2.7.2 Functional Food

COURSE SYLLABUS							
Field of study : BIOTECHNOLOGY							
Course title / Nazwa przedmiotu (j. polski)			**Code course**			**Year / Semester**	
Functional Food			**WIS-BIO-D2-FUNFOO-02**			**I**	**02**
Type of course	**Profile**	**Course level**	**Form of study**				
Electable	**Academic**	**II degree**	**stationary**				
Form of classes						**ECTS**	
Lecture	**Tutorial**	**Laboratory**	**Project**	**Seminar**	**Exam**		
30	**15**	**-**	**-**	**-**	**No**	**3**	
Unit realizing the subject:							
Faculty of Infrastructure and Environment							
Lecturer of the subject:							

I. COURSE CHART	
COURSE OBJECTIVES	
C01	To acquire the knowledge on the role of functional food in human nutrition.
C02	To acquire the practical knowledge on designing a new functional food.
C03	The aim in terms of social competences is to prepare the student to work in a team and present his own solution.
PRELIMINARY COURSE REQUIREMENTS FOR KNOWLEDGES, SKILLS AND OTHER COMPETENCES	
1	Basic knowledge on microbiology, biochemistry, organic chemistry and industrial biotechnology.
LEARNING OUTCOMES	
Knowledge: The graduate knows and understands	

EU1	The student poses the knowledge on the role of functional foods in human nutrition.
Skills: The graduate can	
EU2	The student knows how to design a new functional food.
Social Competence: Student is ready to	
EU3	The student is able to work individually and in a group. He is ready to cooperate in a group.

II. COURSE CONTENT		
Form of classes – Lectures		**Hours**
L1	Convenient food.	2
L2, L3	Functional and diet food.	4
L4	Genetically modified food.	2
L5	Legal aspects of production and use of functional food.	2
L6, L7	Additives.	4
L8, L9, L10	Bioactive components and their properties.	6
L11, L12	Production of functional food.	4
L13	Nutritional implications of functional food.	2
L14	New directions in designing and producing functional food.	2
L15	Final test.	2
	TOTAL:	**30**
Form of classes – Tutorials		**Hours**
T1	Introduction.	1
T2, T3	Properties of selected groups of convenient food.	2
T4, T5	Properties of selected groups of functional food.	2
T6, T7	Designing a new functional food product.	2
T8,	Innovative functional food.	2

T9		
T10, T11	Functional food markets.	2
T12 T13	Evaluation of students' assignments.	2
T14	Final test.	1
T15	Wrap up.	1
	TOTAL:	**15**

COURSE STUDY METHODS	
1.	Blackboard, interactive whiteboard
2.	Multimedia presentation

METHODS OF ASSESMENT: (F – FORMATIVE; S – SUMMATIVE)	
F01	Evaluation of students' self-preparation for class
F02	Evaluation of students' group work
P01	Final test (material covered within the tutorials)
P02	Final test (material covered within the lectures)

III. STUDENT WORKLOAD

L.p.	**Form of activity**	**Workload [hours]**
1. Contact hours with the teacher:		
1.1	Hours of classes organized by universities - **lectures**	30
1.2	Hours of classes organized by universities – **tutorials**	15
1.3	Hours of classes organized by universities – **laboratory**	0
1.4	Hours of classes organized by universities – **project**	0
1.5	Hours of classes organized by universities – **seminar**	0
1.6	Exam	0
	Total contact hours with the teacher:	**45**
2. Self-study		
2.1	Preparation to tutorials and a final test	15

2.2	Preparation for the laboratory, preparation of individual test reports	0
2.3	Preparation of your own project	0
2.4	Preparation for the final test from the lecture	10
2.5	Preparation for exam	0
2.6	Reading the indicated literature	5
	Total student work hours:	**30**
	Total student workload:	**75**
TOTAL NUMBER OF ECTS POINTS FOR THE COURSE:		**3**
The number of **ECTS** points that the student obtains during classes that require direct participation by the teacher:		**1,8**
Number of ECTS points that the student obtains as part of his / her own work:		**1,2**

IV. BASIC AND SUPPLEMENTARY TEXTBOOKS	
Basic textbooks:	
1.	Saarela M. Functional Foods. Concept to Product. 2nd edition, Woodhead Publishing 2011
2.	Aluko R.E. Functional Foods and Nutraceuticals. Springer-Verlag New York 2012
3.	Świderski F. Żywność wygodna i żywność funkcjonalna. WNT, Warszawa 2003
4.	Opracowanie zbiorowe.: Biotechnologia żywności. Wydawnictwo Naukowo-Techniczne, Warszawa 2005
5.	Kołożyn-Krajewska D. Higiena produkcji żywności. Wydawnictwo SGGW, Warszawa 2013
6.	Gawęcki J., Hryniewiecki L. Żywienie człowieka. T.1. Podstawy nauki o żywieniu. Wydawnictwo PWN, Warszawa 2008
7.	Pijanowski E., Dłużewski M., Dłużewska A. Ogólna technologia żywności. Wydawnictwo Naukowo-Techniczne 2010
8.	Opracowanie zbiorowe. Chemia żywności. Wydawnictwo Naukowo-Techniczne 2000
Supplementary textbooks:	
1.	Gertig H., Przysławski J. Bromatologia. Zarys nauki o żywności i żywieniu. Wydawnictwo Lekarskie PZWL 2006
2.	Earle M. Opracowanie produktów spożywczych. Podejście marketingowe.

	Wydawnictwo Naukowo-Techniczne 2007
3.	Emsley J. Przewodnik po chemii życia codziennego. Prószyński i S-ka 1996
4.	Opracowanie zbiorowe. Właściwości fizyczne żywności, Wydawnictwo Naukowo-Techniczne 2011
5.	Opracowanie zbiorowe. Współczesna margaryna. Aspekty technologiczne i żywieniowe. Wydawnictwo Naukowo-Techniczne 2010
6.	Wrześniewska-Wal I. Żywność genetycznie zmodyfikowana. Aspekty prawne. Wydawnictwo Uniwersytetu Warszawskiego 2008
7.	Grajek W. Przeciwutleniacze w żywności. Aspekty zdrowotne, technologiczne molekularne i analityczne. WNT

V. LEARNING OUTCOMES ATTAINMENT MATRIX

Learning outcome	Relating a given effect to the effects defined for the entire direction of the program	The effect relates to the characteristics of the 1st and 2nd level of PRK		Course objectives	Course content	Course study methods	Methods of assesment
		Universal	In the field of technical sciences and leading to engineering competences				
EU1	K_W04, K_W05	P7U_W	P7S_WG	C01	L1-L15 T1-T15	1,2	F01, F02, P01, P02
EU2	K_U02, K_U06,	P7U_U	P7S_UK P7S_UW	C02	L1-L15 T1-T15	1,2	F01, F02, P01, P02
EU3	K_K07	P7U_K	P7S_KO	C03	T1-T15 T1-T15	1,2	F01, F02, P01, P02