



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Elective laboratory (Polymer technology)

Course

Field of study

Chemical and process engineering

Area of study (specialization)

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

4/7

Profile of study

general academic

Course offered in

Polish

Requirements

elective

Number of hours

Lecture

Laboratory classes

Other (e.g. online)

15

Tutorials

Projects/seminars

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

dr hab. inż. Arkadiusz Kloziński

Responsible for the course/lecturer:

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Wydział Technologii Chemicznej

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Prerequisites

The student has knowledge of the basic issues of general chemistry, organic chemistry. The student knows and applies good working techniques in the chemical laboratory, is able to operate research equipment. Is able to obtain information from literature, databases and other properly selected sources.

Course objective

Obtaining practical knowledge about polymers, polymeric materials and polymer composites; their identification and preparation, processing and properties.

Course-related learning outcomes

Knowledge

1. The student has knowledge in the field of polymer chemistry (identification) and their processing



(injection molding, production of composites), allowing understanding and description of physical phenomena and processes associated with polymeric materials. [K_W02]

Skills

1. The student knows how to plan and perform simple experiments in the field of polymer chemistry (identification), processing of polymer materials, as well as interpret their results and draw conclusions. [K_U08]
2. The student knows how to identify basic polymers and unit operations in the field of processing of polymer materials (injection molding) and formulate their specifications. [K_U17]

Social competences

1. The student understands the need for further training and improving their professional competences in the field of polymer technology. [K_K01]
2. The student is aware of the importance and understanding of non-technical aspects and effects of engineering activities in the field of polymer technology, including its impact on the environment and the associated responsibility for decisions. [K_K02]
3. The student is aware of the responsibility for their own work and readiness to submit to work in a team and take responsibility for jointly implemented tasks. [K_K04]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Laboratory classes: Stationary form - oral answer or written test from the material contained in the exercises and the given theoretical issues; presence and realization of all laboratory exercises provided in the study program; grade from reports prepared after each exercise. A final grade will be given based on the average grades of the oral/written answers and reports for each exercise, divided by the number of exercises performed. Online form - oral answer and/or written test from the material contained in the exercises, tutorial videos and the theoretical issues provided, conducted in the "live view" mode with the webcam turned on via eMeeting or Zoom platform during a direct conversation with the teacher and/or using the test module on the eKursy platform; online presence and completion of all laboratory exercises provided in the study program; grade from the reports prepared after each exercise and sent via the eKursy platform or by e-mail using the university's e-mail system. A final grade will be given based on the average grade of the oral/written answers and reports for each exercise, divided by the number of exercises performed. Grade criteria: 3 - 50.1%-60.0%; 3.5 - 60.1%-70%; 4 - 70.1%-80.0%; 4.5 - 80.1%-90%; 5 - from 90.1%.

Programme content

Issues related to the identification of polymers, the preparation of polymer composites - with a particular use of laminates and processing of plastics by injection technique.

Laboratory exercises include:



1. Processing of polymer materials - injection molding.
2. Polymer composites - preparation and properties of polyester laminates.
3. Identification of plastics.

Teaching methods

1. Laboratories - practical classes.

Bibliography

Basic

1. J. Pielichowski, A. Puszyński „Chemia Polimerów” TEZA, Kraków, 2004
2. J. Pielichowski, A. Puszyński „Technologia tworzyw sztucznych”, WNT, Warszawa, 1994
3. K. Wilczyński: „Przetwórstwo tworzyw sztucznych”, WPW W-wa 2000.
4. A. Smorawiński: „Technologia wtrysku”, WNT W-wa 1984

Additional

1. Praca zbiorowa pod red. Z. Floriańczyka i S. Penczka „Chemia polimerów” tom I i II, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 1995 i 1997
2. W. Szlezyngier „Tworzywa sztuczne” Oficyna Wydawnicza Politechniki Rzeszowskiej, Rzeszów 1996
3. H. Saechtling: „Tworzywa sztuczne. Poradnik”, WNT Warszawa 2000.

Breakdown of average student's workload

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

¹ delete or add other activities as appropriate