(*faculty stamp*)

Z1-PU7	WYDANIE N1	Strona 1 z 2

COURSE DESCRIPTION

1. Course title: THERMAL PROCESS ENGINEERING	**2. Course code**
3. Validity of course description: 2017/2018	
4. Level of studies: BA, BSc programme / MA,MSc programme lub 1st cycle / 2nd cycle of higher education	
5. Mode of studies: intramural studies / extramural studies	
6. Field of study: INDUSTRIAL AND ENGINEERING CHEMISTRY	(FACULTY SYMBOL) RCH
7. Profile of studies: academic	
8. Programme: -	
9. Semester: VII	
10. Faculty teaching the course: RCh-3, Dept. of Chemical Engineering & Process Design	
11. Course instructor: Prof. Piotr Synowiec DSc,	
12. Course classification: field	
13. Course status: compulsory /elective	
14. Language of instruction: English	
15. Pre-requisite qualifications: mathematics – basic knowledge, physical chemistry, heat and mass transfer	
16. Course objectives: The main oblectives are: distillation, rectification, drying, cooling towers,	
17. Description of learning outcomes:	

Nr	Learning outcomes description	Method of assessment	Teaching methods	Learning outcomes reference code
1.	Students know a backgroud of the discussed unit operations and have skills for their pratical application.	credit test	lectures	K_W01+ K_W07++
2.	Students have basic knowledge related of the particular unit operations selection	credit test	lectures	K_W01+ K_W07++
3.	Students have basic knowledge related to the kinetics computation of particular unit operations	credit test	lectures	K_W01+ K_W07++
4.	Students have basic knowledge related to proper selecton of the aparatuss and devices and solving of material and enery balace equations in the evaporative systems	credit test	lectures	K_U09+ K_U16+
5.	Students understand the necessity of further professional training and the development of their professional and own competence	credit test	lectures	K_K01+++
6.				
7.				
8.				

18. Teaching modes and hours

Lecture / BA /MA Seminar / Class / Project / Laboratory

Lecures – 30 h, Classes - 0

19. Syllabus description:

Lectures:

The selected unit operations of thermal separation like: (i) distillation, (ii) rectification, (iii) drying (iv) cooling towers are presented . The theoretical background and designing bases of the mentioned operations are explained. In the range of distillation

and rectification the following topics are lectured: physical base of the process, equilibrium state and diagrams for binary systems, continuous and batch systems. The drying issues are focused on the main problems like: physical base of the process, basing definitions of wet gases state, psychrometric chart and its practical application, drying curves, mass and energy balances. The relationship among kinetics of given operation, parameters of the process, energy consumption as well as the algorithm of designing procedure and apparatuses selection are also taken into consideration.

20. Examination: semester No

21. Primary sources:

M.J. Lockett "Distillation tray fundamentals", Cambridge University Press 1986
H.Z. Kister "Distillation Design" McGraw-Hill, Inc. 1992
G. Nonhebel, A.A.H. Moss, "Drying of solids in the chemical industry", Butterworths 1971

22. Secondary sources:

H.J. Perry, Chemical Engineers' Handbook", 5-th ed. McGraw-Hill, Inc. 1973

Praca zbiorowa, Materiały pomocnicze w inżynierii chemicznej, Skrypt Pol. Śląkiej, Gliwice 2011

23. Total workload required to achieve learning outcomes

Lp.	Teaching mode :	Contact hours / Student workload hours
1	Lecture	30/15
2	Classes	/
3	Laboratory	/
4	Project	/
5	BA/ MA Seminar	/
6	Other	15/
	Total number of hours	45/15

24. Total hours:60

25. Number of ECTS credits: 2

26. Number of ECTS credits allocated for contact hours: 1,5

27. Number of ECTS credits allocated for in-practice hours (laboratory classes, projects):0

26. Comments:

Approved:

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(date, Instructor's signature)

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(*date , the Director of the Faculty Unit signature)*