

DEPARTMENT OF BIOTECHNOLOGY

M.Tech. (Bioprocess Engineering)

[illegible]

Program Elective Courses (M.Tech. (Bioprocess Engineering))

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weight (%)				
S. No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
Program Elective I														
1.	BTN-651	Microbiology and Biochemistry	PEC	4	3	1	-	3	-	25	-	25	50	-
2.	BTN-652	Properties of Biomolecules	PEC	4	3	1	-	3	-	25	-	25	50	-
3.	BTN-653	Biomaterials and Bionanotechnology	PEC	4	3	1	-	3	-	25	-	25	50	-
4.	BTN-654	Thermodynamics of Biological System	PEC	4	3	1	-	3	-	25	-	25	50	-
5.	BTN-655	Reaction Kinetics and Reactor Design	PEC	4	3	1	-	3	-	25	-	25	50	-
Program Elective II						1								
1.	BTN-656	Molecular Genetics	PEC	4	3	1	-	3	-	25	-	25	50	-
2.	BTN-657	Recombinant DNA Technology	PEC	4	3	1	-	3	-	25	-	25	50	-
3.	BTN-658	Advanced Transport Processes	PEC	4	3	1	-	3	-	25	-	25	50	-
4.	BTN-659	Bioprocess Calculations	PEC	4	3	1	-	3	-	25	-	25	50	-
5.	BTN-660	Chemical Reactor Theory and Analysis	PEC	4	3	1	-	3	-	25	-	25	50	-
Program Elective III						1								
1.	BTN-661	Plant Cell Technology	PEC	4	3	1	-	3	-	25	-	25	50	-
2.	BTN-662	Animal Cell Technology	PEC	4	3	1	-	3	-	25	-	25	50	-
3.	BTN-663	Protein Engineering	PEC	4	3	1	-	3	-	25	-	25	50	-
4.	BTN-664	Computational Biology	PEC	4	3	1	-	3	-	25	-	25	50	-
5.	BTN-665	Bioprocess Optimization	PEC	4	3	1	-	3	-	25	-	25	50	-
6.	BTN-666	Bioprocess Integration	PEC	4	3	1	-	3	-	25	-	25	50	-
Program Elective IV						1								
1.	BTN-667	Heat Transfer Operation and Design	PEC	4	3	1	-	3	-	25	-	25	50	-
2.	BTN-668	Mass Transfer Operation and Design	PEC	4	3	1	-	3	-	25	-	25	50	-
3.	BTN-669	Bioprocess Equipment Design	PEC	4	3	1	-	3	-	25	-	25	50	-
4.	BTN-670	Bioprocess Economics and Plant Design	PEC	4	3	1	-	3	-	25	-	25	50	-
5.	BTN-671	Computational Fluid Dynamics	PEC	4	3	1	-	3	-	25	-	25	50	-
Program Elective V						1								
1.	BTN-672	Bioprocess Dynamics and Control	PEC	4	3	1	-	3	-	25	-	25	50	-
2.	BTN-673	Industrial Safety and Regulations	PEC	4	3	1	-	3	-	25	-	25	50	-
3.	BTN-674	Biotech Recourses Planning and IPR Issues	PEC	4	3	1	-	3	-	25	-	25	50	-
4.	BTN-675	Biological Waste Treatment	PEC	4	3	1	-	3	-	25	-	25	50	-
5.	BTN-676	Metabolic Regulations and Engineering	PEC	4	3	1	-	3	-	25	-	25	50	-

Pre-PhD Courses

1.	BTN-701	Methods in Animal Biotechnology	PEC	4	3	1	-	3	-	20-35	-	20-30	40-50	-
2.	BTN-703	Advanced Genetic Engineering	PEC	4	3	1	-	3	-	20-35	-	20-30	40-50	-
3.	BTN-705	Functional Genomics	PEC	4	3	1	-	3	-	20-35	-	20-30	40-50	-
4.	BTN-706	Biomolecular Spectroscopy	PEC	4	3	1	-	3	-	20-35	-	20-30	40-50	-