

SYLLABUS

REGARDING THE QUALIFICATION CYCLE 2020/2021-2021/2022

Academic Year 2021/2022

1. BASIC COURSE/MODULE INFORMATION

Course Title	Physical properties of food
Course Code *	
Name of the unit offering the field of study	College of Natural Sciences
Name of the unit running the course	College of Natural Sciences Institute of Food Technology and Nutrition Department of Dairy Technology
Field of study	Food Technology and Human Nutrition
Qualification level	2st
Profile	General academic
Study mode	part-time studies
Academic year	Year II semester 3
Type of course	directly / Elective
Language of instruction	English
Course Coordinator	dr inż. Magdalena Buniowska
Name and surname of the instructor or instructors	dr inż. Magdalena Buniowska

* as agreed at the Department

1.1. Learning format – number of hours and ECTS credits

Semester (no.)	Lectures	Class.	Sem.	Lab.	Sem.	TT	Pract.	others	ECTS credits
3	9								1

1.2. Course delivery methods

X conducted in a traditional way

X classes carried out with the use of distance learning methods and techniques

1.3 Course/Module assessment (egzam, credit with a grade, credit without a grade)
credit without a grade**2. PREREQUISITES**

BASIC KNOWLEDGE OF PHYSICAL PROPERTIES OF FOOD, FOOD SAFETY AND CONTROL

3. OBJECTIVES, LEARNING OUTCOMES, COURSE CONTENT, AND INSTRUCTIONAL METHODS

3.1 Course/Module objectives

O ₁	TO DEFINE AND DESCRIBE PHYSICAL PROPERTIES OF FOODS, WHICH ARE USED TO MEASURE THE OVERALL QUALITY OF FRESH AND PREPARED FOODS.
O ₂	TO DESCRIBE PRINCIPLES OF INSTRUMENTAL METHODS, WHICH ARE CURRENTLY AVAILABLE FOR DETERMINING PHYSICAL PROPERTIES OF FOODS.
O ₃	TO GAIN LABORATORY EXPERIENCE IN DETERMINING PHYSICAL PROPERTIES.
O ₄	TO GAIN KNOWLEDGE AND DEVELOP SKILLS IN IDENTIFYING AND QUANTIFYING PHYSICAL PROPERTIES AND THEIR INTERRELATIONSHIPS.
O ₅	TO UNDERSTAND THE SIGNIFICANCE AND IMPORTANCE OF PHYSICAL PROPERTIES AND THEIR ROLES IN FOOD PROCESSING AND FOOD QUALITY

3.2 Course/Module Learning Outcomes

LO (Learning Outcome)	The description of the learning outcome defined for the course/module	Relation to the degree programme outcomes ¹
LO_01	the knowledge to measure physical properties of foods	K_W03
LO_02	use food chemistry knowledge to determine the major change in color, flavor, texture and nutritive value during food processing, handling and storage	K_W03
LO_03	use the physical parameters to design appropriate conditions for food processing	K_W03, K_U06, K_W06
LO_04	apply the basic science, food science, and engineering knowledge to archive certain set of quality attributes of food	K_U06

3.3 Course content

A. Lectures

COURSE CONTENTS
PHYSICAL ATTRIBUTES AND PARAMETERS DIMENSIONS, MASS (WIGHT) DENSITY, VOLUME, COLOUR, FORCE, PRESSURE ETC
RHEOLOGICAL PROPERTIES OF FOODS PRODUCTS
THERMAL PROPERTIES, THERMAL PROPERTIES OF FROZEN FOOD, THERMAL PROPERTIES OF FOOD CARBOHYDRATES
TEXTURE PROFILE ANALYSIS (TPA)
MEASUREMENT OF ELECTRICAL PROPERTIES
PERCEPTION AND PSYCHOPHYSICS IN FOOD

¹ In the case of the type of education leading to teaching qualifications, also take into account the learning outcomes from the standards of education preparing for the teaching profession.

3.4 Methods of Instruction

- Lecture: a lecture supported by a multimedia presentation

4. ASSESSMENT TECHNIQUES AND CRITERIA

4.1 Methods of evaluating learning outcomes

Symbol of learning outcome	Methods of assessment of learning outcomes (e.g. test, oral exam, written exam, project, report, observation during classes)	Learning format (lectures, classes,...)
LO_01	test	LECTURES,
LO_02	reports	LECTURES,
LO_03	test	LECTURES,
LO_04	reports	LECTURES,

4.2 Course assessment (criteria)

Attendance in all laboratory classes. Reporting and presenting results of practical and laboratory exercises. Pass the laboratory material tests and final exam (OPEN TEST)
Grade 5, > 94%; Grade 4.5, 90-94%; Grade 4, 80-89%; Grade 3.5, 70-79%; Grade 3, 60-69% correct answers

5. TOTAL STUDENT WORKLOAD NEEDED TO ACHIEVE THE INTENDED LEARNING OUTCOMES – NUMBER OF HOURS AND ECTS CREDITS

ACTIVITY	AVERAGE NUMBER OF HOURS TO COMPLETE THE ACTIVITY
SCHEDULED COURSE CONTACT HOURS	9
OTHER CONTACT HOURS INVOLVING THE TEACHER (CONSULTATION HOURS, EXAMINATIONS)	2
NON-CONTACT HOURS - STUDENT'S OWN WORK (PREPARATION FOR CLASSES OR EXAMINATIONS, PROJECTS, ETC.)	14
TOTAL NUMBER OF HOURS	25
TOTAL NUMBER OF ECTS CREDITS	1

* One ECTS point corresponds to 25-30 hours of total student workload

6. INTERNSHIPS RELATED TO THE COURSE/MODULE

Number of hours	-
Internship regulations and procedures	-

7. INSTRUCTIONAL MATERIALS

Compulsory literature:

1. Ran MA, Rizvi SSH, Datta AK. 2005. Engineering properties of foods, 3rd ed. Taylor & Francis. New York
2. BOURNE M. C. Food Texture and Viscosity: Concept and Measurement, Academic Press, 2002.
3. M.J Lewis 1990. Physical Properties of Foods and Food Processing Systems. A volume in Woodhead Publishing Series in Food Science, Technology and Nutrition

Complementary literature:

1. **Buniowska, M.**, Carbonell-Capella, J.M., Znamirowska, A., Frígola, A., Esteve, M.J. Steviol glycosides and bioactive compounds of a beverage with exotic fruits and Stevia rebaudiana Bert. as affected by thermal treatment. **International Journal of Food Properties**, 2020, 23(1), pp. 255-268
2. Kalicka, D., Znamirowska, A., **Buniowska, M.**, Esteve Más, M.J., Canoves, A.F. Effect of stevia addition on selected properties of yoghurt during refrigerated storage Polish Journal of Natural Sciences, 2017, 32(2), pp. 323-334
3. Znamirowska, A., Kalicka, D., **Buniowska, M.**, Rożek, P. Effect of dried apple powder additive on physical-chemical and sensory properties of yoghurt Food. Science Technology. Quality, 2018, 25(2), pp. 71-80

Approved by the Head of the Department or an authorised person