

**DEPARTMENT OF BIOTECHNOLOGY
DELHI TECHNOLOGICAL UNIVERSITY**

SCHEME OF TEACHING AND EVALUATION FOR 2 YEARS M.Sc. AS PER NEP-2020

M.Sc. BIOTECHNOLOGY

Option 1: Course Work Only

Teaching Scheme					Contact Hours/ Week			Relative Weightage (%)				
S. No.	Subject Code	Course Title	Subject Area	Credit	L	T	P	CWS	PRS/ STS/ CMS	MTE	ETE	PRE
SEMESTER I												
1.	MSBT 101	Biochemistry	DCC	4	3	0	2	15	25	20	40	-
2.	MSBT 103	Cell and Developmental Biology	DCC	4	3	1	0	25	-	25	50	-
3.	MSBT 105	Molecular Biology	DCC	4	3	0	2	15	25	20	40	-
4.	MSBT 107	Analytical Techniques	DCC	4	3	0	2	15	25	20	40	-
5.	MSBT 109	Enzyme Technology and Industrial Applications	DCC	4	3	1	0	25	-	25	50	-
6.	MSBT 111	Cell Culture and Diagnostic Techniques	DCC	2	0	0	4	-	50	-	-	50
		TOTAL CREDITS		22								
7.	MSHu 117	Communicative English	AEC*	4	3	1	0	25	-	25	50	-
	*Non CGPA Mandatory Course											
SEMESTER II												
8.	MSBT 102	Immunology	DCC	4	3	0	2	15	25	20	40	-
9.	MSBT 104	Microbiology and Industrial Applications	DCC	4	3	0	2	15	25	20	40	-

10.	MSBT 106	Genetic Engineering	DCC	4	3	0	2	15	25	20	40	-
11.	MSBT 108	Genetics	DCC	4	3	1	0	25	-	25	50	-
12.	MSBT 110	Advanced Environmental Biotechnology	DCC	4	3	0	2	15	25	20	40	-
13.	MSBT XXX		DEC1	2	2/1 /0	0/1 /0	0/0 /4	25/--	--/50	--	25/--	--/50
14.		TOTAL CREDITS		22								
15.	MSBT 120	Biostatistics and Computer Applications	SEC*	4	3	1	0	25	-	25	50	-
	*Non CGPA Mandatory Course											
SEMESTER III												
16.	MSBT 201	Bioprocess Engineering & Technology	DCC	4	3	0	2	15	25	20	40	-
17.	MSBT 203	Genomics and Proteomics	DCC	4	3	0	2	15	25	20	40	-
18.	MSBT 205	IPR & Biosafety	DCC	4	3	1	0	25	-	25	50	-
19.	MSBT XXX		DEC2	4	3	1	0	25	-	25	50	-
20.	MSBT XXX		DEC3	4	3	1	0	25	-	25	50	-
21.	MSBT XXX		DEC4	4	3	1	0	25	-	25	50	-
		TOTAL CREDITS		24								
SEMESTER IV												
22.	MSBT 202	Advances in Computational Biology	DCC	4	3	0	2	15	25	20	40	-
23.	MSBT 204	Nanobiotechnology	DCC	4	3	1	0	25	-	25	50	-
24.	MSBT 206	Medical Biotechnology	DCC	4	3	1	0	25	-	25	50	-
25.	MSBT XXX		DEC5	4	3	1	0	25	-	25	50	-
26.	MSBT XXX		DEC6	4	3	1	0	25	-	25	50	-

27.	MSBT XXX		DEC7	2	2/1 /0	0/1 /0	0/0 /4	25/--	--/50	--	25/--	--/50
		TOTAL CREDITS		22								

Option 2: Course Work & Research

Teaching Scheme					Contact Hours/ Week			Relative Weightage (%)				
S. No.	Subject Code	Course Title	Subject Area	Credit	L	T	P	CWS	PRS/ STS/ CMS	MTE	ETE	PRE
SEMESTER I												
1.	MSBT 101	Biochemistry	DCC	4	3	0	2	15	25	20	40	-
2.	MSBT 103	Cell and Developmental Biology	DCC	4	3	1	0	25	-	25	50	-
3.	MSBT 105	Molecular Biology	DCC	4	3	0	2	15	25	20	40	-
4.	MSBT 107	Analytical Techniques	DCC	4	3	0	2	15	25	20	40	-
5.	MSBT 109	Enzyme Technology and Industrial Applications	DCC	4	3	1	0	25	-	25	50	-
6.	MSBT 111	Cell Culture and Diagnostic Techniques	DCC	2	0	0	4	-	50	-	-	50
		TOTAL CREDITS		22								
7.	MSHu 117	Communicative English	AEC*	4	3	1	0	25	-	25	50	-
	*Non CGPA Mandatory Course											
SEMESTER II												
8.	MSBT 102	Immunology	DCC	4	3	0	2	15	25	20	40	-
9.	MSBT 104	Microbiology and Industrial Applications	DCC	4	3	0	2	15	25	20	40	-
10.	MSBT 106	Genetic Engineering	DCC	4	3	0	2	15	25	20	40	-
11.	MSBT 108	Genetics	DCC	4	3	1	0	25	-	25	50	-
12.	MSBT 110	Advanced Environmental Biotechnology	DCC	4	3	0	2	15	25	20	40	-
13.	MSBT XXX		DEC1	2	2/1 /0	0/1 /0	0/0 /4	25/--	--/50	--	25/--	--/50
14.		TOTAL CREDITS		22								

15.	MSBT 120	Biostatistics and Computer Applications	SEC*	4	3	1	0	25	-	25	50	-
	*Non CGPA Mandatory Course											
SEMESTER III												
16.	MSBT 201	Bioprocess Engineering & Technology	DCC	4	3	0	2	15	25	20	40	-
17.	MSBT 203	Genomics and Proteomics	DCC	4	3	0	2	15	25	20	40	-
18.	MSBT 205	IPR & Biosafety	DCC	4	3	1	0	25	-	25	50	-
19.	MSBT XXX		DEC2	4	3	1	0	25	-	25	50	-
20.	MSBT XXX		DEC3	4	3	1	0	25	-	25	50	-
21.	MSBT XXX		DEC4	4	3	1	0	25	-	25	50	-
		TOTAL CREDITS		24								
SEMESTER IV												
22.	MSBT	Research Thesis / Project work		22	--	--	--	--	40	--	--	60
		TOTAL CREDITS		22								

Option 3: Only Research

Teaching Scheme					Contact Hours/ Week			Relative Weightage (%)				
S. No.	Subject Code	Course Title	Subject Area	Credit	L	T	P	CWS	PRS/ STS/ CMS	MTE	ETE	PRE
SEMESTER I												
1.	MSBT 101	Biochemistry	DCC	4	3	0	2	15	25	20	40	-
2.	MSBT 103	Cell and Developmental Biology	DCC	4	3	1	0	25	-	25	50	-
3.	MSBT 105	Molecular Biology	DCC	4	3	0	2	15	25	20	40	-
4.	MSBT 107	Analytical Techniques	DCC	4	3	0	2	15	25	20	40	-
5.	MSBT 109	Enzyme Technology and Industrial Applications	DCC	4	3	1	0	25	-	25	50	-
6.	MSBT 111	Cell Culture and Diagnostic Techniques	DCC	2	0	0	4	-	50	-	-	50
		TOTAL CREDITS		22								
7.	MSHu 117	Communicative English	AEC*	4	3	1	0	25	-	25	50	-
	*Non CGPA Mandatory Course											
SEMESTER II												
8.	MSBT 102	Immunology	DCC	4	3	0	2	15	25	20	40	-
9.	MSBT 104	Microbiology and Industrial Applications	DCC	4	3	0	2	15	25	20	40	-
10.	MSBT 106	Genetic Engineering	DCC	4	3	0	2	15	25	20	40	-
11.	MSBT 108	Genetics	DCC	4	3	1	0	25	-	25	50	-
12.	MSBT 110	Advanced Environmental Biotechnology	DCC	4	3	0	2	15	25	20	40	-
13.	MSBT XXX		DEC1	2	2/1 /0	0/1 /0	0/0 /4	25/--	--/50	--	25/--	--/50
		TOTAL CREDITS		22								

14.	MSBT 120	Biostatistics and Computer Applications	SEC*	4	3	1	0	25	-	25	50	-
	*Non CGPA Mandatory Course											
SEMESTERS III & IV												
15.	MSBT	Research Thesis / Project work		46	--	--	--	--	40	--	--	60
		TOTAL CREDITS		46								

List of Electives

S.No.	Course Code	Course Title	DEC
1.	MSBT 112	Food Biotechnology	DEC 1 (2 Cr)
2.	MSBT 114	Molecular and Genetic Techniques	
3.	MSBT 116	Techniques in Protein Biology	
4.	MSBT 118	Upstream Processing in Biotechnology	
5.	MSBT 207	Healthcare Biotechnology	DEC 2 (4 Cr)
6.	MSBT 209	Neuroscience	
7.	MSBT 211	Pharmacogenomics and Personalized Medicine	
8.	MSBT 213	Population Genetics	
9.	MSBT 215	Plant Biotechnology	DEC 3 (4 Cr)
10.	MSBT 217	Molecular Therapeutics	
11.	MSBT 219	Protein Engineering	
12.	MSBT 221	Bioenergy and Biofuels	
13.	MSBT 223	Green Energy Technology	DEC 4 (4 Cr)
14.	MSBT 225	Animal Biotechnology	
15.	MSBT 227	Nutraceuticals and Functional Foods	
16.	MSBT 229	OMICs in Medicine	
17.	MSBT 231	Stem Cells and Regenerative Medicine	DEC 5 (4 Cr)
18.	MSBT 233	Microbial Systems Biology	
19.	MSBT 235	Bacterial Stress Biology and Industrial Applications	
20.	MSBT 237	Clinical and Translational Immunology	
21.	MSBT 208	One Health and Emerging Global Health Threats	DEC 6 (4 Cr)
22.	MSBT 210	Metabolic Engineering	
23.	MSBT 212	Translational Medicine	
24.	MSBT 214	Immunotechnology and Molecular Virology	
25.	MSBT 216	Molecular and Cellular Basis of Cancer	DEC 7 (2 Cr)
26.	MSBT 218	Plant Immunology	
27.	MSBT 220	Downstream Processing and Bioseparation	
28.	MSBT 222	Bioentrepreneurship	
29.	MSBT 224	Advanced Techniques in Genome and Proteome Engineering	DEC 7 (2 Cr)
30.	MSBT 226	Biomass Conversion and Biorefinery	
31.	MSBT 228	Environmental and Emerging Biotechnological Techniques	
32.	MSBT 230	Database Management in Biotechnology	
33.	MSBT 232	Algal Biotechnology	DEC 7 (2 Cr)
34.	MSBT 234	Machine Learning in Biotechnology	
35.	MSBT 236	Industrial Skills and Quality Control	