## Zachodniopomorski Uniwersytet Technologiczny w Szczecinie

## Faculty of Chemical Technology and Engineering

Field of study		Chem	nical Engineering							
Mode of study		stationary Level first cycle					FIC			
Graduate's qualification		inżyn	Ch							
Area(s) of study		nauk								
Educational profile		gene	<u> </u>							
Module										
Course un	it	Phys								
Code		ChEn								
Field of sp	ecialisation									
Administering faculty		Kated	dra Fizykochemii	i Nanomateriałów						
ECTS		12,0		ECTS (forms) 12,0						
Form of course credit		examination		Language	english					
Electives				Elective group		_				
Form of in	struction	Code	Semester	Hours	ECTS	Weiaht	Credit			
lecture		w	1	45	5.0	0.40	examination			
lecturing c	OUISE	Δ	1	45	4 0	0.30	credits			
laboratory			1	30	3.0	0,30	credits			
	achar	Milou				0,50	Credits			
Cther too	bara	Milou			it.edu.pl)					
Other teac	ners	MIJOW	VSKA EWA (EWA.B	orowiak-Palen@20	it.edu.pi)					
Prerequisit	tes									
W-1	Student knows the	basics	of high school phy	ysics			why wind weaklowed			
W-2	<i>W-2</i> Student knows the basics of algebra in the scope necessary to describe physical phenomena and solve physical problems (vectors, matrices, solving equations)									
Module/course unit objectives										
C-1	Transfer of basic physics knowledge useful to a chemical engineer									
C-2	Developing the ability to estimate the value of physical quantities									
С-3	To develop the ability to write a study on a given topic and use of literature sources									
C-4	To develop the abil	ity to a	apply laws regardin	ng the basic phenom	ena of classical physics	in engineering p	practice			
Course cor	ntent divided into	variou	is forms of instru	uction			Number of hours			
T-W-1	-W-1 System of SI units, prefixes of physical units, elements of dimensional analysis						2			
T-W-2	Measurement unce	4								
T-W-3	Law and principles	7								
T-W-4	Vibrations and vibrating systems									
T-W-5	Waves and wave m	7								
T-W-6	Electricity: electric field, elementary charge, Coulomb's law, Gaussian law, electric potential,									
T-W-7	Magnetic field, magnetic force, magnetic dipole moment, Hall effect 6									
T-W-8	Optics: reflection a	6								
T-A-1	Measurement unce	4								
T-A-2	Tasks using the law	10								
T-A-3	Tasks with vibration	8								
T-A-4	Tasks from an elec	7								
T-A-5	Tasks from quantu	6								
T-A-6	Discussing reports	4								
T-A-7	Tests 6									
T-L-1	Methods for the development of measurement uncertainties									
T-L-2	2 Laboratory exercise 1-5									
T-L-3	3									
Student workload - forms of activity										

Student workload - forms of activity									Number of hours			
A-W-1	Particip		45									
A-W-2	studing		40									
A-W-3	Preparing to examination at home									45		
A-W-4	consultation									20		
A-A-1	participation in laboratory exercises									45		
A-A-2	studing of literature									30		
A-A-3	Preparing to examination at home									30		
A-A-4	consultation									15		
A-L-1	preparation of reports from laboratories									20		
A-L-2	studing of literature									25		
A-L-3	participation in laboratories									30		
A-L-4	consultation								15			
Teaching r	ning methods / tools											
M-1	Information lecture with the use of a multimedia projector											
M-2	Exercis	Exercises										
M-3	Physical laboratory											
Evaluation	metho	ods (F - progressive, P - final)										
S-1	Р	written exam										
S-2	Р	written pass										
S-3	F	Report on laboratory classes										
S-4	F	active participation in auditory class	es									
Designed learning outcomes			Reference to the learning outcomes designed for the fields of study	Reference to the learning outcomes defined for the particular areas of education	Reference to learning outcomes leading to the degree of "inżynier"	Course objectives	S Course content		Teaching methods	Evaluation methods		
Knowledge	9											
ChEn_1A_B02_W01 Student has basic physics knowledge useful to a chemical engineer			ChEn_1A_W02	P6S_WG_TA11		C-1 C-2	T-W-1 T-W-2 T-W-3 T-W-4	T-W-5 T-W-6 T-W-7 T-W-8	M-1	S-1		
Skills												
ChEn_1A_B02_U01 Student is able to apply laws regarding the basic phenomena of classical physics in engineering practice			ChEn_1A_U01 ChEn_1A_U05 ChEn_1A_U08 ChEn_1A_U16	P6S_UO P6S_UU P6S_UW_TA11 P6S_UW_TA14	P6S_UW_IA11 P6S_UW_IA14	C-2 C-4	T-A-1 T-A-2 T-A-3 T-A-4 T-A-5	T-A-6 T-A-7 T-L-1 T-L-2 T-L-3	M-2	S-2 S-3 S-4		
Other social / personal competences												
ChEn_1A_B02 Student can b a team.	_K01 be respor	sible and communicative, he can work in	ChEn_1A_K01 ChEn_1A_K03 ChEn_1A_K04 ChEn_1A_K05	P6S_KK P6S_KO P6S_KR		C-2 C-3 C-4	T-A-1 T-A-2 T-A-3 T-A-4 T-A-5	T-A-6 T-A-7 T-L-1 T-L-2 T-L-3	M-2 M-3	S-4		
Required reading												
1. Nipendra	Bhatna	gar, Handbook of Physics, Arichant, 2	013									
2. Kenneth W Ford, Basic Physics, World Scientific Publishing Co Pte Ltd, 2017												