



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Selected issues of modern chemical knowledge

### Course

Field of study

Chemical Technology

Area of study (specialization)

Polymer Technology

Level of study

Second-cycle studies

Form of study

full-time

Year/Semester

I/1

Profile of study

general academic

Course offered in

Polish

Requirements

compulsory

### Number of hours

Lecture

15

Tutorials

Laboratory classes

Projects/seminars

15

Other (e.g. online)

### Number of credit points

2

### Lecturers

Responsible for the course/lecturer:

dr inż. Paulina Jakubowska

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Wydział Technologii Chemicznej

ul. Berdychowo 4, 61-131 Poznań

Responsible for the course/lecturer:

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### 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, machine science and apparatus of the chemical industry.

### Course objective

Transfer of knowledge about advanced polymer materials, their production, properties and modern applications.

### 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:

Lecture: Stationary: written exam (5 open questions) (student obtains a pass by achieving at least 51% of points). Online: final test (20 closed questions) using the test module on the eKursy platform (student obtains a pass by achieving at least 51% of points).



Project: Determining the final grade based on partial grades received during the semester during classes in direct contact with the teacher (online in "live view" mode with the webcam turned on via the eKursy platform).

Grade for preparing a paper in the form of a multimedia presentation on a selected topic related to the subject of the project.

Grade for the team project on written form (online sent via the eKursy platform or by e-mail using the university e-mail system) and project defense.

### Programme content

The course content includes the following topics:

1. Course contents (lecture) include issues related to the specification of advanced polymer materials (new generation plastics, composites, nanocomposites), a description of their preparation methods, assessment of properties and application possibilities.
2. The project includes issues related to modern technologies for processing polymer materials, methods for testing the properties of plastics, designing laboratory rooms and health and safety rules.

### Teaching methods

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

### Bibliography

Basic

1. W. Szlezyngier: „Tworzywa Sztuczne. Nowe tworzywa sztuczne. Tom III”, Rzeszów 1999.
2. D. Żuchowska" „Polimery konstrukcyjne”, WNT, Warszawa 2000.
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 subject of the project.



### Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,0
Classes requiring direct contact with the teacher	30	1,2
Student's own work (literature studies, preparation for classes, preparation for exam, project preparation) <sup>1</sup>	20	0,8

<sup>1</sup> delete or add other activities as appropriate