Załacznik nr 1

Course name:
Technological design

ECTS	3
Course status	*facultativ*
Course final assessment /evaluation of outcomes	*Graded credit*
Prerequisite	*no*

Main field of study*:*
FOOD TECHNOLOGY AND HUMAN NUTRITION

Educational profile	General academic
Code of studies and education level	***SI***
Semester of studies	1/winter
Language of instruction	English

Course offered by:

Name of faculty offering the course	Faculty of Food Technology
Name of department offering the course	Department of Plant Product Technology and Nutrition Hygiene
Course coordinator	Emilia Bernaś Ph.D. D.Sc. Eng. associate professor

Learning outcomes:

Symbol of outcome	Description of the learning outcome	Reference to main field of study outcomes	Area symbol*
KNOWLEDGE – student knows and understands			
FT41_W1	basic issues in the field of designing food industry, the technological, technical, economic and legal aspects of development design documentation. He knows the basics methods, tools and materials as well as engineering technologies used in solving simple tasks concerning the design of industrial plants food.	TŻ1_W02 TŻ1_W04 TŻ1_W06 TŻ1_W12 TŻ1_W13 TŻ1_W14	RT
FT41_W2	principles of process design, production of food products and technological guidelines for individual branches of the food industry; principles of engineering graphics to the extent necessary for the field of food technology	TŻ1_W13 TŻ1_W14	RT
SKILLS – student is able to			
FT41_U1	properly plan, prepare and execute a technological line project, including calculations; independently, in a group or under the guidance of a teacher	TŻ1_U04	RT
FT41_U2	prepare a material balance of the indicated production process of the food, perform simple calculations concerning the warehouses space and amount of machinery and equipment in technological process	TŻ1_U08	RT

SOCIAL COMPETENCIES – student is ready to:			
FT41_K1	work in a team, assuming various roles in it, and to take responsibility for his own and others' work	TŻ1_K02	RT

Teaching contents

Lectures		15 hours
Topics	General issues: the purpose of design, organization of the design process, the role of a technologist in design technology, rules for developing design documentation, location of food industry plants.	
	Designing the technological and production process.	
	Warehouse design. Calculation of the area of warehouses of raw materials, packaging and products.	
	Transport and its role in the production process. Energy, heating and ventilation issues in technological designing.	
	The area of the industrial plant and its development. Environmental protection, zoning.	
Accomplished learning outcomes		FT41_W1, FT41_W2
Means of verification, rules and criteria of assessment		Written credit; for a positive assessment, at least 51% of correct answers to the questions should be provided. Participation in the final grade of the subject - 50%
Classes:		30 hours
	Principles of drawing up project documentation, developing a technological process, block diagrams, production schedule.	
	Selection of the production method and its justification.	
	Principles of developing material balances based on the schemes of production processes; including production losses. Calculation of demand for raw materials and packaging. Norms in designing.	
	Warehouse design. Calculation of the area of warehouses of raw materials, packaging and products.	
	Preparation of apparatus lines. Selection of machines and equipment for the technological process. Calculation of the necessary amount of machinery and equipment.	
	Calculation of media demand for process lines (power, water, steam).	
	Determining the number of direct production workers employed.	
	Health and safety regulations and the design of food industry plants.	
	Drawing up a technological project of the developed production line in a graphic form in the appropriate scale.	
Accomplished learning outcomes		FT41_U1, FT41_U2, FT41_K1
Means of verification, rules and criteria of assessment		Passing classes based on: a) design of the technological line of the food industry plant - participation in the final assessment 25%, b) 2 tests in the field of exercises (each test passed for a grade positive, positive evaluation for min. 51% of points) - participation in the final assessment 25%

References:

Basic	1. Materials provided by the teacher.

	2. Saravacos G.D., Kastropoulos A.E. 2013. Handbook of food processing equipment. Springer Science+Business Media.
Supplementary	

Structure of learning outcomes

Area of academic study: R – Agricultural, forestry and veterinary sciences		ECTS **
Area of academic study: T – technological sciences	3,0	ECTS**

Structure of student activity

Contact hours		49	hrs.	2.0	ECTS**
Including:	lectures	15	hrs.		
	classes and seminars	30	hrs.		
	consultations	2	hrs.		
	participation in research	0	hrs.		
	obligatory traineeships	0	hrs.		
	participation in examination	2	hrs.		
e-learning		0	hrs.	0.0	ECTS**
student own work		26	hrs.	1.0	ECTS**

*Areas of academic study in the fields of: H- humanities; S - social studies; P – biological sciences; T – technological sciences; M- medical, sport and health sciences; R – Agricultural, forestry and veterinary sciences; A – the arts
** stated with an accuracy to 0.1 ECTS, where 1 ECTS = 25 - 30 hours of classes