

Attachment no. 3		Course program of the third cycle of studies			
1.	Course title	SCIENTIFIC-RESEARCH METHODS IN FOOD TECHNOLOGY AND NUTRITION, DATA ANALYSIS AND BIOSTATISTICS			
2.	Code	ITHN - 01			
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 - Veles			
5.	Degree (first, second, third cycle)	Third cycle			
6.	Academic year/ semester	1 / I	7.	Number of ECTS credits	7
8.	Professor	Vonr.prof.d-r Anka Trajkovska Petkoska Doc.d-r Sasko Martinovski Doc.d-r Vesna Knights Vonr.prof.d-r Gorica Pavlovska Vonr.prof.d-r Valentina Pavlova			
9.	Preconditions for enrolling on the course	II (second) cycle of studies			
10.	<p>Objectives of the course program (competences):</p> <p>Students could gain competences in methods for scientific and research activities, knowledge for planning and leading experimental work; also could be able in organizing experiments and making logic conclusions. Ability for preparation scientific or professional paper for suitable application. Introduction in methods for preparation of scientific and applicative project proposals as well as knowledge in intellectual property as a base for innovation and competitiveness; patents and evaluation.</p> <p>Students get acquainted and methodologically prepare for research activities in the process of disclosing knowledge from large data sources or datasets.</p> <p>They also get acquainted with the techniques for building recommendations systems, to get to know the basic ideas and concepts, the basic algorithms used in these systems and knowledge-based approaches.</p> <p>Also, students can gain scientific approach to sources of information; methods of data acquisition from scientific work and their statistical management. In this way, they will improve theoretical basis of use of regression analysis, hypothesis and methods of their presentation.</p>				

11.	Course content:			
	Importance of scientific work, and scientific methods .			
	Search for professional literature and references, state-of-the-art, and their usage.			
	Concept from idea towards proper research activities, scientific work and selection of PhD topic; planning of activities and experimental part, management and calculation of obtained data / results, scientific writing of scientific papers and PhD thesis.			
	Structure and writing of scientific project proposal. Data search and state-of-the-art for a specific call for scientific and applicative projects.			
	Theoretical basis for intellectual property rights: patents, patent literature and commercialisation of patents.			
	Organization and participation in scientific community and public events (conferences, seminars...).			
	An Introduction to Data Analysis. Data types that can be mined, using information technology in advanced data analysis.			
	Introduction to the basic concepts of recommendation systems. Data sources and knowledge and techniques for giving recommendations. The significance of systems that make recommendations as a multidisciplinary field. An explanation of the relationship between systems that give recommendations and interaction man - computer.			
	Statistical approach in management of data obtained during scientific work. Overcome of problems related to <i>MS Excel</i> or <i>Statistica</i> or <i>Mathematica</i> for statistical approach of data; importance of statistica in presentation of scientific data as well as proper approach in establishment and testing of given hypothesis.			
12.	Methods of studying:			
13.	Total available time fund	7 x 30 = 210 classes		
14.	Distribution of the available time	50+30+50+30+50 = 210		
15.	Forms of teaching activities	15.1.	Lectures- theoretical instruction	50 classes
		15.2.	Exercises (laboratory, auditorium), seminars, teamwork	30 classes
16.	Other forms of activities	16.1.	Project exercises	50 classes
		16.2.	Independent exercises	30 classes

		16.3.	Home learning		50 classes
17.	Methods of assessment				
17.1.	Tests				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				
21.	Method of monitoring the quality of teaching				
22.	Literature				
	Compulsory literature				
	Number	Author	Title	Publisher / Year	Number
22.1.	1.	J. Biggam	<i>Succeeding with your master dissertation-a step by step handbook</i>	The McGraw Hill Companies	2008
	2	M. J. Katz	<i>From Research to Manuscript-A Guide to Scientific Writing</i>	Springer Science	2009
	3.	M. Caergill, P. O'Connor	<i>Writing Scientific Research Articles - Strategy and Steps,</i>	Blackwell Publishing	2009
	4.	Jiawei Han, Micheline Kamber, Jian Pei	Data mining: Methods and Models Third Edition	Morgan Kaufmann is an imprint of Elsevier	2012
	5.	Radovan Pejanović	UVOD U NAUČNI	Univerzitet u	2009

			METOD – prirucnik	Novom Sodom, Novi Sad		
	22.2.	Additional literature				
		Number	Author	Title	Publisher / Year	Number
		1.	Dietmar Jannach, Markus Zanker, Alexander Felfernig, Gerhard Friedrich	Recommender Systems An Introduction	Cambridge University Press	2011
		2.	E. Garfield	<i>Journal impact factor: a brief review</i>	Canadian Medical Association or its licensors	1999
		3.	R. A. Day	<i>How to write and publish</i>	5 th ed., ORYX Press	1998