(facul	ty stamp) COURSE DESCRI	PTION	Z1-PU7	WYDANIE N1	Strona 1 z 2
1. Co	ourse title: PROCESS EQUIPMENT DESIGN		2. Course code	•]
3. Va	alidity of course description: 2013/2014				
4. Le	evel of studies: 2 nd cycle of higher education				
5. M	ode of studies: intramural studies				
6. Fi	eld of study: MACROCOURSE: INDUSTRIAL AND E	NGINEERING	(FACULTY SYM	BOL)	
CHE	MISTRY		Υ.	,	
7. Pr	rofile of studies: common academic				
8. Pr	rogramme: na.				
9. Se	emester: 2				
10. F	Faculty teaching the course: Faculty of Chemical and	Process Engineering,			
11. (Course instructor: dr inż. Robert Kubica				
12. (Course classification: directional courses				
13. 0	Course status: compulsory				
14. L	anguage of instruction: English				
15. F	Pre-requisite qualifications: Technical drawing, Engli	sh, Unit operations, Industi	rial Equipment		
16. 0	Course objectives: Main objective of the course is to p	provide theoretical fundame	entals chemical a	nd processing ap	paratus design, as well
as g	eneral practical rules for correct sizing and selection of	the relevant equipment.			
17. [Description of learning outcomes:				
Nr	Learning outcomes description	Method of assessment	Teach	ing methods	Learning outcomes reference code
1.	One knows the basics of apparatus construction and selection of construction material	Exam in written	Lecture		K2A_W04++ K2A_W12++
2.	One knowi techniques and means for design of apparatus and equipment including computer aided design	Exam in written, assessment of separate models quality	Lecture, laborator	У	K2A_W04+++ K2A_W12++ K2A_U07++
3.	One can solely design and select chosen equipment and apparatus used as a technological nodes by chemical and process engineering	Assessment of Project book, assessment of separate models quality	Project, laboratory	/	K2A_U01+++ K2A_U03++ K2A_U04++ K2A_U06++ K2A_U07+++
4.	One can produce a preliminary estimation of the costs as well as assess the economics of given solution	Exam, assessment of Project book	Lecture, laborator	у	K2A_U09++ K2A_U16++ K2A_U19++
5.	One is well prepared to self-reliant work, demonstrates commitment and follows the ethic rules	Participation in tutorials, observation	Project, laboratory	/	K2A_K03+++
6.	One is conscious of a need of a sustained drive to raise	Observation	Laboratory		K2A_K01++
	the competences and update of knowledge within computer aided design				
18. T	the competences and update of knowledge within computer aided design eaching modes and hours				
18. T Lecti	the competences and update of knowledge within computer aided design eaching modes and hours ure 30h / Laboratory 30h / Project 30h				
18. T Lecti	the competences and update of knowledge within computer aided design eaching modes and hours ure 30h / Laboratory 30h / Project 30h				
18. T Lectr 19. S	the competences and update of knowledge within computer aided design eaching modes and hours ure 30h / Laboratory 30h / Project 30h Syllabus description:				
18. T Lectr 19. S The	the competences and update of knowledge within computer aided design eaching modes and hours ure 30h / Laboratory 30h / Project 30h Syllabus description: design process routines are discussed – its objectives	, basic steps in sizing and s	selection of the ch	nemical and proc	essing apparatus.
18. T Lecto 19. S The Cons	the competences and update of knowledge within computer aided design eaching modes and hours ure 30h / Laboratory 30h / Project 30h Syllabus description: design process routines are discussed – its objectives struction materials; their mechanical properties and app	, basic steps in sizing and s plications are described. Do	selection of the ch	nemical and proc	essing apparatus.

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following unit operations are considered: stirred tanks, heat exchangers, dryers, mass exchangers, environmental protection apparatus. Design approaches towards safe equipment operation are referred to. The course includes application of CAD techniques – process simulators (CHEMCAD), where modeling guidelines are described during laboratory practical classes. Within the scope of the course the project book for selected unit operation, with mechanical design, is developed by each student with individual input data

20. Examination: in written

21. Primary sources:

Stanley M. Walas; Chemical Process Equipment, Selection and Design. Boston: Butterworth-Heinemann, 1990;

Robert H. Perry; Perry's Chemical Engineers' Handbook. New York: MacGraw-Hill, 7th Ed. 1997

22. Secondary sources:

A. Pikoń; AutoCAD 2007 PL. Pierwsze kroki. Warszawa: Helion, 2007

T. Dobrzański: Rysunek techniczny. WNT, Warszawa 1985-2000

23. Tota	al workload required to achieve learning outo	comes
Lp.	Teaching mode :	Contact hours / Student workload hours
1	Lecture	30/10
2	Classes	1
3	Laboratory	30/10
4	Project	30/30
5	BA/ MA Seminar	1
6	Other	20/20
	Total number of hours	110/70
24. Tota	al hours:180	
25. Nur	nber of ECTS credits: 6	
26. Nur	nber of ECTS credits allocated for contact h	ours: 3,5
27. Nur	nber of ECTS credits allocated for in-practic	e hours (laboratory classes, projects): 1,5
26. Con	nments:	

Approved:

(date, Instructor's signature)

(date , the Director of the Faculty Unit signature)