GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Selected Aspects of Pharmaceutical Techniques, PG_00064143		
Field of study	Mechanical and Medical Engineering		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2027/2028
Education level	first-cycle studies	Subject group	Subject group related to scientific research in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	6	ECTS credits	1.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. Wiesław Sawicki	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	0.0	0.0	0.0	15

E-learning hours included: 0.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	15	1.0	9.0	25

Subject objectives

Skills and competences: characterization and description of essential oral dosage forms. Skills and competences: quality assessment of drug formulation, selection of storage conditions for medicinal products.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U04] is able to utilize empirical, analytical, simulation, and computer-based methods to formulate and solve engineering tasks in the field of medical and mechanical engineering	The student is able to use the basic knowledge of solid dosage form technology necessary for the IMM course of study.	[SU3] Assessment of ability to use knowledge gained from the subject
[K6_K01] knows his/her proficiencies and his/her limitations in performing professional tasks, he/she is aware of needing to improve his/her skills through the whole life, he/she has entrepreneurship and innovation skills, he/she is aware of engineering skills from the society point of view	Student understands the non-technical aspects of drugs production, has a habit of documenting activities, understands the need of work with maintaining order and cleanliness, demonstrate attention in anticipating potential problems and mistakes.	[SK5] Assessment of ability to solve problems that arise in practice
[K6_W06] has knowledge in specific areas related to the application of mechanical engineering in medicine or in the field of medical and rehabilitation devices	Student has elementary knowledge of the issues of pharmacokinetics and biopharmacy.	[SW1] Assessment of factual knowledge

<table>
<tr><td>Subject contents</td><td>Course content – lecture
Solid dosage form technology and related pharmacokinetic and biopharmaceutical issues:
unit processes (granulation, tableting, coating, drying); tablet press types,
design and operation of the Korsch XP1 laboratory tablet press, coating and coating machines, granulation, drying and fluidized bed coating, coating agents;
granulate characteristics, manufacturing methods, excipients, control methods;
pellet characteristics, manufacturing methods;
tablets (oral, for oral use, for preparing solutions and suspensions, coated and uncoated, excipients);
basics of powder compression engineering;
gelatin capsules: soft and hard, release modification, multi-compartment dosage forms;
basics of capsule filling engineering with powders and granules;
Oral modified-release drug forms: enteric-coated and extended-release - manufacturing methods, role of excipients;
tablet and capsule inspection methods;
basics of herb drying technology.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>term with credit</td><td>60.0%</td><td>100.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>Janicki St., Fiebig A., Applied Pharmacy. Manual for Students of pharmacy, PZWL, Warszawa 2002.</td></tr>
<tr><td>Supplementary literature</td><td>Łunio R., Sawicki W.: Tablets - methods and mechanism of manufacturing. Part I. Pol. Pharm., 2008; 64, nr 6, 265-275.

Sawicki W., Krasowska M.: Methods and mechanism of tablets production. Part II. Pol. Pharm., 2009; 65, nr 1, 59-68.</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td></td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
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