

Summary Information

Module Code	7105BTBMOL
Formal Module Title	Bioprocessing and Fermentation Technology
Owning School	Pharmacy & Biomolecular Sciences
Career	Postgraduate Taught
Credits	20
Academic level	FHEQ Level 7
Grading Schema	50

Module Contacts

Module Leader

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

Module Team Member

Contact Name	Applies to all offerings	Offerings
Pattanathu Rahman	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings
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Teaching Responsibility

LJMU Schools involved in Delivery
Pharmacy & Biomolecular Sciences

Learning Methods

Learning Method Type	Hours
Lecture	12
Practical	36
Workshop	2

Module Offering(s)

Offering Code	Location	Start Month	Duration
SEP-CTY	CTY	September	12 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.
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Learning Outcomes

After completing the module the student should be able to:

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

Module Content

Outline Syllabus
<p>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.</p>

Module Overview

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. Employability: The practical sessions in this module are based upon the work undertaken by scientists working in the biotechnology industry sector and those pursuing research career in the life sciences. They will give the student the necessary skills and experience to meet the workplace needs of biotechnology companies involved in upstream and downstream processes. They have been developed in consultation with employers of biotechnology graduates who have confirmed that the practical sessions are suitable and applicable to the industrial and biomedical workplace. Inclusivity: A conscious effort will be made to elevate the contributions of scientists from underrepresented groups, incorporating their research papers into the lecture material, showing photographs of diverse researchers, exploiting the EDIpedia database and highlighting good practice.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Learning Outcome Mapping
Centralised Exam	Examination	60	2	MLO2, MLO1, MLO3, MLO4
Report	Report	40	0	MLO1, MLO3