



SZKOŁA GŁÓWNA  
GOSPODARSTWA  
WIEJSKIEGO

## Novel technologies in the food industry – blending course

### Educational subject description sheet

#### Basic information

<p><b>Field of study</b> Course Offer for exchange students - second cycle studies, including uniform master studies (MA programmes)</p> <p><b>Speciality</b> -</p> <p><b>Organizational unit</b> Course Offer for exchange students</p> <p><b>Study level</b> second cycle studies, including uniform master studies (MA programmes)</p> <p><b>Study form</b> full-time studies</p> <p><b>Education profile</b> General academic</p>	<p><b>Didactic cycle</b> 2024/25</p> <p><b>Subject code</b> PWMPWM2S_D.B100000P.06397.24</p> <p><b>Lecture languages</b> english</p> <p><b>Mandatory</b> Elective subjects</p> <p><b>Block</b> Basic subjects</p> <p><b>Disciplines</b> Food technology and nutrition</p>	
<b>Coordinator</b>	Małgorzata Nowacka, Katarzyna Samborska	
<b>Teacher</b>	Małgorzata Nowacka, Katarzyna Samborska	
<b>Period</b> Winter semester	<b>Examination</b> Exam	<b>Number of ECTS points</b> 4
	<b>Activities and hours</b> Lecture: 22 Project exercises: 3	

#### Goals

Code	Goal
C1	The aim of the course is to broaden students' knowledge about food trends and sustainability, as well as novel technologies proposed for food industry. Students will familiarize with technologies such as pulsed electric field, ultrasound, high pressure processing, cold plasma, irradiation, cold formulation, vertical farm, and 3D printing.

## Entry requirements

### Subject's learning outcomes

Code	Outcomes in terms of	Effects	Examination methods
<b>Knowledge - Student knows and understands:</b>			
W1	modern solutions of technological processes, which the task is to modify the properties and internal structure raw materials used in food technology as materials to create innovative new generation products		Test (written or computer based)
<b>Skills - Student can:</b>			
U1	has the ability to select new innovative operations in food processing creating design opportunities new food products for health-promoting purposes and distinctive sensory attractiveness		Test (written or computer based)
<b>Social competences - Student is ready to:</b>			
K1	is aware and understands the need for development in the field issues of the broadly understood food economy, he understands also the constant need to improve their professional qualifications in the development of innovative food products		Test (written or computer based)

### Study content

No.	Course content	Subject's learning outcomes	Activities
1.	Food trends and sustainability, as well as novel technologies proposed for food industry such as pulsed electric field, ultrasound, high pressure processing, cold plasma, irradiation, cold formulation, vertical farm, and 3D printing.	W1, U1, K1	Lecture, Project exercises

### Course advanced

Activities	Methods of conducting classes
Lecture	E-learning - lecture part
Project exercises	E-learning - exercises part

Activities	Examination method	Percentage
Lecture	Test (written or computer based)	80%
Project exercises	Test (written or computer based)	20%

Activities	Credit conditions
Lecture	test

<b>Activities</b>	<b>Credit conditions</b>
Project exercises	test

## Literature

### Obligatory

1. Hameed, F., Ayoub, A., & Gupta, N. (2018). Novel food processing technologies: An overview. *IJCS*, 6(6), 770-776.
2. Tokuşođlu, Ö., & Swanson, B. G. (Eds.). (2014). *Improving food quality with novel food processing technologies*. CRC Press.
3. Morales-de la Peña, M., Welti-Chanes, J., & Martín-Belloso, O. (2019). Novel technologies to improve food safety and quality. *Current opinion in food science*, 30, 1-7.

## Calculation of ECTS points

<b>Activity form</b>	<b>Activity hours*</b>
Lecture	22
Project exercises	3
Preparation for the test	75
<b>Student workload</b>	<b>Hours</b> 100
<b>Number of ECTS points</b>	<b>ECTS</b> 4

\* hour means 45 minutes