



UNIVERSITI TEKNOLOGI MARA

CBE641: INDUSTRIAL BIOPROCESS TECHNOLOGY

Course Name (English)	INDUSTRIAL BIOPROCESS TECHNOLOGY APPROVED
Course Code	CBE641
MQF Credit	2
Course Description	In this course, most of the important products of primary microbial and secondary metabolism, their large-scale production and use as raw materials for industrial application are covered. Bio-manufacturing validation and quality control in industrial will also be highlighted. The regulations in bioprocess technology industry also are covered in this course.
Transferable Skills	Applications of Industrial Bioprocess Technology
Teaching Methodologies	Lectures, Blended Learning, Field Trip, Presentation
CLO	CLO1 Ability to describe the application of bioprocess technology and bio-manufacturing in the microbial primary and secondary metabolite production and their characteristics. CLO2 Ability to outline the industrial application of primary and secondary metabolism product CLO3 Ability to evaluate the bio-manufacturing validation and quality control in bioprocess industry.
Pre-Requisite Courses	No course recommendations
Topics	
1. Briefing and Introduction 1.1) n/a	
2. Bioprocess technology in Primary Metabolite Product 2.1) n/a	
3. Bioprocess technology in Secondary Metabolite Product 3.1) n/a	
4. Validation in Biomanufacturing 4.1) n/a	
5. Quality Control and Assurance in Bioprocess Industry 5.1) n/a	

Assessment Breakdown	%
Continuous Assessment	40.00%
Final Assessment	60.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	n/a	10%	CLO1 , CLO2 , CLO3
	Quiz	n/a	10%	CLO1 , CLO2 , CLO3
	Test	n/a	20%	CLO1 , CLO2 , CLO3

Reading List	<p>Recommended Text</p> <ul style="list-style-type: none"> • <i>Introduction to Biomanufacturing, NBC2 , Global Manufacturing Curriculum, 1st edition.</i> • <i>Rehm, Hans-Jürgen, Reed, Gerald, Pühler, Alfred and Stadler, Peter (ed). (1996) Biotechnology: Products of Primary Metabolism Vol. 6 (2nd edition). Wiley-VCH, Weinheim</i> • <i>Rehm, Hans-Jürgen, Reed, Gerald, Pühler, Alfred and Stadler, Peter (ed). (1997) Biotechnology: Products of Secondary Metabolism Vo. 7 (2nd edition). Wiley-VCH, Weinheim</i> • <i>Alexander S.(Ed), Sang Ki Rhee (Ed) (2005) Polysaccharides and Polyamides in the Food Industry: Properties, Production, and Patents, J.W. Wiley and Sons</i> • <i>Mann, J. Davidson, R.S. Hobbs, J.B. Banthorpe D.V. and Harborne J.B(1994) Natural products. Their chemistry and biological significance. Prentice Hal</i> • <i>Korasik N, Cairns W L and Neil C.C (1987) Biosurfactants and Biotechnology M. Dekker, N.Y</i> • <i>Naim K. (1993) Biosurfactants : production, properties, applications: M. Dekker. New York</i> • <i>Lynn Ellen Doxon (2001)The Alcohol Fuel Handbook, Infinity Pub</i>
Article/Paper List	This Course does not have any article/paper resources
Other References	This Course does not have any other resources