



Лектор дисципліни
Контактна інформація лектора (e-mail)

СИЛАБУС ДИСЦИПЛІНИ «INDUSTRIAL BIOTECHNOLOGY»

Ступінь вищої освіти - Бакалавр
Спеціальність 162 «Біотехнології та біоінженерія»
Освітня програма «Біотехнології та біоінженерія»
Рік навчання 2021/2022, семестр 6
Форма навчання денна
Кількість кредитів ЄКТС 3,4
Мова викладання - English

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COURSE DESCRIPTION

(до 1000 друкованих знаків)

The purpose of study of discipline is a capture to knowledge and abilities of cultivation of separate strains of industrial microorganisms students, by the methods of selection of biological agents for the receipt of separate products, government of cultivation of microorganisms, control of quality of the got product, directions of application of products of biotechnology, determination of them processes bases ecological safety, especially created on the basis of the genetically modified microorganisms. A course foresees preparation of bachelor and leans against knowledge of disciplines which form a specialist for different industries of national economy, including agroindustrial production.

A task to the course is making for the students of ability to manage the processes of cultivation of microorganism's pilot-scale by collection, working and analysis of information; experimental mastering of methods of work with different industrial microorganisms in the conditions of laboratory and during educational practices in research establishments and biochemical enterprises.

STRUCTURE OF COURSE

Topic	Hours (lectures/ practical works)	Results of study	Task	Evaluation
1 semester				
Module 1. Enzymatic processes in the biotechnology industry.				
Topic 1. History and achievements of industrial biotechnology.	8/5	<p><i>Must know</i> ecobiotechnological bases of plant-grower; biochemical, physiology and physical methods of analysis of biotechnological products; devices and equipments are for biotechnological processes; government and accident and labor protection prevention biotechnological processes bases are ill a biotechnological laboratory, on a production, constrained with the use of microorganisms.</p> <p><i>Must be able to</i> use the obtained knowledge and skills in practice of national economy: able to prepare nourishing environments, reagents and tableware for sterilization, to modify them in obedience to the put tasks; to carry out control of biotechnological operations in laboratory and production terms; to estimate the results of biotechnological researches and processes; instrumental in</p>	<p><i>Preparation for lectures</i> (preliminary acquaintance with the presentation and a full lecture in eLearn).</p> <p><i>Execution and delivery of laboratory work</i> (in methodical recommendations - in continuation of laboratory employment, and independently - in eLearn).</p> <p><i>Doing independent work</i> (tasks in eLearn).</p> <p><i>Preparation and writing of a modular test</i> (descriptive part - in the classroom, test - in eLearn)</p>	<p><i>Execution and delivery of laboratory works</i> - credited.</p> <p><i>Module:</i></p> <p>descriptive part 100; test part 30 * 0.1;</p> <p><i>Independent work</i> - according to the evaluation journal in eLearn.</p>
Topic 2. General characteristics of industrial strains of microorganisms.	7/5			

		<p>introduction of results of biotechnological researches taking into account biosafety of environment.</p> <p><i>Use producing microorganisms to produce protein preparations, food acids, amino acids, vitamins, enzyme preparations, bacterial fertilizers and biological plant protection products.</i></p>		
Overall in 1 module				70
Module 2. Scheme and main stage biotech industries.				
Topic 1. Classification and characterization of the fermentation process.	8/5	<p><i>Must know</i> ecobiotechnological bases of plant-grower; biochemical, physiology and physical methods of analysis of biotechnological products; devices and equipments are for biotechnological processes; government and accident and labor protection prevention biotechnological processes bases are ill a biotechnological laboratory, on a production, constrained with the use of microorganisms.</p> <p><i>Must be able to</i> use the obtained knowledge and skills in practice of national economy: able to prepare nourishing environments, reagents</p>	<p><i>Preparation for lectures</i> (preliminary acquaintance with the presentation and a full lecture in eLearn).</p> <p><i>Execution and delivery of laboratory work</i> (in methodical recommendations - in continuation of laboratory employment, and independently - in eLearn).</p> <p><i>Doing independent work</i> (tasks in eLearn).</p> <p><i>Preparation and writing of a modular test</i> (descriptive part - in the classroom, test - in</p>	<p><i>Execution and delivery of laboratory works</i> - credited.</p> <p><i>Module:</i></p> <p>descriptive part 100;</p> <p>test part 30 * 0.1;</p> <p><i>Independent work</i> - according to the evaluation journal in eLearn.</p>

<p>Topic 2. Characteristics of the main stage biotech industries</p>	<p>7/5</p>	<p>and tableware for sterilization, to modify them in obedience to the put tasks; to carry out control of biotechnological operations in laboratory and production terms; to estimate the results of biotechnological researches and processes; instrumental in introduction of results of biotechnological researches taking into account biosafety of environment.</p> <p><i>Use producing microorganisms to produce protein preparations, food acids, amino acids, vitamins, enzyme preparations, bacterial fertilizers and biological plant protection products.</i></p>	<p>eLearn)</p>	
<p>Overall in 2 module</p>				<p>70</p>
<p>Module 3. Getting biologically active substances and certain components of microbial cells.</p>				
<p>Topic 1. Biotechnology products of microbial synthesis.</p>	<p>7/5</p>	<p><i>Must know ecobiotechnological bases of plant-grower; biochemical, physiology and physical methods of analysis of biotechnological products; devices and equipments are for biotechnological processes; government and accident and labor protection prevention biotechnological processes bases are ill a</i></p>	<p><i>Preparation for lectures (preliminary acquaintance with the presentation and a full lecture in eLearn).</i></p> <p><i>Execution and delivery of laboratory work (in methodical recommendations - in continuation of laboratory employment, and</i></p>	<p><i>Execution and delivery of laboratory works - credited.</i></p> <p><i>Module:</i></p> <p>descriptive part 100;</p> <p>test part 30 * 0.1;</p> <p><i>Independent work - according to the evaluation journal in</i></p>

<p>Topic 2. Industrial biotechnology in agriculture.</p>	<p>8/5</p>	<p>biotechnological laboratory, on a production, constrained with the use of microorganisms.</p> <p><i>Must be able to use the obtained knowledge and skills in practice of national economy: able to prepare nourishing environments, reagents and tableware for sterilization, to modify them in obedience to the put tasks; to carry out control of biotechnological operations in laboratory and production terms; to estimate the results of biotechnological researches and processes; instrumental in introduction of results of biotechnological researches taking into account biosafety of environment.</i></p> <p><i>Use producing microorganisms to produce protein preparations, food acids, amino acids, vitamins, enzyme preparations, bacterial fertilizers and biological plant protection products.</i></p>	<p>independently - in eLearn).</p> <p><i>Doing independent work</i> (tasks in eLearn).</p> <p><i>Preparation and writing of a modular test</i> (descriptive part - in the classroom, test - in eLearn)</p>	<p>eLearn.</p>
<p>Exam</p>				<p>30</p>
<p>Overall in 1 course</p>				<p>100</p>

EVALUATION POLICY

<i>Deadline and recompilation policy:</i>	Works that are submitted in violation of the deadlines for more than a week without good reason are evaluated at a lower score (maximum - 20% of the maximum). Rearrangement of modules takes place with the permission of the lecturer if there are good reasons (for example, hospital or family problems).
<i>Academic Integrity Policy:</i>	Writing while writing modular test papers and the final exam is prohibited. The use of mobile devices during these periods is also prohibited.
<i>Visiting policy:</i>	Attendance is mandatory. For objective reasons (for example, illness, international internship) training can take place individually (in online form in consultation with the dean of the faculty). In case of violations and abuses (non-attendance more than 50% of the time - non-admission to the exam)

STUDENT EVALUATION SCALE

Rating of the applicant of higher education, points	The assessment is national for the results of examinations	
	exams	offsets
90-100	perfectly	credited
74-89	good	
60-73	satisfactorily	
0-59	unsatisfactorily	not credited