



Teaching plan for the semester form 2021-2022

Course Instructor	Maitham abas Makei				
E_mail	mabbas@mu.edu.iq				
Title	Industrial microbiology.				
Course Coordinator	(15) week, two hours per week (theoretical part). (15) week, two hours per week (practical part).				
Course Objective	explain relationship between Microorganism and Industrial food				
Course Description	Production of Metabolites, Industrial enzymes, Amino acid, Organic acids, Antibiotics, Vitamins and Single Cell Proteins				
Textbook					
References	<p>-Riegel ER and Bissinger HG (2003) Industrial fermentation: Principles, processes and products; Vitamin B₁₂ (Cyanocobalamin).</p> <p>-Gupta R, Beg QK and Lorenz P (2002) Bacterial alkaline proteases: molecular approaches and industrial applications. <i>Applied Microbiology and Biotechnology</i>.</p>				
Course Assessment	Term Tests	Laboratory	Quizzes	Project	Final Exam
	27%	10%	3%		60%
General Notes	Type here general notes regarding the course				



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week	Date	Topics Covered	Lab. Experiment Assignments	Notes
1		BASICS OF INDUSTRIAL MICROBIOLOGY.		
2		BASICS OF INDUSTRIAL MICROBIOLOGY.		
3		TECHNIQUES IN INDUSTRIAL MICROBIOLOGY.		
4		COMPONENTS OF MEDIA FOR INDUSTRIAL INOCULUM DEVELOPMENT.		
5		COMPONENTS OF MEDIA FOR INDUSTRIAL INOCULUM DEVELOPMENT.		
6		FERMENTATION PROCESSES.		
7		FERMENTER DESIGN AND OPERATION.		
8		MAINTENANCE OF SELECTED CULTURES.		
9		MICROBIAL ENZYMES .		
10		AMYLASE		
11		PROTEASE		
12		CELLULASE		
13		PRODUCTION OF ANTIBIOTICS.		
14		PRODUCTIO OF VITAMINS .		
15		SINGLE CELL PROTEIN .		

Instructor Signature:

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