



UNIVERSITI TEKNOLOGI MARA

CBE450: MICROBIOLOGY FOR BIOPROCESS ENGINEER

Course Name (English)	MICROBIOLOGY FOR BIOPROCESS ENGINEER APPROVED
Course Code	CBE450
MQF Credit	3
Course Description	The purpose of this course is to provide fundamental training in handling and recognition of microorganisms. The selected laboratories help the student to identify the important role of the microbes in daily life application. This course exposed the students with the laboratory skills required in microbiology such as microscopy, sterile technique, cultivation techniques, isolation techniques and identification and manipulation of microorganisms.
Transferable Skills	Microbiology
Teaching Methodologies	Lectures, Tutorial, Discussion
CLO	CLO1 Describe the diverse microorganisms group according to their physiological characteristics and their role in the evolution of life on earth. CLO2 Differentiate the mechanism and metabolite of microbial in bioproduct development. CLO3 Develop a basic industrial design in bioproduct development using microbiology concept and principle
Pre-Requisite Courses	No course recommendations
Topics	
1. CHAPTER 1: Introduction to microbiology in industry 1.1) History and scope of microbiology in industry	
2. CHAPTER 2: Microbial Physiology 2.1) Microbial Cell Structure and Function. 2.2) Screening for Strains Used in Biotechnology Industry 2.3) Industrial Microorganism	
3. CHAPTER 3: Microbial Metabolite and pathway 3.1) Microbial Primary and Secondary Metabolite and its carbon pathways.	
4. CHAPTER 4: Growth and Culturing of Microbial 4.1) Microbial Growth and cell division 4.2) Culturing microbial	
5. CHAPTER 5: Sterilization and Disinfection 5.1) Principle of sterilization and disinfection 5.2) Chemical antimicrobial agent 5.3) Physical antimicrobial agent	
6. CHAPTER 6: Industrial cultures 6.1) Fermentation and scale up processing 6.2) Handling and Preservation of Industrial microorganism: Culture Collections 6.3) Sterility in Industrial Microbiology 6.4) Microbiological Waste Disposal	

Assessment Breakdown	%
Continuous Assessment	40.00%
Final Assessment	60.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	Assignment 1	10%	CLO1
	Assignment	Assignment 2	10%	CLO2 , CLO3
	Test	Test 1	10%	CLO1 , CLO2
	Test	Test 2	10%	CLO2 , CLO3

Reading List	Recommended Text
	<ul style="list-style-type: none"> • Joanne M Willey; Linda Sherwood; Christopher J Woolverton: Prescott, Harley and Klein 2008, <i>Microbiology</i>, 7th Ed., McGraw-Hill Higher Education

Article/Paper List	
	This Course does not have any article/paper resources

Other References	
	This Course does not have any other resources