



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Optimum use of materials and technologies

Course

Field of study

Material Science and Engineering

Area of study (specialization)

Level of study

Second-cycle studies

Form of study

full-time

Year/Semester

2/3

Profile of study

general academic

Course offered in

Polish

Requirements

elective

Number of hours

Lecture

15

Laboratory classes

Other (e.g. online)

Tutorials

Projects/seminars

15

Number of credit points

3

Lecturers

Responsible for the course/lecturer:

dr inż. Mikołaj Popławski

Responsible for the course/lecturer:

Prerequisites

Knowledge related to physics, chemistry, materials science.

Course objective

Students learning the most important methods of optimum use of materials and technologies .

Course-related learning outcomes

Knowledge

Student should be able to characterize basic requirements for materials.

Student should be able to suggest appropriate material solutions.

Skills

Student is able to potrafi select material and technology.

Social competences

Student understands the need for lifelong learning; can inspire and organize the learning process of others; can cooperate and work in a group, adopting various roles.



Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Final test, laboratory reports.

Laboratory classes: evaluation of students knowledge necessary to prepare and carry out the lab tasks and evaluation of reports.

Programme content

1. Identification of functions and requirements for materials. 2. Most common criteria of optimizing : technologiability, mechanical properties, exploitation properties, durability and reliability, ecological performance. 3. Costs generated by the above mentioned requirements. 4. Use of the knowledge of reinforcement processes in the selection of materials, technology and its parameters. 5. Considering factors promoting machine elements and tools wear.

Teaching methods

Lecture : presentation illustrated with examples shown on the board, task solution, discussion.

Project : individual students work on the project, discussion.

Bibliography

Basic

1. M.F. Ashby - Dobór materiałów w projektowaniu inżynierskim, WNT 1998.
2. M.F. Ashby, D.R.H. Jones - Materiały inżynierskie t. 1 i 2, WNT 1995 i 1996.

Additional

1. H. Leda - Strukturalne aspekty własności mechanicznych wybranych materiałów, WPP 1998.

Breakdown of average student's workload

	Hours	ECTS
Total workload	30	3,0
Classes requiring direct contact with the teacher	15	2,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) ¹	15	1,0

¹ delete or add other activities as appropriate