Zachodniopomorski Uniwersytet Technologiczny w Szczecinie

Faculty of Chemical Technology and Engineering

Field of study		Chem	nical Engineering							
Mode of study		stationary Level first cycle					Ch			
Graduate's qualification		inżyn	inżynier WI11							
Area(s) of study		nauki								
Educational profile		gene	<u> </u>							
Module										
Course unit		Introduction to Modeling, Simulation and Numerical Methods Applied to Chemical Technology								
Code		ChEn								
Field of specialisation										
Administering faculty		Kated	lra Fizykochemii							
ECTS		5,0 ECTS (forms) 5,0								
Form of co	ourse credit	credits		Language	english					
Electives	Electives		3 Elective group							
Form of in	struction	Code	Semester	Hours	ECTS	Weight	Credit			
lecture		W	4	30	2,0	0,50	credits			
laboratory	/ course	L	4	45	3,0	0,50	credits			
Leading te	eacher	Kaleń	Kaleńczuk Ryszard (Ryszard.Kalenczuk@zut.edu.pl)							
Other teachers		Chen (Rysz	Chen Xuecheng (Xuecheng.Chen@zut.edu.pl), Kaleńczuk Ryszard (Ryszard.Kalenczuk@zut.edu.pl)							
Prerequisi	tes									
W-1	Mathematics									
W-2	Phisics									
W-3	Basic of Scientific Information									
Module/co	ourse unit objectiv	res					·			
C-1	The aim of the course is to obtain knowledge by the student in the field of modeling of technological processes in the chemical industry									
C-2	The aim of the course is to shape Student's skills in the field of developing their own models for chemical technology and engineering processes.									
С-3	The aim of a goal	s to acc	uire the developn	nent of thinking and a	acting in a creative, inno	ovative and entr	epreneurial way.			
Course co	ntent divided into	variou	is forms of instru	uction			Number of hours			
T-W-1	Introduction. Type		5							
T-W-2	Applying regression parameter confide and the number of regression. Nonlin method.	7								
T-W-3	Physicochemical n One-dimensional r longitudinal disper equations. Heterog	7								
T-W-4	technological proc	- TIOWSh ess.	eeting. Overview	or the ChemCad prog	ram on the example of	a selected	11			
T-L-1	Structure of the statistical program. Building data sets. Rules for creating variable names. Types of variables						10			
T-L-2	Typing regression various types for c of regression equa	10								
T-L-3	Process modeling technological proc	selected	25							
Student workload - forms of activity							Number of hours			
A-W-1	Participation in lec	30								
A-W-2	Studying of literat		10							
A-W-3	Preparing to exam		20							
A-L-1	participation in lab	45								
A-L-2		20								

Student workload - forms of activity									Number of hours			
A-L-3	studing of literature									12		
A-L-4	Consultation									5		
A-L-5	written		8									
Teaching methods / tools												
M-1	Lecture supported by a multimedia presentation											
M-2	Laboratory exercises using a computer											
Evaluation methods (F - progressive, P - final)												
S-1	F Control of the progress of tasks											
S-2	F	Evaluation of quality and completeness of performed tasks using a computer										
S-3	Р	test of knowledge										
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	Course content		Teaching methods	Evaluation methods		
Knowledge												
ChEn_1A_C08b_W01 The student has knowledge in the development of modeling and calculations within the scope o fchemical engineering and technology			ChEn_1A_W06 ChEn_1A_W07 ChEn_1A_W08 ChEn_1A_W15	P65_WG_TA11	P6S_WG_IA11	C-1	T-W-1 T-W-2	T-W-3 T-W-4	M-1	S-3		
Skills				1								
ChEn_1A_C08 The student is field of the su engineering a	b_U01 able, ba bject, to nd techn	ased on the knowledge acquired in the propose his own model for chemical ology processes.	ChEn_1A_U01 ChEn_1A_U03 ChEn_1A_U05 ChEn_1A_U07 ChEn_1A_U08 ChEn_1A_U09 ChEn_1A_U09	P6S_UO P6S_UU P6S_UW_TA11 P6S_UW_TA12 P6S_UW_TA14	P6S_UW_IA11 P6S_UW_IA12 P6S_UW_IA14	C-1	T-L-1 T-L-2	T-L-3	M-2	5-2		
Other social / personal competences												
ChEn_1A_C08 Student is abl entrepreneuri	b_K01 e to thir al way.	k and acti in a creative, innovative and	ChEn_1A_K01 ChEn_1A_K03 ChEn_1A_K04 ChEn_1A_K05	P65_KK P65_KO P65_KR		C-3	T-L-1 T-L-2	T-L-3	M-2	S-1		
Required reading												
1. J.Czermiński, A.Iwasiewicz, Z.Paszek, A.Sikorski, Statistical Methods in Applied Chemistry, Elsevier, Amsterdam- Oxford-New York, 1990												
2. Nalimov I	N.V, Che	ernova N.A., Statistical methods for d	esign of extrema	l experiments	, 1978							
3. N.R. Draper, H. Smith, Applied Regression Analysis, Wiley, New York, 1998												