POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

COURSE DESCRIPTION CARD - SYLLABUS

Course name

Biochemical processes in food

Course

Field of study	Year/Semester
Construction and Exploitation of Means of Transport	1/2
Area of study (specialization)	Profile of study
Food Industry Machines and Refrigeration	general academic
Level of study	Course offered in
Second-cycle studies	Polish
Form of study	Requirements
part-time	compulsory

Number of hours

Lecture	Laboratory classes	Other (e.g. online)
9	0	
Tutorials	Projects/seminars	
9	0	

Number of credit points

2

Lecturers

Responsible for the course/lecturer:	Responsible for the course/lecturer:
dr inż. Natalia Idaszewska	

Prerequisites

KNOWLEDGE: The student should have basic knowledge of physics, chemistry and biology concerning thermodynamics, electrochemistry, structure, properties and importance of monosaccharides, amino acids, fatty acids for living organisms.

SKILLS: the student is able to integrate the obtained information, interpret it, draw conclusions, formulate and justify opinions

COMPETENCES: the student is aware of the existence of biochemical processes in food processing

Course objective

Understanding the basic metabolic pathways and mechanisms of their regulation.

Course-related learning outcomes

Knowledge

Has extended knowledge of physics, in the field of contemporary physical problems conditioning the progress in technical sciences: physics of the body

Is aware of the civilization effects of technology

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He knows the basic biochemical processes in food production and human nutrition

Skills

Can formulate and test hypotheses related to simple research problems

Can independently plan and implement his own learning throughout his life and guide others

in this regard

Can observe biochemical phenomena and compile the results of his observations in the form of tables and

charts. Performs a written or oral interpretation

Social competences

He is ready to critically assess his knowledge and received content

Understands the benefits of knowledge of biochemistry in the work of a food technologist and is aware of the effects of possible negligence in this field

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Final test

Programme content

Lecture topics: Structure and properties of proteins, lipids, carbohydrates and nucleic acids.

Enzymes - classification, kinetics, mechanisms of action. Coenzymes and vitamins. The metabolism of proteins, carbohydrates and lipids, stages of biological oxidation, transmission of genetic information, regulation of metabolic changes, integration of changes in the cell.

Topics of exercise: Properties of amino acids and proteins. Methods of their determination of protein concentration in solution. The influence of some factors on the activity of enzymes. Properties of fats and fatty acids. Properties of carbohydrates.

Teaching methods

1. Lecture with multimedia presentation

2. Exercises - solving problems

Bibliography

Basic

1. Kączkowski J., 2012. Podstawy biochemii, WNT, Warszawa.

2. Bednarski W., Reps A. 2014. Biotechnologia żywności. WNT, Warszawa.

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Additional

1. Dziuba J., Kostyra H., Dziuba M. 2012. Biochemia żywności, UWM. Olsztyn.

2. Praca zbiorowa. Kłyszejko-Stefanowicz L., 2005. Ćwiczenia z biochemii, PWN Warszawa.

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,0
Classes requiring direct contact with the teacher	25	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1]	25	1,0

[1] delete or add other activities as appropriate