Specific operations in the chemical industry and biotechnology: plants, processes, control, sensor development and automation		
<b>Learning outcomes:</b>	Knowledge: After the course the student will be able to: examine the basic concepts of biotechnology and the methods used in the manipulation of nucleic acids (DNA and RNA); understands and explains the basics of genetic engineering; explain the basic steps of recombinant DNA technology; explain the use of specific tools in GI (vectors, enzymes, markers ..); adopt basic theoretical knowledge related to DNA sequencing; explain and apply the PCR method of DNA amplification; apply the acquired knowledge related to DNA isolation;  Skills: Students should be able to implement knowledge about principle and application GI: Describe the steps of recombinant DNA technology and genetic engineering; will know and/or be able to do isolation of DNA from different samples; amplify DNA by polymerase chain reaction; Identify a person based on DNA profile;  Competences: The course gives permission for independent use essential equipment to perform chemistry experiments in the laboratory in terms of isolation i amplification of DNA and chemical methods of transfer of gene.		

<b>Teaching methodology:</b>	Auditory lectures
<b>Assessment methods and grading system<sup>1</sup>:</b>	<b>Grading criteria</b>
	Criteria                      Maximal score                      Required score
	1. Class attendance                      5                      3
	2. Class activities                      10                      5
	3. Midterms                      45                      25
	4. Final exam                      40                      22
	Total                      100                      100
	<b>Scores and grading</b>
	Score                      Grade (B&H)                      Grade (ECTS)
	< 55                      5                      F, FX
	55-64                      6                      E
	65-74                      7                      D
	75-84                      8                      C
85-94                      9                      B	
95-100                      10                      A	
<b>Literature<sup>2</sup>:</b>	<p><b>Mandatory literature:</b></p> <ol style="list-style-type: none"> <li>1. K.Bajrović,A.JevrićČaušević,R.Hadžiselimović, (2005), Uvod u genetičkonženjerstvoibiotehnologiju, INGEB, Sarajevo</li> </ol> <p><b>Supplementary literature:</b></p> <ol style="list-style-type: none"> <li>1. J. Patrick Fitch, (2002), An Engineering Introduction to Biotechnology, SPIE Press, Whsington, USA</li> <li>2. Bernard R. GlickJack J. Pasternak, Cheryl L. Patten,(2010), Molecular Biotechnology: Principles and Applications of Recombinant DNA (4th Edition), Washington, USA,</li> <li>3. Lisa A. Seidman, Cynthia J. Moore, (2000), Basic Laboratory Methods for Biotechnology (2nd Edition), USA</li> </ol>

<sup>1</sup> The grading structure for each subject is determined by the Council of the organizational unit before the beginning of the academic year in which the subject is taught as per Article 64, paragraph 6 of the Law on Higher Education of Sarajevo Canton

<sup>2</sup> The Senate of the higher education institution, as an institution, or the Council of the organizational unit of the higher education institution, as a public institution, determines by a special decision, which is published on its website before the beginning of the academic year obligatory, mandatory and recommended textbooks and manuals, as well as other recommended literature based on which exams are prepared and taken as per Article 56, paragraph 3 of the Law on Higher Education of the Sarajevo Canton