

Haldia Institute of Technology, West Bengal

(An Autonomous Institution under Maulana Abul Kalam Azad University of Technology)



Curriculum Structure for Master of Technology in BIOTECHNOLOGY

(Applicable for the Batch of 2024-2026 & 2025-2027)

SEMESTER-I							
Sl No	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
Theory							
1	Program Core I	PC-MBT101	Genetic Engineering	3	0	0	3
2	Program Core II	PC-MBT102	Plant Genetic Engineering	3	0	0	3
3	Program Elective-I	PE-MBT103 A/B/C	Program Elective-I	3	0	0	3
4	Program Elective-II	PE-MBT104 A/B	Program Elective-II	3	0	0	3
5	Mandatory Learning Course	MLC-MBT101	Research Methodology and IPR	2	0	0	2
6	Audit Course	AC-MBT101A/B/C/D/E/F/G/H	Audit Course 1	2	0	0	0
	Total Theory			16	0	0	14
Practical							
1	Laboratory I	PC-MBT191	Genetic Engineering Lab	0	0	4	2
2	Laboratory II	PC-MBT192	Plant Genetic Engineering Lab	0	0	4	2
	Total Practical			0	0	8	4
	Total of Semester-I			16	0	8	18
SEMESTER-II							
Theory							
1	Program Core III	PC-MBT201	Bioinformatics	3	0	0	3
2	Program Core IV	PC-MBT202	Animal Cell Culture	3	0	0	3
3	Program Elective-III	PE-MBT203 A/B	Program Elective-III	3	0	0	3
4	Program Elective-IV	PE-MBT204 A/B/C	Program Elective-IV	3	0	0	3
5	Audit Course	AC-MBT201A/B/C/D/E/F/G/H	Audit Course 2	2	0	0	0
	Total Theory			14	0	0	12
Practical							
1	Laboratory III	PC-MBT291	Bioinformatics Lab	0	0	4	2
2	Laboratory IV	PC-MBT292	Animal Cell Culture Lab	0	0	2	1
3	Laboratory IV	PC-MBT293	Bioprocess Engineering Lab	0	0	2	1
	Total Practical			0	0	8	4
Sessional							
1	Mini Project	SE-MBT281	Mini Project with Seminar	2	0	0	2
	Total of Semester-II			16	0	8	18
SEMESTER-III							
Theory*							
1	Program Elective-V	PE-MBT301A/B/C/D/E/F/G/H	Program Elective-V	3	0	0	3
2	Open Elective	OE-MBT301A/B/C/D/E/F	Open Elective	3	0	0	3
	Total Theory			6	0	0	6
Sessional							
1	Major Project	SE-MBT381	Dissertation-I (Progress)	0	0	20	10
	Total of Semester-III			6	0	20	16
SEMESTER-IV							
Sessional							
1	Major Project	SE-MBT481	Dissertation-II (Completion)	0	0	32	16
	Total of Semester-IV			0	0	32	16
Total Credits for the Programme							68

*Students going to Industry full time for doing their Project & Thesis work (Dissertation) may opt for completion of these courses through Massive Open Online Courses (MOOCs)

Code	Field
PC	Program Core Courses
PE	Program Electives Courses
MLC	Mandatory Learning Courses
AC	Audit courses
SE	Sessional Courses
OE	Open Elective Courses

List of Program Electives

❖ Program Elective -I

1. Immunotechnology (PE-MBT103A)
2. Cell Biology (PE-MBT103B)
3. Advanced Tissue Engineering (PE-MBT103C)

❖ Program Elective -II

1. Bioprocess Engineering (PE-MBT104A)
2. Instrumentation in Biotechnology (PE-MBT104B)

❖ Program Elective -III

1. Downstream Processing (PE-MBT203A)
2. Bioreactor Design, Development and Scaleup (PE-MBT203B)

❖ Program Elective -IV

1. Genomics and Proteomics (PE-MBT204A)
2. Pharmaceutical Biotechnology (PE-MBT204B)
3. Computer Aided Drug Design (PE-MBT204C)

❖ Program Elective -V

1. Biostatistics and Design of Experiments (PE-MBT301A)
2. Modelling and Simulation in Bioprocess (PE-MBT301B)
3. Problem solving through Programming in C (PE-MBT301C)
4. Big Data Analytics (PE-MBT301D)
5. Nanobiotechnology (PE-MBT301E)
6. Environmental Biotechnology (PE-MBT301F)
7. Food Biotechnology (PE-MBT301G)
8. HealthCare Informatics (PE-MBT301H)

List of Open Electives

1. Business Analytics (OE-MBT301A)
2. Operations Research (OE-MBT301B)
3. Cost Management of Engineering Projects(OE-MBT301C)
4. Industrial Safety (OE-MBT301D)
5. Composite Materials(OE-MBT301E)
6. Waste to Energy (OE-MBT301F)

Audit Course 1 & 2

1. English for Research Paper Writing (AC-MBT101A /AC-MBT201A)
2. Pedagogy Studies (AC-MBT101B/AC-MBT201B)
3. Constitution of India (AC-MBT101C/AC-MBT201C)
4. Disaster Management (AC-MBT101D/AC-MBT201D)
5. Value Education (AC-MBT101E/AC-MBT201E)
6. Stress Management by Yoga (AC-MBT101F/AC-MBT201F)
7. Personality Development through Life Enlightenment Skills (AC-MBT101G/AC-MBT201G)
8. Sanskrit for Technical Knowledge (AC-MBT101H/AC-MBT201H)