



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Performance properties of polymeric materials used in pharmacy [S1IFar2>WUMPSwF]

Course

Field of study

Pharmaceutical 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

elective

Number of hours

Lecture

0

Laboratory classes

15

Other

0

Tutorials

0

Projects/seminars

0

Number of credit points

1,00

Coordinators

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Lecturers

Prerequisites

The student has knowledge of the basic issues of general chemistry, organic chemistry, materials science and machine science. 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

Transfer of practical knowledge of measuring techniques used to assess the performance of polymeric materials of greatest importance in the pharmaceutical industry.

Course-related learning outcomes

Knowledge:

1. The student has knowledge of selected issues regarding the assessment of the performance of polymeric materials used in pharmaceutical engineering. [K_W3].
2. The student has a basic knowledge of the construction and operation of apparatus in the field of assessment of the performance of polymeric materials used in the pharmaceutical industry and related industries. [K_W18]

Skills:

1. The student, based on general knowledge, explains the basic phenomena associated with the functional properties of polymeric materials. [K_U2]
2. The student is able to assess the performance of polymeric materials used in pharmaceutical engineering. [K_U14]

Social competences:

1. The student is ready to critically assess their knowledge, understands the need for further education, supplementing their field knowledge and raising their professional, personal and social competences, understands the importance of knowledge in solving problems and is ready to seek expert opinions. [K_K1]

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

The program includes the following topics:

1. Measurements of functional properties of polymeric materials.
2. Static extension technique.
3. Processing properties.
4. Rheological evaluation.
5. Influence of temperature on functional properties of polymeric materials.

Course topics

The laboratories aim to provide students with theoretical and practical knowledge from the techniques of measuring the performance of polymeric materials used in the pharmaceutical industry. Students learn about the technique of measuring static extension, assessment of processing and rheological properties of polymeric materials and assessment of the effect of temperature on the performance of polymeric materials

Laboratory exercises will include:

1. Preparation and mechanical properties of polymer materials
2. Rheological properties of polymeric pharmaceutical materials
3. The effect of temperature on the performance of polymeric materials.

Teaching methods

Laboratories - practical exercise.

Bibliography

Basic:

1. T. Broniewski: „Metody badań i ocena właściwości tworzyw sztucznych”, WNT W-wa 2000.
3. W. Dzierża, T. Czerniawski: „Właściwości mechaniczne i termiczne polimerów”, Wyd. UMK, Toruń 2000.

Additional:

1. H. Saechtling: „Tworzywa sztuczne. Poradnik”, WNT Warszawa 2000.

Breakdown of average student's workload

	Hours	ECTS
Total workload	30	1,00
Classes requiring direct contact with the teacher	15	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	15	0,50