DESCRIPTION OF THE SAFE_15 MODULE IMPLEMENTED AS PART OF THE INTENSIVE FORM OF EDUCATION (IFoE)

Module Name	*Packaging*			
Language of Instruction	English			
Module Purpose	The aim of this module is to discuss the types of packaging materials and their characteristics, as well as active and intelligent packaging systems used for food packaging.			
Module Content	The lecture will discuss the types of packaging materials and the types of active and intelligent packaging used for food packaging. The exercises will include testing of packaging materials using an universal testing machine.			
Description of learning outcomes	Effect Symbol	Effect Name Methods	Verification and Documentation	Reference to Directional Effect Set
	KNOWLEDGE (graduate knows and understands)			
	W1	Knows and understands the differences in material types and is familiar with safe food packaging systems.	Graded assessment, written test, assessment report, archiving of assessment papers.	SAFE_W02
	W2	Knows and understands the characteristics of packaging materials.	Graded assessment, written test, assessment report, archiving of assessment papers.	SAFE_W04
	SKILLS (graduate can)			
	U1	Can select packaging materials for various product groups.	Graded assessment, written test, assessment report, archiving of assessment papers.	SAFE_U02
	U2	Can prepare a packaging materials test report.	Class report.	SAFE_U04
	SOCIAL COMPETENCES (graduate is ready to)			

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	K1	Is ready to assess the knowledge of available packaging types and their impact on food quality.	Participation in speeches and discussions.	SAFE_K01
Module crediting method	Tests with a grade			
ECTS credit balance (total, developing practical skills, from classes conducted using distance learning methods and techniques)	Number of contact hours/ECTS points		Number of non-contact hours/ECTS points	
	Lectures (hours 1 ECTS points 0.04) Classes (hours 2 ECTS points 0.08)		Reading literature (hours 1 ECTS points 0.04) Preparing for credit (hours 1 ECTS points 0.04)	
	Total contact hours 3 hr. 0,12 pt. ECTS		**Total non-contact hours 2 hr. 0,08 pt. ECTS**	
Staffing	prof. dr hab. Agnieszka Wójtowicz			
Information on the infrastructure ensuring the implementation of learning outcomes	The classroom is equipped with a multimedia projector for lecture presentations. The laboratory is equipped with a testing machine with appropriate hardware and software for testing packaging materials and preparing test reports. The classroom and laboratory are accessible to people with disabilities.			
Planned teaching methods	Lecture in the form of a multimedia presentation, exercises in the unit's laboratory using available equipment.			

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Recommended reading list	Goyal M. (Ed) Nanotechnology horizons in food process engineering. Vol. 1, Food preservation, food packaging and sustainable agriculture, Palm Bay, Burlington, Boca Raton, Abingdon, Apple Academic Press Inc., CRC Press, 2023 Sun Da-Wen Handbook of frozen food processing and packaging, Boca Raton, CRC Press Taylor & Francis Group, 2012 Han J. Innovations in food packaging [electronic document], Elsevier, 2007 Brody A., Strupinsky E., Kline L. Active packaging for food applications, Lancaster, Basel, Technomic Publishing, 2001 Arvanitoyannis I. Modified atmosphere and active packaging technologies, Boca Raton, CRC Press Taylor & Francis Group, 2012 Paine F. Modern processing, packaging and distribution systems for food, Glasgow, Blackie, Van Nostrand Reinhold Company, 1987

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