Attachment no. 3 Course program of the third cycle of studies				
1.	**Course title**	**TRENDS IN BIOTECHNOLOGICAL PROCESSES**		
2.	**Code**	**ITHN - 13**		
3.	**Student program**	***Innovative technologies on food and nutrition***		
4.	**Organiser of the student program (unit, institute, department)**	Faculty of Technology and Technical Science - Veles		
5.	**Degree (first, second, third cycle)**	Third cycle		
6.	**Academic year/ semester**	1 / II	Number of ECTS credits	5
8	**Professor**	Vonr.prof. d-r Angela Vasileska Doc. d-r Daniela Nikolovska Nedelkoska		
9	**Preconditions for enrolling on the course**	II (second) cycle of studies		
10	**Objectives of the course program (competences):**	The student will upgrade his knowledge in the field of enzyme engineering and industrial biotechnology.		
11	**Course content:**	Microbial processes for the production of bioactive compounds. Technology of microbial production of vitamins, polysaccharides, organic acids and antibiotics. Factors affecting the process efficiency. Production of enzymes of microbial origin, with particular reference to important groups of enzymes. Factors that affect the production of enzymes and some points to consider for successful implementation. Enzymes in production of novel food. Immobilization techniques in the bioprocesses.		
12	Methods of studying:			
13	Total available time fund	5 x 30 = 150 hours		
14	Distribution of the available time	50+30+30+40 = 150		

15	Forms of teaching activities	15.1	Lectures- theoretical instruction	50
		15.2	Exercises (laboratory, auditorium), seminars, teamwork	30
16.	Other forms of activities	16.1	Projects / Independent tasks	30
		16.2	Home learning	40

17.	Methods of assessment		
	17.1.	Tests/oral exam	80 points
	17.2.	Seminar work / project, presentation (written and oral)	10 points
	17.3.	Activity and participation	10 points

18	Assessment criteria (points/grade)	Up to 50 points	5 (five) (F)
		from 51 to 60 points	6 (six) (E)
		from 61 to 70 points	7 (seven) (D)
		from 71 to 80 points	8 (eight) (C)
		from 81 to 90 points	9 (nine) (B)
		from 91 to 100 points	10 (ten) (A)

19.	Condition for getting a signature and taking the final exam	
20.	Teaching language	Macedonian, English
21	Method of monitoring the quality of teaching	

22.	Literature				
	22.1.	Compulsory literature			
			Author	Title	Publisher, Year
		1.	Gustavo F. Gutiérrez-López, Gustavo V. Barbosa-Cánovas (eds)	Food science and food biotechnology	CRC Press LLC, 2003
		2.	Rastall R. (ed.)	Novel enzyme technology for food applications	Woodhead Publ. Cambridge, UK, 2007
		3.		Selected scientific papers on appropriate topics	

		4.			
		5.			
		6.			
		7.			
		9.			
	22.2.	Additional literature			
			Author	Title	Publisher, Year
		1.			
		2.			
		3.			