



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Materials and technologies in food production and trade [N2MiBP1-PCh>MiTwPiOŻ]

### Course

Field of study

Mechanical and Automotive Engineering

Year/Semester

1/2

Area of study (specialization)

Refrigerated Vehicles

Profile of study

general academic

Level of study

second-cycle

Course offered in

Polish

Form of study

part-time

Requirements

compulsory

### Number of hours

Lecture

9

Laboratory classes

9

Other

0

Tutorials

0

Projects/seminars

0

### Number of credit points

1,00

### Coordinators

dr hab. inż. Łukasz Wojciechowski prof. PP  
lukasz.wojciechowski@put.poznan.pl

### Lecturers

### Prerequisites

Knowledge: the student has basic knowledge of materials engineering and construction technology machines Skills: the student has the ability to self-study, is able to synthesize the collected information and formulate conclusions Social competences: the student is aware of the responsibility for the decisions made.

### Course objective

Learning about materials and technologies in the production and trade of food, with particular emphasis on specific problems in the selection of construction and operating materials.

### Course-related learning outcomes

Knowledge:

Has extensive knowledge of the processes taking place in the surface layer of machine structural elements and surface engineering methods.

Has knowledge of the principles of safety and ergonomics in the design and operation of machines and the threats that machines pose to the natural environment.

Has extended knowledge of modern construction materials such as carbon plastics, composites,

ceramics, in terms of their construction, processing technology and applications.

#### Skills:

He can correctly select the optimal material and its processing technology for typical parts of working machines, taking into account the latest achievements in material engineering.

Is able to use the acquired knowledge in the field of thermodynamics and fluid mechanics to simulate thermodynamic processes in technological systems of machines, using specialized computer programs. He can advise on the selection of machines for the technological line as part of the specialization.

#### Social competences:

It is ready to fulfill social obligations, inspire and organize activities for the benefit of the social environment.

It is ready to initiate actions for the public interest.

Is willing to think and act in an entrepreneurial manner.

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:  
written test, laboratory reports

### Programme content

Legal regulations concerning the production and sale of food. Supervision over the hygiene of production and trading food (systems: GMP, GHP, HACCP). Basics of the selection of consumables (oils and lubricants, working fluids, washing and disinfecting agents). Characteristics of individual groups of consumables in the production and trade of food. Selected properties and specifications technological technology of materials in the production and trade of food. General basics of machining design subtle. Technologies of difficult-to-cut materials. Protective coating technologies. Technologies bonding specific materials. Examples of technologies in food production and trade.

### Course topics

none

### Teaching methods

Lecture with a multimedia presentation, Laboratories - problem methods (case study, situational, expert table method)

### Bibliography

Basic

1. Leda H. Wybrane metalowe materiały konstrukcyjne. Wyd. PP, Poznań 1994
2. Cichoń Z. Nowoczesne opakownictwo żywności, Ossolineum, Wrocław 1996
3. Polański Z. Optymalizacja w technologii maszyn. WNT, Warszawa 1996
4. Grzesik W. Podstawy skrawania materiałów metalowych, WNT, Warszawa 1998

Additional

### Breakdown of average student's workload

|                                                                                                                                         | Hours | ECTS |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------|------|
| Total workload                                                                                                                          | 30    | 1,00 |
| Classes requiring direct contact with the teacher                                                                                       | 18    | 0,50 |
| Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation) | 12    | 0,50 |