

Fermentation Technology Principles

Module Information

2022.01, Approved

Summary Information

Module Code	7101BTBMOL
Formal Module Title	Fermentation Technology Principles
Owning School	Pharmacy & Biomolecular Sciences
Career	Postgraduate Taught
Credits	30
Academic level	FHEQ Level 7
Grading Schema	50

Teaching Responsibility

LJMU Schools involved in Delivery
Pharmacy & Biomolecular Sciences

Learning Methods

Learning Method Type	Hours
Lecture	22
Practical	36
Workshop	2

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-CTY	CTY	September	28 Weeks

Aims and Outcomes

Aims	To give an insight into Industrial, Microbiology and Biochemistry. This module will show how fundamental principles can be applied to industrial processes and will examine the wide range of microbial processes and products.
------	---

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Design a fermentation process from strain selection and improvement to product recovery and purification.
MLO2	2	Compare practical fermenters and appreciate the need for instrumentation and control.
MLO3	3	Construct and operate small scale and pilot plant fermentation equipment.
MLO4	4	Synthesise knowledge of the biochemistry of industrially important organisms and their products.

Module Content

Outline Syllabus	Characteristics of industrial microorganisms: biochemical diversity, overflow metabolism, enzyme production. Isolation and improvement of organisms: isolation techniques, strain selection, improvement of organisms by rational and random approaches, breeding programmes and protoplast fusion. Fermentation Processes: media design, inoculate development, fermenter or design, fermentation instrumentation and control and scale-up. Analysis of process efficiency: batch, fed-batch and continuous culture. Downstream Processing: harvesting, fermentation broth extraction and purification of products. Microbial products: antibiotics, enzymes, single cell protein etc.
Module Overview	The aim of this module is to give you an understanding of industrial microbiology and biochemistry. It shows how fundamental principles can be applied to industrial processes and examines the wide range of microbial processes and products.
Additional Information	The module gives an insight into Industrial Microbiology and Biochemistry, showing how fundamental principles can be applied to industrial processes. A wide range of microbial processes will be examined and used to illustrate how complex products can be made economically from microorganisms.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Centralised Exam	Exam	50	3	MLO2, MLO4
Report	Report	20	0	MLO1, MLO2, MLO3
Presentation	Presentation	30	0	MLO1, MLO2, MLO3

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Glyn Hobbs	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings
--------------	--------------------------	-----------