DEPARTMENT OF BIOTECHNOLOGY

M.Tech. (Bioprocess Engineering)

60.17 dated 08.07.2015

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
1st YEAR					**Semester- I (Autumn)**									
1.	MA-501F	Numerical Methods, Statistics and Probability	PCC	4	3	1	-	3	-	25	-	25	50	-
2.	BTN-531	Bioreaction Engineering	PCC	4	3	1	-	3	-	25	-	25	50	-
3.	BTN-532	Downstream Processing	PCC	4	3	1	-	3	-	25	-	25	50	-
4.		Program Elective I	PEC	4	3	1	-	3	-	25	-	25	50	-
5.		Program Elective II	PEC	4	3	1	-	3	-	25	-	25	50	-
		Total		20										
Semester-II (Spring)														
1.	BTN-533	Bioreactor Theory and Analysis	PCC	4	3	1	-	3	-	25	-	25	50	-
2.	BTN-534	Bioprocess Engineering Laboratory	PCC	2	-	-	4	-	-	0	50	0	0	50
3.	BTN-700	Seminar	SEM	2	-	-	-	-	-	-	-	-	100	-
4.		Programme Elective –III	PEC	4	3	1	-	3	-	25	-	25	50	-
5.		Programme Elective –IV	PEC	4	3	1	-	3	-	25	-	25	50	-
6.		Programme Elective –V	PEC	4	3	1	-	3	-	25	-	25	50	-
		Total		20										
2nd YEAR					**Semester- I (Autumn)**									
1.	BTN-701A	Dissertation Stage I	DIS	12	-	-	-	-	-	-	-	-	100	-
		Total		12										
Semester-II (Spring)														
1.	BTN-701B	Dissertation Stage II	DIS	18	-	-	-	-	-	-	-	-	100	-
		Total		18										
		Total Credits		**70**										

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 Bionanaotechnology	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 Operations and Design	PEC	4	3	1	-	3	-	25	-	25	50	-
2.	BTN-668	Mass Transfer Operations 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	-