SRI VENKATESWARA COLLEGE OF ENGINEERING

COURSE DELIVERY PLAN - LABORATORY

Department of Biotechnology	LP: BT18711
~~B.E~~/B.Tech/~~M.E/M.Tech~~ : Biotechnology Regulation: 2018	Rev. No: 00
PG Specialisation : -NA-	Date:
Sub. Code / Sub. Name : BT18711 / DOWNSTREAM PROCESSING LABORATORY	08/07/2023

Session No*	List of Experiments
	CYCLE-I
1	Solid liquid separation – Centrifugation
2	Solid liquid separation – Microfiltration
3	Cell disruption techniques – Ultrasonication
4	Precipitation – Ammonium sulphate precipitation
5	Ultrafiltration separation
6	High performance liquid chromatography
	CYCLE-II
7	Aqueous two- phase extraction of biologicals
8	High resolution purification – Affinity chromatography
9	High resolution purification – Ion exchange chromatography
10	Product polishing – Gel filtration chromatography
11	Product polishing – Spray drying
12	Product polishing –Freeze drying
13	Reverse micellar extraction
Content beyond syllabus (if any):	

* Session Duration: 200 minutes

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REFERENCE BOOK

1. Jenkins, R.O. (Ed.) "Product Recovery In Bioprocess Technology" Biotechnology By Open Learning Series, Butterworth-Heinemann, 1992.
2. Janson, J.C. And Ryden, L. (Ed.) "Protein Purification – Principles, High Resolution Methods And Applications", VCH Pub., 1989

	Prepared by	Approved by
Signature	G.Karthi	
Name	Dr G Karthigadevi	Dr. E. Nakkeeran
Designation	Assistant Professor, Biotechnology	HOD
Date	8/7/23	8/7/23
Remarks*: This lesson plan will be followed in the subsequent years		
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* If the same lab plan is followed in the subsequent semester/year it should be mentioned and signed by the Faculty and the HOD

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COURSE OUTCOMES - LABORATORY

Department of Biotechnology	CO: BT18711
~~B.E~~/B.Tech/~~M.E/M.Tech~~ : B. Tech	Rev. No: 01
UG / ~~PG~~ Specialisation : -	Date:08/07/2023
Regulation : 2018	
Sub. Code / Sub. Name : BT18711 / DOWNSTREAM PROCESSING LABORATORY	

CO	Statements	RBT* Level
CO1	Understand the advanced technical information pertaining to separate the cells from culture broth	R2
CO2	Know the various cell disruption techniques to recover the intracellular and extracellular products	R1
CO3	Learn to separate, purify and concentrate the various biological products using advanced techniques	R3
CO4	Understand the proper methods of preserving the obtained products for end use	R2
CO5	Learn minimum skills to handle the equipment in the laboratory	R2

* Revised Bloom's Taxonomy

Mapping CO – PO - PSO*:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO-1	PSO-2	PSO-3
CO1	X	X				X	X	X		X	X	X	X	X	
CO2	X	X			X		X	X		X	X	X	X	X	X
CO3	X	X	X	X	X				X	X		X	X	X	X
CO4	X	X								X		X		X	X
CO5	X	X	X	X	X		X			X		X		X	

* Put a 'X' for the mapping

Assessment Methods:

Stream	Internal Assessment Marks			End Semester Examination Marks
	Continuous Assessment (As per AAR)	Model Exam	Total	
Autonomous				

Signature of Faculty / Course Coordinator	**Signature of Module Coordinator**