

Rok akademicki:		Grupa przedmiotów:		Numer katalogowy:	
-----------------	--	--------------------	--	-------------------	--

Course title in Polish <sup>1)</sup> :	Bioinżynieria w przemyśle spożywczym			ECTS <sup>2)</sup>	1,0
Course title in English: <sup>3)</sup> :	Bioengineering in Food Industry				
Major <sup>4)</sup> :	Food sciences				
Coordinator name <sup>5)</sup> :	Anna Kamińska-Dwórznička, dr				
Lecturer(s) <sup>6)</sup> :	Anna Kamińska-Dwórznička, dr				
Faculty/department <sup>7)</sup> :	Faculty of Food Sciences, Department of Food Engineering and Process Management				
Faculty for which course is offered <sup>8)</sup> :	Faculty of Food Sciences				
Status of the course: <sup>9)</sup> :	a) faculty subject	b) level - II grade, master	c) daily studies		
Didactic cycle <sup>10)</sup> :	Winter semester	Language <sup>11)</sup> : English			
The aims of the course <sup>12)</sup> :	The combination of engineering sciences and biotechnology to produce food ingredients and selected components for the pharmaceutical and chemical industries. Discussion of process engineering and biotechnology. Examples of industrial production of selected biopolymers.				
Form of the course, number of hours <sup>13)</sup> :	a) 10h of lectures and 5h of project preparation				
Learning activities and teaching methods <sup>14)</sup> :	Project preparation, problem solution, individual student project and consultations with the teacher				
Full course description <sup>15)</sup> :	Engineering and biotechnological sciences on a duty of some food and pharmaceutical components production. Description of unit engineering and biotechnological processes. Samples of a "big scale" biopolymers production.				
Prerequisite <sup>16)</sup> :	Process engineering				
Presuppositions <sup>17)</sup> :	Process engineering description, projection of the product and production				
Learning outcomes <sup>18)</sup> :	<b>01</b> the student understand the processes occurring in the bioreactor <b>02</b> the student is able to characterize the different stages of the production <b>03</b> the student is able to provide the basic parameters of the process <b>04</b> the student is able to give strains and conditions of the bioreactor for selected examples of biopolymers		<b>05</b> the student is able to design a manufacturing process selected biological material <b>06</b> the student is able to give examples of biopolymers on an industrial scale <b>07</b> the student can prepare bio-process design and carry out thorough it analysis of the technological and economic parameters		
The way of verifying learning outcomes <sup>19)</sup> :	Credit in writing form				
The way of learning outcomes documentation <sup>20)</sup> :					
The elements influencing the final note <sup>21)</sup> :	Project preparation 50% of grade and test from the lectures material 50% of grade				
Place of course <sup>22)</sup> :	Auditorium				
Literature:	<b>Appl Biochem Biotechnol, Biotechnol., Crueger W., Crueger A. :Biotechnology, a textbook of industrial microbiology, Biomass and Bioenergy, J. Gen. Appl. Microbiol, Bednarski W. Fiedurka J. :Basics of biotechnology in factory, Appl. Microbiol. Bitechmol., Food Technol. Biotechnol., J. of Food Engin., Food Hydrocoll., lectures materials</b>				
Notices <sup>24)</sup> :					

Quantitative indicators characterizing the course<sup>25)</sup> :

Summary amount of hours in contact with teacher and individual work needed to reach the learning outcomes:	<b>50</b>
Summary amount of ECTS credits in direct contact with teacher:	<b>0,5 ECTS</b>
Summary amount of ECTS credits in practical classes:	<b>0,5 ECTS</b>

Compatibility table of the specific learning outcomes with the effects of the course <sup>26)</sup>

No./Symbol of the learning outcomes	Learning outcomes:	Compatibility to the specific learning outcomes
01	the student understand the processes occurring in the bioreactor	K_W04, K_W08,
02	the student is able to characterize the different stages of the production	K_W06, K_W10
03	the student is able to provide the basic parameters of the process	K_W06
04	the student is able to give strains and conditions of the bioreactor for selected examples of biopolymers	K_W03, K_W05, K_W12
05	the student is able to design a manufacturing process selected biological material	K_W05, K_W06, K_W10, K_U07, K_U08
06	the student is able to give examples of biopolymers on an industrial scale	K_W09, K_W10, K_U07, K_U08
07	the student can prepare bio-process design and carry out thorough it analysis of the technological and economic parameters	K_W06, K_W11, K_U07, K_U08

The summary amount of time – allocation of ECTS<sup>2)</sup>:

<i>Lectures</i>	<b>10</b>
<i>Consultations</i>	<b>5</b>
<i>Presence during the exam</i>	<b>2</b>
<i>Exam preparation</i>	<b>33</b>
<i>Summary hours:</i>	<b>50</b>
<i>Summary ECTS:</i>	<b>1</b>