

Attachment no. 3		Course program of the first, second and third cycle of studies		
1.	Course title	MUTAGENIC AND CARCINOGENIC SUBSTANCES IN FOOD		
2.	Code	ITHN-24		
3.	Student program	<i>Innovative technologies on food and nutrition</i>		
4.	Organiser of the student program (unit, institute, department)	Faculty of Technology and Technical Science		
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 Gorica Pavlovska Vonr.prof.d-r Angela Vasileska		
9.	Preconditions for enrolling on the course	II (second) cycle of studies		
10.	Objectives of the course program (competences) Students will advance their knowledge about sources of food contamination, the health hazard of carcinogenic and mutagenic substances in food, strategies for their reduction in food and protection against contamination.			
11.	Contents of the course program Mutagenic and carcinogenic substances in human food. Creation of mutagenic and carcinogenic substances in food in their production, processing and storage (mutagenic substances from GMA, furan, acrylamide, oxidation products of fats and oils, trans fatty acids, polycyclic aromatic hydrocarbons...). Mutagenic and carcinogenic substances in food coming from the environment (heavy metals, dioxins, biphenyls...). Microbial toxins (alfatoxin, ochratoxin, zearalenone, trichothecene...). Consequences of the action of mutagenic and carcinogenic substances in food. A strategy for reducing the toxicity of mutagenic and carcinogenic substances in food and protection against contamination.			
12.	Methods of studying			
13.	Total available time fund	150		
14.	Distribution of the available time	50+30+30+20+20=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	Project exercises	30
		16.2	Independent exercises	20
		16.3	Home studing	20
17.	Methods of assessment			
	17.1	Tests: 2 exams during the teaching process or written exam with duration of 2 hours	80	
	17.2	Seminar work / project, presentation written and oral	10	
	17.3	Activity and participation	10	

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 (if there is a necessity it can be taught in English)			
21.	Method of monitoring the quality of teaching					
22.	Literature					
	22.1	Compulsory literature				
		Number	Author	Title	Publisher	Year
		1.	J.P.F.D' Mello	Food Safety Contaminants and toxins	CABI Publishing	2003
		2.	B.Sarkanj, D. Kipic, D. Vasic-Racki, F.Delas, K.Galic, M.Katalenic, N.Dimitrov, T.Klapec	Kemijske i fizikalne opasnosti u hrani	Hrvatska agencija za hrana, Osijek	2010
		3	Scot Frickel	Chemical consequences: environmental mutagens, scientist activism and the rise of the genetic toxicology	Rutgers University Press, Book News Inc, Portland, ORUSA	2004
	22.2	Additional literature				
		Number	Author	Title	Publisher	Year
1.		Frank C. Lu	Lu's Basic Toxicology	Taylor & Francis e-Library,	2003	
3.						