COURSE DESCRIPTION

1. Course title: THERMAL PROCESS ENGINEERING	2. Course code
3. Validity of course description: 2014/2015	
4. Level of studies: BA, BSc programme 1st cycle of higher education	
5. Mode of studies: intramural studies /	
6. Field of study: INŻYNIERIA CHEMICZNA I PROCESOWA	(FACULTY SYMBOL) RCH
7. Profile of studies: academic	
8. Programme: Inżynieria chemiczna	
9. Semester: V	
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: Polish/English	
15. Pre-requisite qualifications: mathematics – basic knowledge, physical chemistry, heat and mass transfer	
16. Course objectives: The main oblectives are: optimisation of heating energy consumption, background of mass and energy balances, industrial cooling systems of the liquids, industrial evaporator systems	
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.	exam	lecrures/clasess	K1A_W13 +++ K1A_U01++
2.	Students have basic knowledge related of the particular unit operations selection	exam	lecrures/clasess	K1A_W013 +++ K1A_U10++
3.	Students have basic knowledge related to the kinetics computation of particular unit operations	credit test	lecrures/clasess	K1A_W013 +++ K1A_U13++
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	lecrures/clasess	K1A_U20++
5.	Students understand the necessity of further professional training and the development of their professional and own competence	exam	lecrures/clasess	K1A_U20+++

18. Teaching modes and hours

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

Lecures – 30 h, Classes - 0

19. Syllabus description:

Lectures:

The selected of computations and understanding like: (i) mass and energy balaces, (ii) visualization of balances results. (iii) optimisation of the heating energy consumption (iv) cooling towers. The theoretical background and designing bases of the mentioned operations are explained. In the range of mentioned problems the physical base of the processes as well as computation procedure are lectured.

20. Examination: semester No...

21. Primary sources:

Z. Kubasiewicz, Wyparki konstrukcja i obliczanie, WNT, Warszawa 1973

R. Billet, Oszczędność energii w procesach termicznego rozkładu substancji, WNT, Warszawa, 1992

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	30/20
2	Classes	0/0
3	Laboratory	/
4	Project	/
5	BA/ MA Seminar	/
6	Other	5/5
	Total number of hours	35/25

24. Total hours:60

25. Number of ECTS credits: 2

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

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

26. Comments: