

COURSE DESCRIPTION (SYLLABUS)

1.	Course Industrial Biotechnology
2.	Language of instruction English
3.	Faculty Faculty of Biotechnology
4.	Course/module code:
5.	Course/module type (<i>mandatory or elective</i>) elective - choice limited to Industrial and Medical Biotechnology
6.	Programme Biotechnology
7.	Study cycle (<i>1st/2nd</i>) 1st cycle
8.	Year 3rd
9.	Semester (<i>autumn or spring</i>) autumn
10.	Form of tuition and number of hours Learning methods Laboratory classes: performing experiments, 45 hours
11.	Name, Surname, academic title: Sławomir JABŁOŃSKI, PhD
12.	Initial requirements (knowledge, skills, social competences) Students: <ul style="list-style-type: none"> • possess basic knowledge of biological sciences; namely microbiology, molecular biology and biochemistry, • speak English at B2 level as required by the European Framework of Reference for Languages, • understand the need for lifelong learning.
13.	Objectives: The aim of this course is to show students selected bioprocesses used in industry.
14.	Content: <ul style="list-style-type: none"> • Production of beer including the following parts: malt crashing, mashing,

	<p>filtration, boiling, fermentation and bottling,</p> <ul style="list-style-type: none"> • Monitoring of cell concentration during fermentation based on different techniques, • Production and purification of enzyme used in biotechnology (Taq polymerase) in <i>E. coli</i> overexpression system, • Evaluation of enzyme product activity and purity. 					
15.	<p>Learning outcomes:</p> <p>KNOWLEDGE:</p> <ul style="list-style-type: none"> • provide qualitative and quantitative descriptions of complex biological phenomena and processes, • consistently apply and disseminate the principle of strict interpretation of biological phenomena and biochemical processes in research and practical activities which are based on empirical data, • possess advanced knowledge of medical and biological sciences, namely biochemistry, biotechnology, molecular biology, • be familiar with the basic principles of health and safety and ergonomics procedures in the laboratory and follow the procedures of working with genetically modified organisms, <p>SKILLS:</p> <ul style="list-style-type: none"> • apply advanced technology and research tools in medical and biological sciences, namely biochemistry, biotechnology, • plan and perform research tasks and analysis under the supervision of a tutor, • collect and interpret experimental data, synthesise it and make appropriate conclusions. 	<p>Outcome symbols:</p> <p>K_W01, K_W02, K_W03, K_W09</p> <p>K_U01, K_U04, K_U06,</p>				
16.	<p>Recommended literature:</p> <p>“General microbiology” H. G. Schlegel</p>					
17.	<p>Methods of verification of the assumed learning outcomes:</p> <ul style="list-style-type: none"> • evaluation of test during laboratory classes, • evaluation of reports describing the experiments realized during the classes. 					
18.	<p>Conditions of earning credits:</p> <ul style="list-style-type: none"> • continuous control of presence and progress, • passing the tests during the classes, • positive evaluation of classes report. 					
19.	<p>Student’s workload:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%; text-align: center;">Activity</th> <th style="width: 40%; text-align: center;">Number of hours for the</th> </tr> </thead> <tbody> <tr> <td style="height: 20px;"> </td> <td> </td> </tr> </tbody> </table>		Activity	Number of hours for the		
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	activity
Hours of instruction (as stipulated in study programme) : <ul style="list-style-type: none"> • laboratory classes • consultations 	45 h
Student's own work <ul style="list-style-type: none"> - Individual learning of biochemical basics underlying the experiments realized on laboratory classes, - Preparation of report from the laboratory classes. 	15 h
Total number of hours:	60 h
Number of ECTS:	3 ECTS