

**DEPARTMENT OF BIOENGINEERING
NIT AGARTALA**

**CURRICULUM & SYLLABUS
OF
M. TECH
IN
BIOTECHNOLOGY
&
BIOCHEMICAL ENGINEERING**

NIT AGARTALA
M. TECH in BIOTECHNOLOGY & BIOENGINEERING
PROPOSED CURRICULUM AND SYLLABUS

SEMESTER-I

Sl.No	Code	SUBJECT	L-T-P	Credit
1		Bioanalytical Techniques	3-1-0	4
2		Bioengineering Principles	3-1-0	4
3		Genomics and Proteomics	3-0-0	3
4		Applied Bioinformatics	3-0-0	3
5		Elective1	3-0-0	3
6		Elective2 (open)	3-0-0	3
7		Analytical Techniques Lab	0-0-3	2
8		Applied Bioinformatics Lab	0-0-3	2
Total				24

SEMESTER-II

Sl.No	Code	SUBJECT	L-T-P	Credit
1		Bioreactor Design and Analysis	3-1-0	4
2		Biomedical Signal and Image Processing	3-1-0	4
3		Bioprocess Plant Design	3-0-0	3
4		Bioseparation Technology	3-0-0	3
5		Elective3	3-0-0	3
6		Elective4 (Open)	3-0-0	3
7		Bioprocess and Bioseparation Technology Lab	0-0-3	2
8		Seminar	0-0-2	1
Total				23

SEMESTER-III

Sl.No	Code	SUBJECT	L-T-P	Credit
1		Project and Thesis-1	0-0-28	14
Total				14

SEMESTER-IV

Sl.No	Code	SUBJECT	L-T-P	Credit
1		Project and Thesis-2	0-0-28	14
Total				14

❖ **Distribution of credit semester wise**

Sl.No	Semester	Credit
1	I	24
2	II	23
3	III	14
4	IV	14
Total		75

❖ **COURSE STRUCTURE**

Sl.No.	Course package	Credit	As per M.Tech Regulation of NITA
1	Core Courses	14+14+0+0=28	≥28 Credits
2	Elective Courses	6+6+0+0=12	≥12 Credits
3	Mandatory Learning courses (Seminars, Laboratory Viva voce)	4+3+0+0=07	=07
4	Major Project	0+0+14+14=28	=28
Total		75	75-83

Elective Courses

Sl.No	Code	SUBJECT	L-T-P	Credit
1		Protein Structure and Engineering	3-0-0	03
2		Bioentrepreneurship	3-0-0	03
3		IPR and Biosafety	3-0-0	03
		Advanced Genetic Engineering	3-0-0	03
4		Metabolic Process and Engineering	3-0-0	03
5		Process Control & Instrumentation	3-0-0	03
6		Tissue Engineering	3-0-0	03
		Biomaterials	3-0-0	03
7		Food Process Engineering	3-0-0	03
8		Animal Biotechnology	3-0-0	03
9		Environmental Biotechnology	3-0-0	03
10		Pharmaceutical Biotechnology	3-0-0	03
11		Nanobiotechnology	3-0-0	03
12		Advanced Immunology and Immunotechnology	3-0-0	03
13		Biological Waste Treatment	3-0-0	03
14		Advanced Molecular Biology	3-0-0	03
15		Advanced BioMEMS	3-0-0	03
16		Systems Biology	3-0-0	03
17		Advanced Biomechanics	3-0-0	03
18		Computational Fluid Dynamics in Biology	3-0-0	03
19		Biostatistics	3-0-0	03
20		Advanced Biomedical Instrumentation	3-0-0	03
21		Biosensors, transducers and Measurement Devices	3-0-0	03
22		Synthetic Biology	3-0-0	03
23		Molecular Therapeutics	3-0-0	03
24		Cancer Biology	3-0-0	03
25		Prosthetics and Orthotics	3-0-0	03