

FACULTY OF CHEMISTRY					
SUBJECT CARD					
Name of subject in English:	Physico-chemical bases of process engineering				
Main field of study (if applicable):	Chemical and Process Engineering				
Specialization (if applicable):					
Profile:	academic				
Level and form of studies:	1st level, full-time				
Kind of subject:	obligatory				
Subject code:	ICC014007				
Group of courses:	NO				
	Lecture	Classes	Laboratory	Project	Seminar
Number of hours of organized classes in University (ZZU)		30			
Number of hours of total student workload (CNPS)		60			
Form of crediting		crediting with grade			
For group of courses mark (X) final course					
Number of ECTS points		2			
including number of ECTS points for practical (P) classes		2			
including number of ECTS points for direct teacher-student contact (BK) classes		1			
PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES					
1. Calculations of derivatives and integrals 2. Understanding of basic physics laws and knowledge of bases of physical chemistry which are important for modeling of processes in chemical engineering					
SUBJECT OBJECTIVES					
C1 To obtain knowledge about basic ideas and methods of physical chemistry					
SUBJECT LEARNING OUTCOMES					
related to skills: The person who completed the course: PEK_U01 – is able to calculate properties of pure and mixed systems using the equation of state PEK_U02 - is able to solve problems related to phase equilibria PEK_U03 - is able to determine the thermodynamic properties PEK_U04 – is able to design experiments to determine phase equilibrium PEK_U05 – is able to conduct the experiments, to interpret the obtained results and state the conclusions					
PROGRAMME CONTENT					
Classes				Number of hours	

Proj 1	Introduction and methodology	2
Proj 2	Problems related to equation of state	6
Proj 3	Partial exam1	2
Proj 4	Problems related to thermodynamic properties of pure systems	6
Proj 5	Problems related to thermodynamic properties of solutions	6
Proj 6	Problems related to phase equilibria in multicomponent systems	4
Proj 7	Partial exam 2	2
Proj 8	Final exam	2
		30
TEACHING TOOLS USED		
N1. Problem sessions		
EVALUATION OF SUBJECT LEARNING OUTCOMES ACHIEVEMENT		
Evaluation (F – forming (during semester), P – concluding (at semester end))	Learning outcomes number	Way of evaluating learning outcomes achievement
F1 (classes)	PEK_U01	Partial evaluation 1 (max. 100 pts.)
F2 (classes)	PEK_U02-PEK_U03	Partial evaluation 2 (max. 100 pts.)
PRIMARY AND SECONDARY LITERATURE		
<u>PRIMARY LITERATURE:</u>		
[1] K. Pigoń, Z. Różewicz, Chemia Fizyczna Tom 1. PWN, Warszawa 2019 [2] J. Szargut, Termodynamika, PWN, Warszawa 2019 [3] J. M. Smith, H. C. Van Ness, M. M. Abbot, Introduction to Chemical Engineering Thermodynamics, MCGraw Hill, Boston 2001		
SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)		
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