



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Investigating methods of polymeric materials [S2TCh2-TP>MBMP]

Course

Field of study

Chemical Technology

Year/Semester

2/3

Area of study (specialization)

Polymer Technology

Profile of study

general academic

Level of study

second-cycle

Course offered in

Polish

Form of study

full-time

Requirements

compulsory

Number of hours

Lecture

15

Laboratory classes

0

Other

0

Tutorials

0

Projects/seminars

15

Number of credit points

2,00

Coordinators

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Lecturers

Prerequisites

The student has the necessary knowledge of chemistry to enable understanding of chemical phenomena and processes. The student has knowledge in the field of technology and chemical engineering, material science and apparatus of the chemical industry.

Course objective

Transfer of knowledge in the field of methods used in the measurement of the properties of polymers and plastics.

Course-related learning outcomes

Knowledge:

1. The student has expanded knowledge about the latest chemical and material technologies, including technologies of advanced materials and nanomaterials, knows current trends in the development of chemical industrial processes related to polymeric materials. [K_W6]
2. The student knows modern methods of testing the structure and properties of materials, necessary to characterize raw materials and products of the chemical industry, with particular emphasis on polymeric materials. [K_W7]

Skills:

1. The student has the ability to obtain and critically evaluate information from literature, databases and other sources, and formulate opinions and reports on this basis. [K_U1]
2. The student has the ability to work in a team and lead a team. [K_U2]
3. The student is able to critically analyze industrial chemical processes and introduce modifications and improvements in this field, using the acquired knowledge, including knowledge about the latest achievements of science and technology. [K_U15]
4. The student is able to critically assess the practical usefulness of using new achievements in chemical technology. [K_U17]

Social competences:

1. The student is aware of the need for lifelong learning and professional development. [K_K1]
2. The student has formed awareness of science and technology limitations related to chemical technology, including environmental protection. [K_K2]
3. The student observes all rules of teamwork; is aware of the responsibility for joint ventures and achievements in professional work. [K_K4]
4. The student is able to think and act in a creative and entrepreneurial way. [K_K6]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

1. Written credit on the issues presented in the lecture. Student obtains a pass by achieving at least 51% of points. Online: final test using the test module on the eKursy platform (student obtains a pass by achieving at least 51% of points).
2. Presentations on the subject of the project (assessment of preparation, presentation and general knowledge). A written project with the planning of laboratory rooms and the research techniques used to study the properties of the substrate, intermediate and final product from the subject of the project. The final grade will be issued based on the average of grades from multimedia presentations (averaged) and the submitted project in written form in the ratio: 40% : 60% (presentation: written project).

Programme content

Issues in the field of methods used in the measurement of the properties of polymers and plastics.

Course topics

The course content includes the following topics:

1. The content of the course (lecture) includes issues related to investigating methods of polymeric materials. The subject of the lecture are the methods of testing the physical, physicochemical, optical, thermal, mechanical and aging resistance, fatigue, long-term and dynamic properties of polymers and plastics, as well as special testing methods for some semi-finished and finished products.
2. The project covers issues related to modern methods of testing the properties of polymeric materials, designing laboratory rooms (laboratory for testing the properties of substrates, semi-finished products and products) and health and safety rules.

Teaching methods

1. Lecture: multimedia presentation.
3. Project: student reports (multimedia presentation), work with students in class (calculations, discussion, etc.)

Bibliography

Basic:

1. T. Broniewski, J. Kapko, W. Płaczek, J. Thomalla: "Metody badań i ocena właściwości tworzyw sztucznych", WNT, Warszawa 2000.
2. T. Karasiewicz, K. Moraczewski, P. Rytlewski, M. Stepczyńska, M. Żenkiewicz: "Metody badań i oceny niektórych właściwości tworzyw polimerowych i metali", Bydgoszcz 2012.
3. J.J. Pielichowski, A.A. Puszyński: „Technologia tworzyw sztucznych”, WNT, Warszawa 1992.

Additional:

1. Scientific publications related to the topic of the lecture.
2. Scientific publications related to the topic of the project.

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