



SZKOŁA GŁÓWNA
GOSPODARSTWA
WIEJSKIEGO

Process engineering and sustainability in the food production – blending course

Educational subject description sheet

Basic information

Field of study Course Offer for exchange students - second cycle studies, including uniform master studies (MA programmes)		Didactic cycle 2024/25	
Speciality -		Subject code PWMPWM2S_D.B100000.06393.24	
Organizational unit Course Offer for exchange students		Lecture languages english	
Study level second cycle studies, including uniform master studies (MA programmes)		Mandatory Elective subjects	
Study form full-time studies		Block Basic subjects	
Education profile General academic		Disciplines Food technology and nutrition	
Coordinator	Małgorzata Nowacka, Katarzyna Samborska		
Teacher	Małgorzata Nowacka, Katarzyna Samborska		
Period Winter semester	Examination Exam	Number of ECTS points 4	
	Activities and hours Lecture: 22 Auditorium exercises: 3		

Goals

Code	Goal
C1	The aim of the course is to broaden students' knowledge about process engineering, including processes such as lactic fermentation, drying processing, membrane technologies, plant based food production, nanotechnology), quality control and food safety, production sustainability and evaluation using life cycle assessment, by-products valorisation (animal & plant), circular design for food, waste management.

Entry requirements

Subject's learning outcomes

Code	Outcomes in terms of	Effects	Examination methods
Knowledge - Student knows and understands:			
W1	basic unit processes in food engineering		Test (written or computer based)
Skills - Student can:			
U1	communicate effectively on specialist topics with diverse audiences, participate and conduct debates on professional issues, use a foreign language at the B2+ level of the Common European Framework of Reference for Languages in the field of food packaging and testing of materials intended for contact with food		Test (written or computer based)
Social competences - Student is ready to:			
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.	Process engineering, including processing such as lactic fermentation, drying processing, membrane technologies, plant-based food production, nanotechnology), quality control and food safety, production sustainability and evaluation using life cycle assessment, by-products valorization (animal & plant), circular design for food, waste management.	W1, U1, K1	Lecture, Auditorium exercises

Course advanced

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

Activities	Methods of conducting classes
Auditorium exercises	E-learning - exercises part

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

Activities	Credit conditions
Lecture	test
Auditorium exercises	test

Literature

Obligatory

1. Singh, R.P. & Heldman, D.R. (2014). Introduction to food engineering (Fifth Edition). San Diego. Academic Press Inc.
2. Toledo R.T. (2007): Fundamentals of Food Process Engineering. New York, Springer.
3. "Food Waste to Valuable Resources - Applications and Management" Ed. Rajesh Banu, Gopalakrishnan Kumar, Gunasekaran M., Kavitha S. Academic press Elsevier, (2020).

Calculation of ECTS points

Activity form	Activity hours*
Lecture	22
Auditorium exercises	3
Preparation for the test	75
Student workload	Hours 100
Number of ECTS points	ECTS 4

* hour means 45 minutes