Annexure-III

M. Tech (Biotechnology) 6 Semester Program

Semester 1

S.No.	Course	L	T	P	Credits
THEORY					
BT431/BT301	Cell Biology	3	0	0	3
BT433/BT303	Genetics	3	0	0	3
BT435/BT305	Principles of Physiology	4	0	0	4
BT442/BT312	Principles of management and entrepreneurship	2	0	0	2
BT439/BT307	Microbiology	3	0	0	3
BT441/BT309	Information Technology for Biologists	2	0	0	2
MA103	Basic Mathematics *				
PRACTICALS					
BT443/BT311	Cell Biology lab	0	0	3	2
BT445/BT313	Microbiology lab	0	0	3	2
BT447/BT315	Information Technology lab	0	0	3	2
GP401	General Proficiency	0	0	0	1
	Total	**17**	**1**	**9**	**24**

*It is a non-credit course but passing in the paper is essential.

Semester 2

S.No.	Course	L	T	P	Credits
THEORY					
BT432/BT302	Molecular Biology	3	0	0	3
BT434/BT304	Principles of Biochemistry	3	0	0	3
BT436/BT306	Developmental biology	3	0	0	3
BT438/BT308	Environmental biotechnology	3	0	0	3
BT440/BT310	Introduction to bioinformatics	2	1	0	3
BT442	Enzyme technology	3	0	0	3
MA104	Mathematics *				
PRACTICAL					
BT444/BT314	Molecular Biology lab	0	0	3	2
BT446/BT316	Biochemistry and enzyme technology lab	0	0	3	2
BT448/BT318	Bioinformatics lab	0	0	3	2

GP402	General Proficiency	0	0	0	1
	Total	**17**	**1**	**9**	**25**

Semester 3

S.No.	Course	L	T	P	Credits
THEORY					
BT561/BT401	Recombinant DNA technology	3	0	0	3
BT563/BT403	Biophysical Chemistry	3	0	0	3
BT565/BT405	Immunotechnology	3	0	0	3
BT567/BT407	Nanobiotechnology	3	0	0	3
BT569/BT409	Biostatistics	2	1	0	3
BT571/BT411	Microbial Biotechnology	3	0	0	3
	Open Elective-1	2			2
GP501	General Proficiency	0	0	0	1
PRACTICAL					
BT573/BT413	Recombinant DNA technology lab	0	0	3	2
BT575/BT415	Biophysical Chemistry lab	0	0	3	2
	Microbial Biotechnology and Immunotechnology lab	0	0	3	2
	Total	**19**	**1**	**9**	**27**

Semester 4

S.No.	Course	L	T	P	Credits
THEORY					
BT562/BT402	Genomics and Proteomics	4	0	0	4
BT564/BT404	Bio analytical techniques	3	0	0	3
BT566/BT406	Bioprocess Technology	3	0	0	3
BT568/BT408	Regulation, Ethics and patenting in Biotechnology	2	0	0	2
	Elective Paper-I	3	0	0	3
	Elective Paper-II (Specialization)	3	0	0	3
	Open Elective-2	2			2
PRACTICAL					
BT570/BT410	Genomics and Proteomics lab	0	0	3	2
BT572/BT412	Bioprocess Technology lab	0	0	3	2
PROJECTS					
GP502	General Proficiency	0	0	0	1
	Total	**20**	**0**	**6**	**25**

Summer Semester (After 4th Semester)

S.No.	Course	L	T	P	Credits
BT504	Minor Research Project				08
	Total	**08**			

Semester 5

S.No.	Course	L	T	P	Credits
THEORY PAPER (Genetic Eng./Bioinformatics/Food Technology)					
	Specialization Paper-I	3	0	0	3
	Specialization Paper-II	3	0	0	3
	Specialization Paper-III	3	0	0	3
	Specialization Paper-IV	3	0	0	3
	Specialization Paper-V	2	0	0	2
PRACTICAL					
	Specialization Paper Lab-I	0	0	6	4
	Specialization Paper Lab-2	0	0	3	2
PROJECTS					
BT691	Special Problem and Research Project (Preliminary)	0	0	3	2
GP601	General Proficiency	0	0	0	1
	Total	**14**	**0**	**12**	**23**

Semester 6

S.No.	Course	L	T	P	Credits
MAJOR PROJECT					
BT600	Research Project	0	0	0	21
GP602	General Proficiency	0	0	0	1
	Total				**22**

Total Credits: 154

SEMESTER 4

Code	Course name
Elective Paper- I	
BT576/BT416	Data structure and database management system
BT578/BT418	Introduction to food technology
BT588/BT320	Molecular Virology
BT586	Downstream processing
Elective Paper-II (Specialization)	
BT574/BT414	Cell and Tissue Culture Techniques
BT582/BT422	Computational Biology
BT584/BT424	Chemistry for Food Technology

SEMESTER 5

Code	Course name
SPECILIZATION PAPER IN GENETIC ENGINEERING	
BT601/BT501	Genetic engineering in animals
BT603/BT503	Genetic engineering for crop improvement
BT605/BT505	Cellular and molecular medicine
BT607/BT507	Protein engineering
BT609/BT509	Vaccine design and development
PRACTICALS	
BT611	Genetic Engineering Lab -1 (6 hrs) (animal biotech, cellular medicine and vaccine)
BT613	Genetic Engineering Lab-2 (3 hours) (Plant biotechnology)

SEMESTER 5

Code	Course name
SPECILIZATION PAPER IN BIOINFORMATICS	
BT615/BT515	Computer programming
BT617/BT517	Computational genomics
BT619/BT519	Algorithms for bioinformatics
BT621/BT521	Molecular modelling and Drug design
BT623/BT523	Systems Biology and Neural Networks
PRACTICALS	
BT625/BT525	Programming Lab (6 hours)
BT627/BT527	Computational biology and Molecular modeling Lab (3 hours)

SEMESTER 5

Code	Course name
SPECILIZATION PAPER IN FOOD TECHNOLOGY	
BT629/BT529	Food Engineering and Technology-I
BT631/BT531	Food microbiology
BT633/BT533	Food Engineering and Technology-II
BT635/BT535	Food analysis
BT637/BT537	Quality control and sanitation
PRACTICALS	
BT639/BT539	Food Engineering and Technology Lab (6 hrs)
BT641/BT541	Food microbiology Lab (3 hrs)