



Subject card

Subject name and code	Pharmaceutical technology and technique, PG_00024959						
Field of study	Medical and Mechanical Engineering, Mechanical and Medical Engineering						
Date of commencement of studies	October 2020		Academic year of realisation of subject		2022/2023		
Education level	first-cycle studies		Subject group		Optional 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 Polish		
Semester of study	5		ECTS credits		1.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor						
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	0.0	0.0	15.0	15
	E-learning hours included: 0.0						
	Additional information: On-line seminar						
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		3.0		7.0	25
Subject objectives	The aim of teaching is to get acquainted with the most important methods of pharmaceutical drug form technology. Getting to know the pharmaceutical excipients necessary in the process of obtaining tablets and capsules. Principles of construction and operation of devices used in pharmaceutical technology - granulation, pelletization, tableting and core coating.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K6_U10		He knows the parts of the digestive tract and the pH environment in, for example, the oral cavity, stomach and intestines		[SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information		
	K6_U01		He can find information on the types of drug forms and knowledge about the technological processes that can be used to obtain these forms.		[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information		
	K6_W12		He knows the working principle of the key apparatuses and devices used in drug formulation in the technology		[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation		
	K6_K02		Understands the basic effects of the toxic effects of drugs. He knows the negative impact of pharmaceutical excipients and technologies on the environment		[SK5] Assessment of ability to solve problems that arise in practice [SK4] Assessment of communication skills, including language correctness		

Subject contents	Technology of oral solid formulations and related biopharmaceutical aspects		
	<ul style="list-style-type: none">• Basic operations (granulation, tableting, coating, drying); types of tableting machines, drum coating - apparatus and the process, fluidbed granulation, drying and coating, coating excipients• Granules characteristics, methods of production, excipients, tests• Pellets characteristics, methods of production• Tablets (oral, for oral cavity, for solutions and suspensions, coated and uncoated, excipients)• Gelatin capsules soft and hard, of modified release, multiparticulate delivery formulations• Modified drug release oral formulations: enteric coated and prolonged release methods of production, role of the excipients• Methods of quality control for tablets and capsules.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	final test	50.0%	100.0%
Recommended reading	Basic literature	<p>. Garbera K., Woś-Latosi K., Sawicki W. (2019) Development of tablets containing solid dispersion of ibuprofen manufactured by Hot Melt Impregnation process, Acta Pol Pharm 76(2): 341-354</p> <p>Garbera K., Ciura K., Sawicki W. (2020) A Novel Approach to Optimize Hot Melt Impregnation in Terms of Amorphization Efficiency. Int J Mol Sci 21(11): 4032; doi:10.3390/ijms21114032</p>	
	Supplementary literature	Polish Pharmacopoeia XI- vol. I, II, III	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	<p>- List the methods of granulating powders. Describe wet granulation - in rotary machines. - Explain the principle of operation of a rotary tablet press. Describe what it should contain - tablet mass. - Describe the principle of pellet coating using the Wurster fluid bed technique. - What are they and how do you get dragees. - Characterize enteric-coated tablets.</p>		
Work placement	Not applicable		