Course Description Form

1. Course Name:
Biotechnology 1
2. Course Code:
BITE467
3. Semester / Year:
First semester (fall) / 2024 – 2025
4. Description Preparation Date:
1 / 9 / 2024
5. Available Attendance Forms:
Presence
6. Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical hours + 3 practical hours (75 hours) / 3.5 units
7. Course administrator's name (mention all, if more than one name)
Name: Dr.Tariq Nowaf Khalil and Tamadher turky
8. Course Objectives

Theoretical	Practical
- Enabling the student to know the definition of l technologies and industrial microbiology - Introducing the student to methods of developi and preserving industrial microorganisms - Introducing the student to methods of gen engineering and methods of increasing productive capacity of organisms	- Enabling the student to isolate microorganis from their sources, preserve them, and test th production capacity
9. Teaching and Learning Strategies	
Theoretical - Interactive lecture - Brainstorming - Dialogue and discussion - Assigning reports -Conducting monthly and daily examinations	Practical Interactive lecture -Discussion, dialogue, brainstorming -Conducting laboratory experiments -Assigning reports -Conducting daily and monthly examinations

جامعة الموصل
كلية الزراعة والغابات

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2Theoretical 3Practical	Theoretical : a 1) The student learns about the fiel of biotechnology an the environmental factors of productio Practical : a 1) The student learns about the fiel of biotechnology an the environmental factors of productio	Theoretical Definitic of biotechnology Cell types and sourc of microorganisms Practical : biotechnology And microbiology	Theoretical audic methods, Writing on the board Direct dialogue style Practical Assign tasks and reports	Shortexams, assignments, discussions
2	2Theoretical 3Practical	Theoretical: b 1) The student explains the relationship betwee the producing organisms and the work environment i the production proc practical : c 1) The student experiments with different productior techniques.	Theoretical Nutritio and environmental requirements for th growth of microorganisms practical : Biovaccin	Theoretical audic methods, Writing on the board Direct dialogue style practical Assign tasks and reports	Shortexams, assignments, discussions
3	2Theoretical 3Practical	Theoretical: a 1) The student learns about the fiel of biotechnology an the environmental factors of productio b 1) The student explains the relationship betwee the producing organisms and the work environment i the production proc Practical : c 1) The student experiments with different production techniques.	Theoretical Metabol pathways of microorganisms practical Different methods o preservation	Theoretical audic methods, Writing on the board Direct dialogue style Practical Assign tasks and reports	Shortexams, assignments, discussions
4	2Theoretical 3Practical	Theoretical: a 1) The student learns about the fiel	Theoretical: fermen practical	Theoretical audic methods, Writing on the	Shortexams, assignments, discussions

		of biotechnology an the environmental factors of productio Practical : c 1) The student experiments with different productior techniques.	Preservation lyophilization	board Direct dialogue style Practical Assign tasks and reports	
5	2Theoretical 3Practical	Theoretical : e 1) The student understands the importance of the interconnected relationship betwee the microorganism and its development conditions and its impact on productic efficiency Practical : c 1) The student experiments with different productior techniques.	Theoretical: Development metho used in biotechnolo practical Creating mutati using ultravio radiation	Theoretical audio methods, Writing on the board Direct dialogue style Practical Assign tasks and reports	Shortexams, assignments, discussions
6	2Theoretical 3Practical	Theoretical : a 1) The student learns about the fiel of biotechnology an the environmental factors of productio Practical : c 1) The student experiments with different productior techniques.	Theoretical: Genetic engineering of microorganisms Practical Fermenter device	Theoretical audio methods, Writing on the board Direct dialogue style Practical Assign tasks and reports	Shortexams, assignments, discussions
7	2Theoretical 3Practical	Theoretical : a 1) The student learns about the fiel of biotechnology an the environmental factors of productio e 1) The student understands the importance of the interconnected relationship betwee the microorganism and its development conditions and its impact on productic	Theoretical: Genetic improvement of artificial microorganisms Practical Manufactu of ethanolic alcohol Laboratory	Theoretical audio methods, Writing on the board Direct dialogue style Practical Assign tasks and reports	Shortexams, assignments, discussions

جامعة الموصل
كلية الزراعة والغابات
قسم علوم الاغذية

		efficiency Practical : c 1) The student experiments with different productior techniques.			
8	2Theoretical 3Practical	Theoretical : a 1) The student learns about the fiel of biotechnology an the environmental factors of productio Practical : c 1) The student experiments with different productior techniques.	Theoretical: Industr microbial vaccine production practical Manufacture of ethanolic alcohol Laboratory	Theoretical audic methods, Writing on the board Direct dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
9	2Theoretical 3Practical	Theoretical : a 1) The student learns about the fiel of biotechnology an the environmental factors of productio b 1) The student explains the relationship betwee the producing organisms and the work environment i the production proc e 1) The student understands the importance of the interconnected relationship betwee the microorganism and its development conditions and its impact on productic efficiency. Practical : d 1) The student writes a report on biotechnology.	Theoretical: method for separating biotechnology products Practical : discussio	Theoretical audic methods, Writing on the board Direct dialogue style Practical Assign tasks and reports	Shortexams, assignments, discussions
10	2Theoretical 3Practical	Theoretical : a 1) The student lea about the fields of biotechnology and t environmental facto of production	Theoretical: Method of preserving artific microorganisms Practical : Laborato manufacturing of	Theoretical audic methods, Writing on the board Direct dialogue style Practical Assign	Shortexams, assignments, discussions

		Practical : c 1) The student experiments with different production techniques.	bread yeast	tasks and reports	
11	2Theoretical 3Practical	Theoretical : b 1) The student explains the relationship betwee the producing organisms and the work environment i the production proc Practical : c 1) The student experiments with different production techniques.	Theoretical : Single-cell protein product Practical : The stude will be able to prepa the manufacturing process for yeast	Theoretical audio methods, Writing on the board Direct dialogue style Practical Assign tasks and reports	Shortexams, assignments, discussions
12	2Theoretical 3Practical	Theoretical : e 1) The stud understands importance of interconnected relationship betw the microorgani and its developmer conditions and impact on product efficiency Practical : d 1) The student writes a report on biotechnology. e 1) The student understands the importance of the interconnected relationship betwee the microorganism and its development conditions and its impact on productio efficiency	Theoretical: single-c protein separation practical Scientific visit	Theoretical audio methods, Writing on the board Direct dialogue style Practical Assign tasks and reports	Shortexams, assignments, discussions
13	2Theoretical 3Practical	Theoretical : b 1) The student explains the relationship betwee the producing organisms and the work environment i	Theoretical: Production of mycotoxins practical Separating a	Theoretical audio methods, Writing on the board Direct dialogue style Practical Assign	Shortexams, assignments, discussions

		the production proc Practical : c 1) The student experiments with different production techniques.	purifying bread yea	tasks and reports	
14	2Theoretical 3Practical	Theoretical : a 1) The student lea about the fields of biotechnology and t environmental facto of production b 1) The student explains the relationship betwee the producing organisms and the work environment i the production proc Practical : c 1) The student experiments with different production techniques.	Theoretical : a comprehensive revi practical Separating purifying bread yea	Theoretical audio methods, Writing on the board Direct dialogue style Practical Assign tasks and reports	Shortexams, assignments, discussions
15	2Theoretical 3Practical	Theoretical and Practical : d 1) The student writes a report on biotechnology. e 1) The student understands the importance of the interconnected relationship betwee the microorganism and its development conditions and its impact on productio efficiency	Theoretical : Proble solving Practical : Problem solving	Theoretical audio methods, Writing on the board Direct dialogue style Practical Assign tasks and reports	Shortexams, assignments, discussions

11. Course Evaluation

t	Evaluation methods	Evaluation date (one week)	Grade	Relative weight %
1	Final theoretical report + theoretical practical reports	Theoretical 15 weeks Practical 1-15 weeks	7theoretical + 6 practical	13%
2	Short test 1 Quiz	3weeks	4theoretical + 2practical	6%
3	Midterm exam (theoretical and practical)	9 weeks	10theoretical + 5 practical	15%
4	Short test 2 Quiz	12 weeks	4 theoretical +	6%

			2 practical	
5	Final practical test	practical exams week	20	20%
6	Final theoretical exam	theoretical exams week	40	40%
			100	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Biotechnology book (Dr. Fayez Al-Ani), Biotechnology book Dr. Khafaji flower
Main references (sources)	(Sources) Biotechnology Book (Dr. Fayez Al-Ani)
Recommended books and references (scientific journals, reports...)	references (scientific journals, reports....)
Electronic References, Websites	Electronic references, Internet sites, Research gat

Theoretical subject teacher: Dr. Tariq Nawaf Khalil

Practical subject teacher: M.M. Tamadher Turky

Chairman of the Scientific Committee : Assistant prof. Dr. Taha M. Taqi

Head of the Food Sciences Department: Assistant prof. Dr. Taha M. Taqi

الاستاذ المساعد الدكتور
طه محمد تقي محمد

جامعة الموصل
كلية الزراعة والغابات