Zachodniopomorski Uniwersytet Technologiczny w Szczecinie

Faculty of Chemical Technology and Engineering

Field of study	Chemical Engineering		
Mode of study	stationary	*Level*	first cycle
Graduate's qualification	inżynier		
Area(s) of study	nauki techniczne		
Educational profile	general academic		
Module			
Course unit	**Introduction to Chemical Engineering**		
Code	ChEn_1A_S_C01a		
Field of specialisation			
Administering faculty	Institute of Chemical Engineering and Environmental Protection Processes		
ECTS	4,0	*ECTS (forms)*	4,0
Form of course credit	examination	*Language*	english
Electives	2	*Elective group*	

Form of instruction	*Code*	*Semester*	*Hours*	*ECTS*	*Weight*	*Credit*
lecture	W	2	30	4,0	1,00	examination

Leading teacher	Witkiewicz Konrad (Konrad.Witkiewicz@zut.edu.pl)
Other teachers	Witkiewicz Konrad (Konrad.Witkiewicz@zut.edu.pl)

Prerequisites	
W-1	Knowledge of the basic course in mathematics, physics and chemistry at the elementary level

Module/course unit objectives	
C-1	Acquainting students with the basics of chemical and process engineering.
C-2	To familiarize students with the role and place of the chemical engineering in modern science and industry.

Course content divided into various forms of instruction		*Number of hours*
T-W-1	Overview of the study program for the field of chemical and process engineering.	2
T-W-2	Graduate and her/his employment opportunities. History of chemical engineering.	2
T-W-3	Definition of chemical and process engineering. The concept of the basic process and unit operation. The schematic diagram of the technological process as the ordering of unit operations on the example of the chosen technology.	10
T-W-4	Division of unit operations. Chemical engineering as a science about the phenomena of momentum, heat and mass transport.	10
T-W-5	Thermodynamic and kinetic characteristics of processes. Units of measurement. Construction of physical equations. Mass and energy balancing rules. Examples of balances. Examples of kinetic equations.	6

Student workload - forms of activity		*Number of hours*
A-W-1	Participation in lectures	30
A-W-2	Self-study of the literature	86
A-W-3	Consultations	2
A-W-4	Written exam	2

Teaching methods / tools	
M-1	Information lecture

Evaluation methods (F - progressive, P - final)		
S-1	P	Written exam

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_C01a_W02 Student knows the concepts related to chemical and process engineering, recognizes and defines basic processes and unit operations	ChEn_1A_W08 ChEn_1A_W13 ChEn_1A_W14 ChEn_1A_W15 ChEn_1A_W20	P6S_WG_TA11	P6S_WG_IA11	C-1	T-W-3 T-W-5 T-W-4	M-1	S-1
Skills							

ChEn_1A_C01a_U01 Student can use the basic knowledge of mathematics and physics in defining and describing unit operations	ChEn_1A_U01 ChEn_1A_U05	P6S_UU P6S_UW_TA11		C-1	T-W-3	M-1	S-1
Other social / personal competences							
ChEn_1A_C01a_K01 Student understands the importance and role of a chemical engineer in contemporary industrial space	ChEn_1A_K01	P6S_KK P6S_KO P6S_KR		C-2	T-W-2	M-1	S-1

Required reading

1. Denn, Morton M., Chemical engineering : an introduction, Cambridge University Press, Cambridge, 2012, 1

2. Ray, Martyn S., Chemical engineering design project : a case study approach, Gordon and Breach, New York, 1989, 1

3. Himmelblau, David Mautner, Basic principles and calculations in chemical engineering, Prentice Hall, Englewood Cliffs, 1982, 4