(*faculty stamp*)

COURSE DESCRIPTION

1. Course title: PROCESS SYSTEM ENGINEERING	**2. Course code**
3. Validity of course description: 2015/2016	
4. Level of studies: 2nd cycle of higher education	
5. Mode of studies: intramural studies	
6. Field of study: INDUSTRIAL AND ENGINEERING CHEMISTRY	RCH
7. Profile of studies: -	
8. Programme: PROCESS ENGINEERING FOR GREEN CHEMICAL TECHNOLOGIES	
9. Semester: 2	
10. Faculty teaching the course: Department of Chemical Engineering and Process Design RCh-3	
11. Course instructor: Krzysztof Piotrowski, PhD, DSc, Assistant Professor	
12. Course classification: field	
13. Course status: compulsory	
14. Language of instruction: English	
15. Pre-requisite qualifications: knowledge provided in: Fluid Mechanics, Transport Phenomena, Process Thermodynamics, Unit Operations, Industrial Equipment and Economics.	
16. Course objectives: An objective of the course is providing the students with theoretical and practical background of process plants design, as well as rules of rational selection and matching unit operations into technological process line.	
17. Description of learning outcomes:	

No	Learning outcomes description	Method of assessment	Teaching methods	Learning outcomes reference code
1.	Student possesses theoretical and practical background of process plants design	credit test, discussion, project work	laboratory, project	K_W02+++, K_W03+++, K_W04+++, K_W06++, K_W07+++, K_W09+++
2.	Student can use in practice concept of multilevel design approach – from chemical concept of the process up till full documentation of the process project	credit test, discussion, project work	laboratory, project	K_U03+++, K_U04++, K_U07+++, K_U09+++, K_U10+++, K_U13+++, K_U16+++, K_U19+++, K_U21+++
3.	Student can use in practical situation heuristic rules concerning selection of optimal process plant configuration	credit test, discussion, project work	laboratory, project	K_U03+++, K_U09+++, K_U10+++, K_U13+++, K_U19+++, K_U21+++
4.	Student uses literature data, data processing/communication techniques and specialized calculation/simulation programs in design works	credit test, discussion, project work	laboratory, project	K_U03+++, K_U07+++

5.	Student uses in practice rules of correct selection and integration of unit operations in a technological line	credit test, discussion, project work	laboratory, project	K_U03+++, K_U09+++, K_U10+++, K_U11++, K_U12+++, K_U13+++, K_U14+++, K_U16+++, K_U19+++, K_U21+++
6.	Student understands the necessity of further professional training and the development of his/her engineering and personal competence	observation and discussion	laboratory, project, consultation	K_K01+++

18. Teaching modes and hours

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

Sem 2 - laboratory 30 h, project 30 h

19. Syllabus description:

Semester 2:

Laboratory: Solving practical problems in proper selection and integration of unit operations, as well as technological systems optimization with the use of computer simulations.

Project: Individual elaboration of practical problems in proper selection and integration of unit operations, as well as technological systems optimization with the use of computer simulations.

20. Examination: no

21. Primary sources:

Douglas J.M., Conceptual Design of Chemical Processes, McGraw–Hill, New York (1988).
Ulrich G.D., A Guide to Chemical Engineering Process Design and Economics, Wiley, New York (1984).

22. Secondary sources:

Myers A.L., Seider W.D., Introduction to Chemical Engineering and Computer Calculations, Prentice–Hall, Englewood Cliffs, NJ (1976).

23. Total workload required to achieve learning outcomes

Lp.	Teaching mode :	Contact hours / Student workload hours
1	Lecture	-/-
2	Classes	-/-
3	Laboratory	30/10
4	Project	30/40
5	BA/ MA Seminar	-/-
6	Other	-/10
	Total number of hours	60/60

24. Total hours: 120

25. Number of ECTS credits: 4

26. Number of ECTS credits allocated for contact hours: 2

27. Number of ECTS credits allocated for in-practice hours (laboratory, classes, projects): 3

26. Comments:

Approved:

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(date, Instructor's signature)

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