



Subject card

Subject name and code	Technology of Surfactants, PG_00038554							
Field of study	Chemical Technology							
Date of commencement of studies	February 2022	Academic year of realisation of subject			2022/2023			
Education level	second-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	1	Language of instruction			Polish			
Semester of study	2	ECTS credits			3.0			
Learning profile	general academic profile	Assessment form			exam			
Conducting unit	Department of Colloid and Lipid Science -> Faculty of Chemistry							
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Patrycja Szumała					
	Teachers		dr inż. Patrycja Szumała					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM	
	Number of study hours	15.0	0.0	15.0	0.0	0.0	30	
	E-learning hours included: 0.0							
Technologia związków powierzchniowo czynnych 2022/2023 (Archiwizowany 2022-04-22) - Nowy - Moodle ID: 25135 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=25135								
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	30		5.0		40.0	75	
Subject objectives	Gaining theoretical and practical knowledge regarding the preparation of surfactants and their use in a variety of detergent products. Knowledge of other components of cleaners and detergents for use in households and industry.							
Learning outcomes	Course outcome		Subject outcome			Method of verification		
Subject contents	<ul style="list-style-type: none">• Surfactants; structure, classification and properties.• Surface activity and surfactant structures.• Anionic surfactants; soaps, alkyl sulfates, alkylaryl sulfonates, α - olefin sulfonates, secondary alkane sulfonates, α -sulfonated methyl esters of fatty acids and others surface active fatty acids derivatives.• Cationic surfactants.• Amphoteric surfactants.• Nonionic surfactants; esters of polyols and fatty acids, products of the oxyethylation.• Detergency theory and mechanisms.• Common detergent ingredients.• Representative detergent formulations.							
Prerequisites and co-requisites	Basic terms and definition on organic chemistry and selected analytical methods.							
Assessment methods and criteria	Subject passing criteria		Passing threshold			Percentage of the final grade		
	Evaluation of laboratory tests and reports		100.0%			40.0%		
	Written exam		60.0%			60.0%		

Recommended reading	Basic literature	<p>1. Zieliński R., Surfaktanty – towaroznawcze i ekologiczne aspekty ich stosowania, Wydawnictwo Akademii Ekonomicznej w Poznaniu, Poznań, 2000.</p> <p>2. Ogonowski J., Tomaszewicz-Potępa A., Związki powierzchniowo czynne, podręcznik dla studentów wyższych szkół technicznych, Politechnika Krakowska, Kraków 1999.</p> <p>3. Gunstone F., Padley F., Lipid Technologies and Applications, Marcel Dekker Inc., New York, 1997.</p> <p>4. Ho Tan Tai L., Formulating Detergents and Personal Care Products, AOCS Press, Champaign, Illinois, 2000.</p> <p>5. Karsa D.R., Industrial Applications of surfactants III, The Royal Society of Chemistry, Wiltshire, 1992.</p> <p>6. Tadros, T.F., Applied Surfactants, Wiley-VCH, Weinheim, 2005</p>
	Supplementary literature	<p>1. Rosen M.J., Goldsmith H.A., Systematic Analysis of Surface-Active Compounds, Wiley-Interscience, New York, 1972.</p> <p>2. Smulders E., Laundry Detergents, Wiley-VCH, Weinheim, 2002.</p> <p>3. Hummel D.O., Handbook of Surfactant Analysis, John Willey and Sons Ltd, 2000.</p>
	eResources addresses	
Example issues/ example questions/ tasks being completed	-	
Work placement	Not applicable	