



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Food industry engineering

### Course

Field of study

Construction and Exploitation of Means of Transport

Area of study (specialization)

Food Industry Machines and Refrigeration

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

3/5

Profile of study

general academic

Course offered in

polish

Requirements

compulsory

### Number of hours

Lecture

15

Laboratory classes

15

Other (e.g. online)

0

Tutorials

0

Projects/seminars

0

### Number of credit points

3

### Lecturers

Responsible for the course/lecturer:

dr.inż. Wojciech Ratajczak

Responsible for the course/lecturer:

Faculty of Civil and Transport Engineering

### Prerequisites

The student has general knowledge of mechanics, thermodynamics, mathematics and biology, chemistry and physics in the field of high school, can see and take into account the relationship between the properties of the product and the parameters of devices for its processing and inter-operational transport, can work in a team.

### Course objective

Understanding the basic properties, processes and unit operations, as well as the principles of selecting technical means for their implementation, including inter-operational transport devices in the food industry.

### Course-related learning outcomes

Knowledge

1. Has ordered, theoretically founded general knowledge in the field of technology, transport systems and various means of transport.



2. Has knowledge of important development directions and the most important technical achievements in the field of food industry engineering and other related scientific disciplines.

#### Skills

1. Can obtain information from various sources, including literature and databases, both in Polish and in English, integrate them properly, make their interpretation and critical assessment, draw conclusions, and comprehensively justify their opinions.
2. Can properly plan and perform experiments, including measurements and computer simulations, interpret the results obtained and correctly draw conclusions from them.

#### Social competences

He can think and act in an entrepreneurial way, taking into account not only the business benefits, but also the social benefits of the activity. He understands that knowledge and skills very quickly become obsolete in technology.

#### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The knowledge acquired during the lecture is verified by one 45-minute test carried out during the 8th lecture. The test consists of 4 open-ended questions with different scores. Passing threshold: 50% of points. Final issues, on the basis of which the questions are developed, will be sent to students by e-mail. The skills acquired during the laboratory classes are verified on the basis of the obligatory reports from laboratory classes and a 30-minute credit test during the last classes, consisting of 3 questions. Passing threshold: 50% of points.

#### Programme content

Classification of food industry branches and characteristics of their basic raw materials and products and their properties. Food ingredients. Characteristics of operations and unit processes in food industry technologies. Inter-operational transport in food industry plants. Transport of thick liquids and food masses. Transportation of loose food materials. Unloading tanks with food liquids and tanks with loose materials. Principles of selection of processing devices and inter-operational transport. Functional calculations. Examples of transport solutions in technological lines of the food industry.

#### Teaching methods

1. Lecture with multimedia presentation.
2. Practical laboratory exercises

#### Bibliography

##### Basic

1. P. Lewicki, Inżynieria i aparatura przemysłu spożywczego, WNT 2017
2. Z. Pałacha, I. Sitkiewicz, Właściwości fizyczne żywności, WNT 2010



3. Matras Z. Transport hydrauliczny reologicznie złożonych cieczy nienewtonowskich w przewodach, Wydawnictwo PK, Kraków 2001

4. Boruch M., Król B., Procesy technologii żywności; Łódź 1993

Additional

1. Ziolo M., Instalacje rurociągowie w przemyśle chemicznym; Wydawnictwo Naukowo-Techniczne; Warszawa 1969.

2. Piecuch-Urbańczyk B., System transportowy w przedsiębiorstwie produkcyjnym. Internetowe Wydawnictwo Publikacje Edukacyjne, <http://www.publikacje.edu.pl/>

3. Halusiak S., Uciński J., Transport wewnętrzny. Zagadnienia wybrane, Politechnika Łódzka, Łódź 2013

4. Jeżowiecka-Kabsch K., Szewczyk H., Mechanika płynów, Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław

5. D. Witrowa-Rajchert, P.P. Lewicki Wybrane zagadnienia obliczeniowe inżynierii żywności ,Wydawnictwo , SGGW 2012

**Breakdown of average student's workload**

	Hours	ECTS
Total workload	80	3,0
Classes requiring direct contact with the teacher	30	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) <sup>1</sup>	45	2,0

<sup>1</sup> delete or add other activities as appropriate