

Course name:**COFFEE, TEA, COCOA AND PSYCHOACTIVE PRODUCTS OF PLANT ORIGIN**

ECTS	4
Course status	directional - optional (available for the learning path)
Course final assessment /evaluation of outcomes	graded pass
Prerequisite	no prerequisites

Main field of study: Food Technology

Educational profile	General academic
Code of studies and education level	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 Carbohydrate Technology and Cereal Processing
Course coordinator	dr hab. inż. Dorota Gumul, prof. URK dr hab. inż. Rafał Ziobro, 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			
CTC_W1	unit operations and technological processes used in the production, fixation and storage of coffee tea and cocoa, the basic principles of production of psychoactive sub-products of plant origin. Knows and understands the types and sources of raw materials and the considerations for the selection of raw material for the production of food safe for the consumer.	TŻ1_W02	RT
CTC_W2	the complexity of the problem of variation in the quantitative and qualitative composition of biologically active plant substances and the theoretical and practical aspects of these issues in the context of standardization of the quality of raw materials for the production of coffee tea and cocoa	TŻ1_W03	RT
CTC_W3	in depth the role of coffee tea, cocoa and psychoactive plant substances in the prevention of diet-related diseases	TŻ1_W08	RT
SKILLS – student is able to			
CTC_U1	apply analytical methods and operate analytical equipment allowing for qualitative evaluation of plant raw material, its standardization and refinement	TŻ1_U07	RT
CTC_U2	use subject, methodological and experimental knowledge to independently plan, conduct, analyze and describe a research or design task in the field related to the field of study, formulate conclusions, conduct a critical analysis of the experiment	TŻ1_U04	RT

SOCIAL COMPETENCIES – student is ready to:			
CTC_K1	assess the risks arising from the use of inappropriate raw materials and technologies	TŽ1_K04	RT
CTC_K2	creatively search for ways to use new raw materials and technologies in plant processing	TŽ1_K01	RT

Teaching contents

Lectures		15 hours
Topics	Coffee - production, carcinogenic and health-promoting components formed during production, types of coffee Tea - black, green, red, blue and white and teas fortified with various raw materials - nutritional aspect Chocolate - functional beverage, types of chocolate, impact of production on health-promoting properties of chocolate Technology of tobacco products - manufacture of cigars, cigarillos, pipe tobacco and snuff. Health and legal aspects of tobacco product production. Characteristics of selected plant stimulants and psychoactive plants (Yerba mate (<i>Ilex paraguariensis</i>), Betel, Methistine pepper (Kava), Coca, Cola, Cannabis, Ayahuasca)	
Accomplished learning outcomes	CTC_W1 CTC_W2 CTC_W3	
Means of verification, rules and criteria of assessment	written test; 60% correct answers for positive outcome. Weight- 50%.	
Classes:		15 hours
Topics	Preparation of various infusions of coffee, teas and creation of chocolate with health-promoting additives. Sensory evaluation. Preparation of extracts by various alternative methods for determination of health-promoting compounds. Determination of polyphenols, flavonoids and antioxidant activity by DPPH and FRAP methods in coffee, tea and chocolate extracts. Attempt to correlate the color determined by the CIE Lab method with the antioxidant content of the extracts. Effect of different cocoa bean roasting methods on volatile and total acidity and content of Maillard reaction products. Commodity evaluation of cocoa beans.	
Accomplished learning outcomes	CTC_U1; CTC_U2; CTC_K1; CTC_K2	
Means of verification, rules and criteria of assessment	Students are assessed through demonstration of practical skills (40% of final grade)	

References:

Basic	1. Crozier A., Ashihara H., Tomás-Barberan F., Eds., <i>Teas, Cocoa and Coffee: Plant Secondary Metabolites and Health</i> , Wiley-Blackwell; 1st edition (November 21, 2011), ISBN-10 : 1444334417 2. Schmidt B. M., Klaser Cheng D. M., Eds., <i>Ethnobotany: A Phytochemical Perspective</i> , John Wiley & Sons Ltd. 2017, ISBN:9781118961933; DOI:10.1002/9781118961933 3. Rudgley R., <i>The Alchemy of Culture: Intoxicants in Society</i> , British Museum Press, 1993
Supplementary	1. Alifiya F., Guntarti A., Farmasi F., <i>Theobromine content in chocolate products: a review</i> , <i>Journal of Halal Science and Research</i> ISSN: 2715-6214, 15-12-202.

Structure of learning outcomes

Area of academic study: R – Agricultural, forestry and veterinary sciences	ECTS*
Area of academic study: T – technological sciences	4 ECTS**

Structure of student activity

Contact hours	32	hrs.	1,7	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	ECTS**
student own work	68	hrs.	2,3	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