Course name: Contemporary technologies in fruit and vegetable processing

ECTS	3
Course status	*obligatory*
Course final assessment /evaluation of outcomes	*Written exam*
Prerequisite	*No prerequisites*

Main field of study:
Food Technology and Human Nutrition

Educational profile	General academic
Code of studies and education level	Bachelor / Master
Semester of studies	summer
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 Products Technology and Nutrition Hygiene
Course coordinator	dr hab. inż. Piotr Gębczyński, prof. URK

Learning outcomes:

Symbol of outcome	Description of the learning outcome	Reference to main field of study outcomes	Area symbol*
KNOWLEDGE – student knows and understands			
FB25_W1	conventional and contemporary methods of processing fruit and vegetables, their advantages and disadvantages, and points out the similarities and differences between them	TŻ1_W02	RT
FB25_W2	changes (physicochemical, microbiological, sensory) occurring in raw materials and fruit and vegetable products during processing and preservation; understands their relationship with the technological suitability of raw materials, nutritional value, quality and safety of finished products.	TŻ1_W03	RT
SKILLS – student is able to			
FB25_U1	develop a production process for a specific fruit and vegetable product, select raw materials for a given technological process, perform basic technological calculations and prepare a product recipe	TŻ1_U08 TŻ1_U09	RT
FB25_U2	carries out a research task related to the manufacturing and quality evaluation of fruit and vegetable products processed with selected methods	TW1_U07	RT
SOCIAL COMPETENCIES – student is ready to:			
FB24_K1	follows and absorbs innovations in food science and technology	TŻ1_K02	RT
FB24_K2	promoting the principles of rational nutrition following the current state of knowledge	TŻ1_K05	RT

Teaching contents

Lectures	15 hours
Topics	Characteristics and requirements for raw materials used in fruit and vegetable processing.
	Quality and safety of fruit and vegetable products

	Traditional and novel ways of low-processed fruit and vegetable food production
	Classic and contemporary techniques of food production from highly processed fruits and vegetables
	Conventional and modern fruit and vegetable products - chances and threats for food quality and safety
Accomplished learning outcomes	*FB24_W1; FB24_W2; FB24_K2*
Means of verification, rules and criteria of assessment	*Written exam: - for passing, the student must answer at least 51% of the questions correctly - participation in the subject's final grade - 60%.*
Classes:	15 hours
Topics	Low-processed fruit and vegetable products.
	Conventional and unconventional fruit and vegetable products - pasteurized or sterilized in airtight packages
	Innovative juices, nectars and non-alcoholic drinks made from fruit, vegetables and other edible plants
Accomplished learning outcomes	*FB24_U1; FB24_U2; FB24_K1; FB24_K2*
Means of verification, rules and criteria of assessment	*Pass of the classes based on: - individual reports on laboratory work (average of the obtained grades) - participation in the final grade 20%, - 2 partial tests in the field of exercises (positive grade for at least 51% of points) - participation in the final grade 20%.*

References:

Basic	*1. Malik A., Erginkaya Z., Erten H.(eds.) 2019. Health and safety aspects of food processing technologies. Springer Nature Switzerland AG (available at Springer Link on the University net)* *2. Saravacos G.D., Kastropoulos A.E. 2002. Handbook of food processing equipment. Springer Science+Business Media, LLC (available at Springer Link on the University net)*
Supplementary	*1. Liu X. et al. 2022. Trends and challenges on fruit and vegetable processing: Insights into sustainable, traceable, precise, healthy, intelligent, personalized and local innovative food products. Trends in Food Science & Technology, 15, 12-25 (available on Google Scholar)* *2. Yildiz, F., Wiley, R.C. (eds.). 2017. Minimally Processed Refrigerated Fruits and Vegetables. Springer Science+Business Media LLC (available at Springer Link on the University net)*

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		32	hrs.	1.3 ECTS**
Including:	lectures	15	hrs.	
	classes and seminars	15	hrs.	
	consultations	1	hrs.	
	participation in research	0	hrs.	
	obligatory traineeships	0	hrs.	
	participation in examination	1	hrs.	
e-learning		0	hrs.	0.0 ECTS**
student own work		43	hrs.	1.7 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