COURSE DESCRIPTION CARD - SYLLABUS

Course name
Polymeric materials processing in the pharmaceutical industry [S1IFar1>PTSwPF]

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 (e.g. online)
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 plastics processing techniques that play the most important role in the pharmaceutical industry.

Course-related learning outcomes

Knowledge:
1. the student has knowledge of selected issues in plastics processing to the extent that allows understanding and description of phenomena and physical processes related to pharmaceutical engineering. [k_w3]
2. the student has basic knowledge in the field of construction of apparatus and installations in the area of plastics processing used in the pharmaceutical industry and related industries. [k_w18]

Skills:
1. the student, based on general knowledge, explains the basic phenomena associated with important plastics processing techniques. [k_u2]
2. the student is able to analyze and evaluate the functioning of basic processes and unit operations in the field of plastic processing techniques used in pharmaceutical engineering. [k_u14]

Social competences:
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:

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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 laboratories aim to provide students with theoretical and practical knowledge of the most significant plastics processing techniques in the pharmaceutical industry. Students learn about the extrusion technique, using the technological film extrusion line, and the thermoforming process. They will also carry out mixing and homogenization processes of polymer materials used in the formulation of pharmaceutical mixtures.
Laboratory exercises will include:
1. Preparation of polymer films by extrusion and analysis of physicochemical properties.
2. Thermoforming - blister packaging production.
3. Mixing and homogenization of polymer materials.

Teaching methods

Laboratories - practical exercise.

Bibliography

Basic
1. R. Sikora: „Przetwórstwo tworzyw wielkocząsteczkowych”, PWN W-wa 1987.
2. R. Sikora: „Podstawy przetwórstwa tworzyw polimerowych”, WPL Lublin 1992.
3. K. Wilczyński: „Przetwórstwo tworzyw sztucznych”, WPW W-wa 2000.
Additional
1. H. Saechtling: „Tworzywa sztuczne. Poradnik”, WNT Warszawa 2000.

Breakdown of average student's workload

	Hours	ECTS
Total workload	25	1,00
Classes requiring direct contact with the teacher	15	0,60
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	10	0,40