**SYLLABUS**

**regarding the qualification cycle FROM 2024/2025 TO 2024/2025**

1. Basic Course/Module Information

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| --- | --- |
| Course/Module title | Fundamentals of technological processes |
| Course/Module code \* |  |
| Faculty (name of the unit offering the field of study) | College of Natural Sciences  Institute of Food Technology and Nutrition |
| Name of the unit running the course | Department of Food Technology and Human Nutrition |
| Field of study | Product development manager |
| Qualification level | First degree  Second degree |
| Profile | General academic |
| Study mode | stationary |
| Year and semester of studies | 2024/2025  Winter semester |
| Course type | Erasmus + program |
| Language of instruction | English |
| Coordinator | Greta Adamczyk Ph.D. |
| Course instructor | Greta Adamczyk Ph.D. |

\* - as agreed at the faculty

1.1.Learning format – number of hours and ECTS credits

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Semester  (n0.) | Lectures | Classes | Colloquia | Lab classes | Seminars | Practical classes | Internships | others | **ECTS credits** |
| Summer |  |  |  | 30 |  |  |  |  | 5 |

1.2. Course delivery methods

- conducted in a traditional way

1.3. Course/Module assessment (exam, pass with a grade, pass without a grade)

pass without a grade

2. Prerequisites

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| Completed course: chemistry, fundamentals of physics |

3. Objectives, Learning Outcomes, Course Content, and Instructional Methods

3.1. Course/Module objectives

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| --- | --- |
| O1 | To familiarize students with unit processes used in production and the conditions for implementing unit processes in production. |
| O2 | Developing the ability to analyze technical and technological problems in order to shape product quality. |

3.2. Course/Module Learning Outcomes (to be completed by the coordinator)

|  |  |  |
| --- | --- | --- |
| Learning Outcome | The description of the learning outcome  defined for the course/module | Relation to the degree programme outcomes |
| LO\_01 | Is able to identify individual operations and unit processes occurring during production processes and critically analyze their impact on the quality and health safety of the product. | K\_U01; K\_U03; K\_U06; K\_U09; |
| LO\_02 | Is ready to critically analyze knowledge regarding unit processes and take responsibility for the use of unit processes in production. | K\_K01; K\_K03 |

**3.3. Course content (to be completed by the coordinator)**

1. Lectures

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| Content outline |
|  |

1. Classes, tutorials/seminars, colloquia, laboratories, practical classes

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| Content outline |
| Separation of mixtures in solid, liquid and gaseous media. Filtration techniques, centrifugation, sieving |
| Distillation and rectification. Distillation separation of ethyl alcohol. |
| Sorption. Adsorption of acetic acid and dyes on activated carbon |
| Extraction. Extraction of dyes (e.g. anthocyanins and chlorophylls). Fat extraction. |
| Thermal operations - heating with water, steam, microwaves. |
| The use of enzymes. Enzymatic modification of raw material on the example of enzymatic modification of starch. |

3.4. Methods of Instruction

Laboratory

4. Assessment techniques and criteria

4.1 Methods of evaluating learning outcomes

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| --- | --- | --- |
| 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 | discussion, report | Laboratory |
| LO-o2 | discussion, report | Laboratory |

4.2 Course assessment criteria

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| A prerequisite for passing a course is the achievement of all the assumed learning outcomes. A positive grade in the course is determined by the number of points obtained in examinations (>50% of the maximum number of points):  2,0 (f) <=50 %  3,0 (e) 51 - 65%;  3,5 (d) 66 - 75%,  4,0 (c) 76 - 85%,  4,5 (b) 86 - 92%;  5,0 (a) 93 - 100%. |

5. Total student workload needed to achieve the intended learning outcomes

– number of hours and ECTS credits

|  |  |
| --- | --- |
| Activity | Number of hours |
| Scheduled course contact hours | 30 |
| Other contact hours involving the teacher (consultation hours, examinations) | 20 |
| Non-contact hours - student's own work (preparation for classes, making reports) | 75 |
| Total number of hours | 125 |
| Total number of ECTS credits | 5 |

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

6. Internships related to the course/module

|  |  |
| --- | --- |
| Number of hours | 0 |
| Internship regulations and procedures | 0 |

7. Instructional materials

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| Compulsory literature:  1. Berk Z. Food Process Engineering and Technology. Academic Press is an imprint of Elsevier 2009. ISBN: 978-0-12-373660-4 |
| Complementary literature:  1. R. Paul Singh and Dennis R. Heldman, Introduction to Food Engineering, fourth edition.  2008. |

Approved by the Head of the Department or an authorised person