



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Protective and decorative coatings in the automotive industry [S1MiTPM1>POiDwPS]

Course

Field of study

Materials and technologies for automotive industry

Year/Semester

4/7

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

Polish

Form of study

full-time

Requirements

elective

Number of hours

Lecture

15

Laboratory classes

15

Other

0

Tutorials

0

Projects/seminars

0

Number of credit points

2,00

Coordinators

dr hab. inż. Natalia Makuch-Dziarska prof. PP

Lecturers

Prerequisites

Basic knowledge of materials science and surface engineering.

Course objective

Learn about decorative and protective coating application techniques and methods of testing them.

Course-related learning outcomes

Knowledge:

1. Has a structured knowledge of chemistry and electrochemistry, necessary to understand the basic phenomena occurring during the deposition of coatings.
2. Has detailed knowledge of the study of decorative and protective properties of coatings used in the automotive industry.
3. Has knowledge of engineering the application of coatings to automotive materials.

Skills:

1. Can plan and carry out tests on the decorative and protective properties of coatings used in the automotive industry.
2. Able to apply knowledge in the area of application of protective and decorative coatings in practice

and select the type of coating for specific applications in the automotive industry.

Social competences:

1. Understands the need to acquire new knowledge in the field of coating technology for automotive materials.
2. Is able to cooperate in a group to solve problems related to the performance of coating application processes and the study of their properties.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: written credit at the end of the semester (credit if at least 51% of the points are obtained).

Laboratory: Credit on the basis of a written test/ oral answer and written studies from the realized program content during exercises. In order to receive credit, the written test/ oral answer and all reports must be passed with a positive mark.

Programme content

Learn about decorative and protective coating application techniques and methods of testing them.

Course topics

Lecture:

1. introduction to surface engineering.
2. Classification of protective coatings and their properties.
3. Classification of decorative coatings and their properties.
4. Metallic coatings used in the automotive industry.
5. Polymeric coatings used in the automotive industry.
6. Varnish coatings.
7. Test methods for coatings used in the automotive industry.

Laboratory:

1. Effect of surface preparation on quality and properties of coatings.
2. Electroplating coatings.
3. Polymeric coatings.
4. Decorative properties of coatings.
5. Protective properties of coatings.

Teaching methods

1. Lecture: multimedia presentation
2. Laboratory exercises: practical exercises, discussion and teamwork.

Bibliography

Basic:

1. Blicharski M.: Inżynieria powierzchni, Wydawnictwa Naukowo-Techniczne, 2021
2. red. Tkaczyk S.: Powłoki ochronne, Wydawnictwo Politechniki Śląskiej, 1998
3. Sobierajska G., Neumann Z.: Lakiernictwo samochodowe, SIMP, 2010

Additional:

1. Kowalski Z.: Powłoki z tworzyw sztucznych, Wydawnictwa Naukowo-Techniczne, 1973.
2. Dobrosz K., Matysiak A.: Powłoki ochronne w pojazdach samochodowych, Wydawnictwa Komunikacji i Łączności, 1986.

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	30	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	20	1,00