

## DESCRIPTION OF THE SAFE\_14 MODULE IMPLEMENTED AS PART OF THE INTENSIVE FORM OF EDUCATION (IFoE)

<b>Module Name</b>	<i>Modern food processing methods 2</i>			
<b>Language of Instruction</b>	english			
<b>Module Purpose</b>	The aim of the module is to familiarize students with the possibility of using extrusion-cooking in the production of plant-based meat substitutes and high-protein preparations, the characteristics of raw materials and additives, the basic and auxiliary equipment used in the process, quality requirements and methods for assessing protein texturants.			
<b>Module Content</b>	The lecture includes a presentation of methods for producing plant-based meat substitutes and high-protein preparations based on plant-based raw materials, including gluten-free ones. Exercises include the production of extruded products using specialized equipment, conducting color and texture tests on the products, and preparing a test report.			
<b>Description of learning outcomes</b>	Effect Symbol	Effect Name Methods	Verification and Documentation	Reference to Directional Effect Set
	KNOWLEDGE (graduate knows and understands)			
	W1	Knows and understands the principles of pressure-heat processing of food in the context of food safety.	Graded assessment, written test, assessment report, archiving of assessment papers.	SAFE_W02
	W2	Knows and understands the relationship between raw material selection, product quality, and process efficiency.	Graded assessment, written test, assessment report, archiving of assessment papers.	SAFE_W03
	SKILLS (graduate can)			
	U1	Can select process conditions to produce the intended product characteristics.	Graded assessment, written test, assessment report, archiving of final assignments.	SAFE_U02
	U2	Can prepare a report on the production and testing of food products.	Class report.	SAFE_U04

	SOCIAL COMPETENCES (graduate is ready to)			
	K1	Ready to collaborate in planning food production and testing	Participation in speeches and discussions	SAFE_K02
<b>Module crediting method</b>	Tests with a grade			
<b>ECTS credit balance (total, developing practical skills, from classes conducted using distance learning methods and techniques)</b>	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)	
	<b>Total contact hours 3 hr. 0,12 pt. ECTS</b>		<b>Total non-contact hours 2 hr. 0,08 pt. ECTS</b>	
<b>Staffing</b>	dr hab. inż. Maciej Combrzyński, dr inż. Marek Milanowski			
<b>Information on the infrastructure ensuring the implementation of learning outcomes</b>	The classroom is equipped with a multimedia projector for lecture presentations. The laboratory is equipped with a processing machine with appropriate equipment to prepare food products, as well as texture measurement equipment to test food texture and to prepare test reports. The classroom and laboratory are accessible to people with disabilities.			
<b>Planned teaching methods</b>	Lecture in the form of a multimedia presentation, exercises in the unit's laboratory using available equipment.			

### Recommended reading list

Mościcki L. (Ed) Extrusion-cooking techniques : applications, theory and sustainability, Weinheim, Wiley-VCH Verlag, 2011

Maskan M., Altan A. Advances in food extrusion technology, Boca Raton, CRC Press Taylor & Francis Group, 2012

Sun Da-Wen Emerging technologies for food processing [dokument elektroniczny], Elsevier, 2007

Khetarpaul N. Food processing and preservation, Delhi, Daya Publishing House, 2005

Paine F. Modern processing, packaging and distribution systems for food, Glasgow, Blackie, Van Nostrand Reinhold Company, 1987

Brennan J. Food processing handbook [dokument elektroniczny], Wiley InterScience, 2006

Richgardson P. Thermal technologies in food processing, Boca Raton, Cambridge, CRC Press, Woodhead Publishing, 2001

Fellows P. Food processing technology: principles and practice, Boca Raton, Cambridge, CRC Press, Woodhead Publishing, 2000

