

Course code:

Plan position:

A. INFORMATION ABOUT THE COURSE

B. Basic information

Name of course	<i>Chemistry of food and nutrition</i>
Field of studies	Food technology and human nutrition
Level of studies	First degree
Profile of studies	Practical profile
Form of studies	Stationary
Specialty	1. Food engineering 2. Human nutrition and dietetics elements
Unit responsible for the field of studies	Faculty of Chemical Technology and Engineering
Name and academic degree of teacher(s)	Joanna Szulc, PhD; Wojciech Poćwiardowski, PhD; Błażej Błaszak Msc.
Introductory courses	Not needed
Introductory requirements	basic knowledge of chemistry and chemical technology

C. Semester/week schedule of classes

Semester	Lectures (W)	Auditorium classes (Ć)	Laboratory classes (L)	Project classes (P)	Seminar (S)	Field classes (T)	Number of ECTS points
summer	30		30				6

2. LEARNING OUTCOME

No.	Learning outcomes description	The reference to the learning outcomes of specific field of study	The reference to the learning outcomes for the area
KNOWLEDGE			
W1	Student has a knowledge about the chemical reactions that determine the shelf life of food.	K_W06	P6S_WG
W2	Student knows the basic methods and techniques of instrumental and sensory analysis of food products.	K_W07	P6S_WG
W3	Student knows the biochemical role of fats, proteins, carbohydrates, minerals and vitamins in human nutrition.	K_W08	P6S_WG
SKILLS			
U1	Student is expected to prepare technical and laboratory reports on the conducted analyses of food compounds using basic IT tools.	K_U03	P6S_UW P6S_UK P6S_UO P6S_UU
U2	Student performs a simple engineering, research or design task under the supervision of a specialist using knowledge in the field of instrumental and sensory analysis and	K_U04	P6S_UW P6S_UK P6S_UO

	knowledge of operations and processes in food technology, correctly interprets the results and draws conclusions.		P6S_UU
U3	Is able to select and apply the appropriate procedure for the preparation of a food sample for testing, as well as the method of analysis in order to solve a specific complex problem related to food processing.	K_U06	P6S_UW P6S_UK P6S_UO P6S_UU
U4	Uses basic laboratory equipment.	K_U07	P6S_UW P6S_UK P6S_UO P6S_UU
U5	Applies the principles of safety and good practices when work in the analytical laboratory and in the plant.	K_U08	P6S_UW P6S_UK P6S_UO P6S_UU
U6	Performs basic analysis of the composition and evaluate the sensory properties of the food product.	K_U09	P6S_UW P6S_UK P6S_UO P6S_UU
U7	Works individually and as a team member, taking on various roles and managing time.	K_U17	P6S_UK P6S_UO
SOCIAL COMPETENCES			
K1	Student is aware of the responsibility for performed tasks related to working as a technologist.	K_K08	P6S_KK P6S_KO P6S_KR

3. TEACHING METHODS

A. Traditional methods used

Multimedia lectures. Laboratories performed by students under supervision of academic staff.

4. METHODS OF EXAMINATION

Lectures - written exam, classes- submit reports.

5. SCOPE

Lectures	Introduction to Food Chemistry; Water: The Most Important Nutrient; Carbohydrates and Dietary Fiber; Carbohydrate Digestibility, Functions of Carbohydrates; Lipids and Characteristic of Lipids Present in Food; Amino Acids, Peptides and Proteins; Enzymes; Vitamins: Fat-Soluble and Water-Soluble; Minerals; Nutritional Aspects of Minerals; Food Colorants; Flavors; Food Additives; Sweeteners, Texturizers and Emulsifiers; Antioxidants; Nutrient Metabolism and Dietary Recommendations.
Laboratories	Nutrient Compounds Analysis: Determination of the Carbohydrates (eg. Simple Carbohydrates, Pectin), Determination of the Proteins; Determination of the Fats. Determination of the Bioactive Compounds present in Food (Vitamins, Antioxidants). Determination of the Energy Content of Food by Combustion.

6. METHODS OF VERIFICATION OF LEARNING OUTCOMES

LEARNING OUTCOME	Form of assessment					
	Oral examination	Written exam	Colloquium	Project	Presentation	Reports

W1		x				x
W2		x				x
W3		x				x
U1						x
U2						x
U3						x
U4						x
U5						x
U6						x
U7						x
K1						x

7. LITERATURE

Basic literature	<ol style="list-style-type: none"> 1. P. C. Keung Cheung, B. M. Mehta, Handbook of Food Chemistry, 1st ed., Springer, 2015. 2. J. M. deMan, J. W. Finley, W. J. Hurst, C. Yong Lee, Principles of Food Chemistry, Springer International Publishing, 2018. 3. M. Manay, S.N. Manay, Food Facts and Principles. New Age International (P) Limited, New Delhi, 2014. 4. H.-D. Belitz, W. Grosch, P. Schieberle, Food Chemistry, Springer; 4th revised and extended ed., 2009.
Supplementary literature	<ol style="list-style-type: none"> 1. L.K. Mahan, S. Escott-Stump, Krause's Food, and Nutrition Therapy, 12th ed., 2008. 2. M. Swaminathan, Textbook of Food and Nutrition. Bappco publishers, Bangalore, 2009. 3. L.A. Smolin, Nutrition: Science and Application. Harcourt brace College Publishing. New Delhi, 2006.

8. TOTAL STUDENT WORKLOAD REQUIRED TO ACHIEVE EXPECTED LEARNING OUTCOMES EXPRESSED IN TIME AND ECTS CREDITS

Student's activity		Student workload– number of hours
Classes conducted under a direct supervision of an academic teacher or other persons responsible for classes	Participation in classes indicated in point 1B	60
	Supervision hours	15
Student's own work	Preparation for classes	15
	Reading assignments	30
	Other (preparation for exams, tests, carrying out a project etc)	30
Total student workload		150
Number of ECTS points		6