



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Surface treatment [S1IMat1>OPow]

### Course

Field of study

Materials Engineering

Year/Semester

3/5

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

polish

Form of study

full-time

Requirements

compulsory

### Number of hours

Lecture

15

Laboratory classes

15

Other (e.g. online)

0

Tutorials

0

Projects/seminars

0

### Number of credit points

2,00

### Coordinators

dr inż. Adam Piasecki

adam.piasecki@put.poznan.pl

### Lecturers

### Prerequisites

Basic knowledge of chemistry, physics, materials science. Logical thinking, use of the information obtained from the library and the Internet. Understanding the need for learning and acquiring new knowledge

### Course objective

Knowledge of methods and techniques for surface treatment.

### Course-related learning outcomes

Knowledge:

1. the student should characterize the mechanism of formation, structure and importance of the surface layer of the material for the quality and durability of products - [k\_w03, k\_w16]
2. the student should characterize the surface treatment methods - [k\_w08, k\_w11]

Skills:

1. the student is able to choose the method of surface treatment of the product according to technical and economic criteria - [k\_u01, k\_u03, k\_u05, k\_u13]
2. the student is able to examine the properties of the surface layer of the product - [k\_u04, k\_u05,

k\_u08, k\_u09]

Social competences:

1. the student is able to work in a group - [k\_k03]
2. the student is aware of the importance of surface treatment for the quality and durability of products, economy and society - [k\_k02]

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

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Lecture: - credit on the basis of a test consisting of both open and test questions carried out at the end of the semester.. Scale of estimate: 51-60% - dst(C), 61-70% - dst+(C+), 71-80% - db(B), 81-90% - db+(B+), 91-100% - bdb(A).

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

### Programme content

Lecture: Characteristics and properties of the surface layer of the material. Classification of methods and techniques of surface treatment. Abrasive surface treatment. Chemical and electrochemical surface treatment. Galvanic coatings. Hot dip metallization. Paint coatings. Methods of testing surface layers.

Laboratory classes: 1. Hot dip metallized coatings. 2. Diffusion layers. 3. Galvanic coatings. 4. Sprayed and thermally welded coatings. 5. Paint coatings.

### Teaching methods

multimedia presentations

### Bibliography

Basic

1. Burakowski T., Areologia. Podstawy teoretyczne, Instytut Technologii Eksploatacji – PIB / 2013.
2. Blicharski M., Inżynieria powierzchni, Wyd. PWN, 2009.

Additional

1. Młynarczak A. Jakubowski J.: Obróbka powierzchniowa i powłoki ochronne. Wyd. PP 1998.
2. Praca Zbiorowa. Poradnik Galwanotechnika. WNT Warszawa 2002.

### Breakdown of average student's workload

	Hours	ECTS
Total workload	60	2,00
Classes requiring direct contact with the teacher	34	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	15	1,00