

(faculty stamp)

COURSE DESCRIPTION

Z1-PU7

WYDANIE N1

Strona 1 z 2

1. Course title: BIOFUELS PRODUCTION TECHNOLOGIES		2. Course code		
3. Validity of course description:				
4. Level of studies: MSc programme				
5. Mode of studies: full time stationary studies				
6. Field of study: BIOTECHNOLOGY		(FACULTY SYMBOL) RIE-8		
7. Profile of studies: General academic				
8. Programme: bioenergy engineering				
9. Semester: 2				
10. Faculty teaching the course: Environmental Biotechnology Department RIE8				
11. Course instructor: Prof. Joanna Sumacz-Górska PhD, DSc				
12. Course classification: specialization course				
13. Course status: compulsory				
14. Language of instruction: English				
15. Pre-requisite qualifications: microbiological and biochemical fundamentals of processes; energetic plants				
16. Course objectives: the acquaintance with technologies of biofuels' production				
17. Description of learning outcomes:				
Nr	Learning outcomes description	Method of assessment	Teaching methods	Learning outcomes reference code
1	Competence in selection of technology for biofuel production depending on raw material	Exam;exercise report	lecture, classes	K_W02; K_W24; KW_05; K_W13; K_W11; K_U01; K_U02; K_K03
2	Competence in finding shortcomings and advantages of particular technologies of biofuel production	Exam;exercise report	lecture, classes	K_W11; K_W04; K_U01; K_U02; K_U08; K_K03
3	Competences in pointing at environmental impact of biofuel production technologies	Exam;exercise report	lecture, classes	KW_05; K_W04; K_W14; K_U01; K_U02; K_U04; K_U08; K_U14; K_K03; K_K04; K_K05
4	Competences in calculation of technological parameters of biofuel production technologies	Exam;exercise report	lecture, classes	KW_11; K_U01; K_U02; K_U04; K_K02
5	Competences in calculation of biofuel production efficiency depending on technology	Exam;exercise report	lecture, classes	K_W02; KW_25; K_W11; K_U01; K_U02; K_U04; K_U08; K_K02
18. Teaching modes and hours				
Lecture 15 h, classes 15 h				
19. Syllabus description:				
Lectures				
<ul style="list-style-type: none"> • Biogas production technologies at municipal and industrial wastewater treatment plants • Technologies of biogas production at agricultural plants • Biodiesel production technologies • Technologies based on algae • Technologies of ethanol production with carbon monoxide 				

- Technologies of butanol production
- Integrated electro-microbial fuel production

Classes

- Calculations of technological parameters and fuel production efficiency for chosen technologies

20. Examination: yes

21. Primary sources:

E. Klimiuk, M. Pawłowska, T. Pokój Biopaliwa. Technologie dla zrównoważonego rozwoju PWN, Warszawa 2012

22. Secondary sources:

P.N. Mascia, J. Scheffran, J.M. Widholm (Ed.) Plant Biotechnology for sustainable production of Energy and co-products Vol. 66 of Biotechnology in Agriculture and Forestry J.M. Widholm, T. Nagata (Eds.), Springer, 2010

23. Total workload required to achieve learning outcomes

Lp.	Teaching mode :	Contact hours / Student workload hours
1	Lecture	15/15
2	Classes	15/30
3	Laboratory	0/0
4	Project	0/0
5	BA/ MA Seminar	0/0
6	Other	0/0
	Total number of hours	30/45

24. Total hours:75

25. Number of ECTS credits: 3

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

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)