**SYLLABUS**

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

1. Basic Course/Module Information

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| --- | --- |
| Course/Module title | Carbohydrates technology I |
| Course/Module code \* |  |
| Faculty (name of the unit offering the field of study) | Collegium of Natural Science |
| Name of the unit running the course | Institute of Food Technology and Nutrition |
| Field of study | Food Technology and Human Nutrition |
| Qualification level  | first-degree studiessecond-degree studies |
| Profile |  |
| Study mode | stationary |
| Year and semester of studies | 2024/2025Winter semester |
| Course type | Lectures |
| 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**  |
|  | 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 with an exam

2. Prerequisites

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| General Technology, Cereals technology, Food chemistry |

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

3.1. Course/Module objectives

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| --- | --- |
| O1 | Familiarizing students with the raw materials used in the processing of carbohydrates |
| O2 | Familiarizing students with the technology used in the processing industry carbohydrates |
| O3 | Organizing knowledge on the use of carbohydrate raw materials in the food industry |
| O4 | Presentation of basic raw material processing technologies carbohydrates |

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 | knows and characterizes basic raw materials carbohydrates and technological processes | K1\_W06, K1\_W10 |
| LO\_02 | knows and understands sugar and confectionery technology and starch technology along with methods starch processing, starch production modified, producing different products potatoes | K1\_W06; K1\_W10 |
| LO\_03 | Understands and cares about the work ethic of the food technologist profession. | K\_K04 |

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

1. Lectures

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| Content outline |
| 1. Characteristics of the carbohydrate industry. |
| 2. Characteristics of potatoes and their technological usefulness.  |
| 3. Structure and physicochemical properties of starch. |
| 4. Starch processing towards obtaining hydrolysates and modifiers. |
| 5. Cereal grain characteristics. |
| 6. Sugar industry. |
| 7. Characteristics of confectionery products |
| 8. Polysaccharide hydrocolloids and their role in the food industry. |

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

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| --- |
| Content outline  |
|  |

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

|  |  |  |
| --- | --- | --- |
| 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 | written exam | lectures |
| LO-o2 | written exam | lectures |
| LO-o3 | written exam | lectures |

4.2 Course assessment criteria

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| --- |
| The grade of the subject is determined by the total points of the exam. Passing exercises (> 50% of the maximum number of points): satisfactory 51-59%, satisfactory plus 60-69%, good 70-79%, good plus 80-89%, very good> 90%.Requirement is to reach all learning outcomes. |

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 or examinations, projects, etc.) | 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 | *-* |
| Internship regulations and procedures | *-* |

7. Instructional materials

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| Compulsory literature:1. Adamczyk, G.; Krystyjan, M.; Jaworska, G. The Effect of the Addition of Dietary Fibers from Apple and Oat on the Rheological and Textural Properties of Waxy Potato Starch. Polymers, 2020, 12(2), 321. 2. Sikora M., Adamczyk G., Krystyjan M., Dobosz A., Tomasik P., Berski W., Łukasiewicz M., Izak P. Thixotropic properties of normal potato starch depending on the degree of the granules pasting. Carbohydrate Polymers, 2015, (121), 254-264. 3. Krystyjan M., Sikora M., Adamczyk G.,., Dobosz A., Tomasik P., Berski W., Łukasiewicz M., Izak P. Thixotropic properties of waxy potato starch depending on the degree of the granules pasting. Carbohydrate Polymers, 2016, (141), 126-134 4. Becket S. Industrial chocolate manufacturing and use. Wiley 2008. 5. Lisińska G., Leszczyński W. Potato Science and Technology. W. Appl. Science Publishers London, New York 1989. 6. Lusas E.W., Rooney L.W. Snack Food Processing, CRC Press, Boca Raton, London, New York, Washington 2001. 7. Pycia K., Juszczak L., Gałkowska D., Witczak M. Physicochemical properties of starches obtained from Polish potato cultivars. Starch/Stärke, 2012, 64, 105-114. 8. Pycia K., Juszczak L., Gałkowska D., Witczak M., Jaworska G. Maltodextrins from chemically modified starches. Selected physicochemical properties. Carbohydrate Polymers, 2016, 146, 301-309. 9. Warner K.,White P.J. Frying technology and practices. Grupa M.K., AOCS, Press Champaign, Illinois 2004.  |
| Complementary literature: 1. Mohammed, I. K., Skamniotis, C. G., & Charalambides, M. N. (2019). Developing Food Structure for Mechanical Performance. Handbook of Food Structure Development, 18, 199. |

Approved by the Head of the Department or an authorised person