

Learning Outcomes	1. Apply the principle of management and controls on the microbial processes in industrial settings. 2. Apply the understanding of physiological principles in improvement of the industrial processes.	
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Programme: M.Sc. (Microbiology)

Course Code: MIPC-406

Title of the Course: INDUSTRIAL MICROBIOLOGY [P]

Number of Credits: 1, Practical

Contact hours: 30

Effective from Academic Year: 2022-23

Prerequisites	Basic knowledge about the types of microbes and their products of industrial relevance. Knowledge of microbial biochemistry, physiology, genetics and statistics.	
Objective:	Development of concepts in the processes, instruments, management, quality, etc. being used in the industries to produce the products using microorganisms.	
Content:		(30)
1.	Designing of fermentor – stirred tank reactor.	
2.	Fermentation kinetics – growth of <i>E.coli/S.cerevisiae</i> and determination of μ_{max} , K_s , $Y_{x/s}$, m.	
3.	Rheology of substrate solutions.	
4.	Immobilization of microbial cells using alginate.	
5.	Baker's yeast – ISI/BSI quality assurance.	
Pedagogy:	Hands-on experiments in the laboratory, video, online data	
References/ Readings	As given under Theory Course MITC-406	
Learning Outcomes	Able to manage the microbial process under industrial settings.	

Programme: M.Sc. (Microbiology)

Course Code: MITC-407

Title of the Course: MOLECULAR BIOLOGY [T]

Number of Credits: 3, Theory

Contact hours: 45

Effective from Academic Year: 2022-23

Prerequisites	It is assumed that the students have a basic knowledge of DNA (structure and replication), transcription and protein synthesis	
Objective:	To enhance the comprehension of concepts in molecular biology.	
Content:		
1.	Chromosome architecture and eukaryotic DNA replication	(15)
1.1	Nucleic acids, types of DNAs and DNA packaging	