

Maulana Azad National Institute of Technology, Bhopal – 462003
Department of Mathematics, Bioinformatics and Computer Applications

M. Tech. in Bioinformatics

SCHEME OF STUDY

First Semester:

Course No.	Subjects	Scheme of studies period per week			Total Credits
		L	T	P	
MTH 516	Probability & Statistics	3	-	-	3
BI 511	Biological Databases and their Management	3	-	-	3
BI 512	Biomathematics	3	-	-	3
	Department Elective - 1	3	-	-	3
	Department Elective - 2	3	-	-	3
BI 513	Lab-I	-	-	2	1
BI 514	Lab-II	-	-	2	1
BI 515	Seminar-I	-	-	2	1
BI 516	Minor Project – 1 (Self Learning)	-	-	-	2
HUM 511	Communication Skill (Audit Course)	2	-	-	2*
Total Hours: 23 Total Credits: 20		Total Semester Credits			20

*Communication Skill will be Audit Course of 2 credits which will not be counted in SGPA/CGPA calculation

Second Semester:

Course No.	Subjects	Scheme of studies period per week			Total Credits
		L	T	P	
BI 521	Bio-Modeling and Simulation	3	-	-	3
BI 522	Graph Theory and Algorithms	3	-	-	3
	Department Elective - 3	3	-	-	3
	Department Elective - 4	3	-	-	3
	Open Elective	3	-	-	3
BI 523	Lab-III	-	-	2	1
BI 524	Lab-IV	-	-	2	1
BI 525	Seminar-II	-	-	2	1
BI 526	Minor Project – 2 (Self Learning)	-	-	-	2
Total Hours: 23 Total Credits: 40		Total Semester Credits			20

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Third Semester:

Course No.	Subject	Schemes of studies Periods per week			Total Credits
		L	T	P	
BI 611	Dissertation Phase-I	-	-	40	20
Total Hours:40 Total Credits:60		Total Semester Credits			20

Fourth Semester:

Course No.	Subject	Schemes of studies Periods per week			Total Credits
		L	T	P	
BI 621	Dissertation Phase-II	-	-	4 0	20
Total Hours:40 Total Credits:80		Total Semester Credits			20

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List of Program Electives A		List of Open Electives C	
BI 551	Molecular Biology & Molecular Genetics	ARP - 581	Introduction to Urban Planning
BI 552	Data Structure & Algorithms in C	BSE – 581	Bioprocess Engineering
BI 553	Genome Informatics & Proteome Informatics	BSE – 582	Biophysics Tools and Techniques
BI 554	Metabolome Informatics	CHE – 581	Analytical Techniques
BI 555	Bio-Inspired Artificial Intelligence & Soft computing Techniques	CHE – 582	Green Technology & Processes
BI 556	Algorithms & DevOps Tools in Bioinformatics	CE – 581	Solid Waste Management
BI 557	Data Analysis in Biology & Evolution	CE – 582	Basic Concept of GIS
BI 558	Neuroinformatics	CE – 583	Road Safety
BI 559	Immuno informatics	CSE – 581	Machine Learning
BI 560	Exposome Informatics	CSE – 582	Advanced Data Structures and Algorithms
BI 561	Agrobiinformatics	PHY – 581	Nanotechnology and Nanoscience
BI 562	Environmental Informatics	EE – 581	Electric Machines & Applications
BI 563	Epigenome Informatics	EE – 582	Control and Instrumentation
BI 564	Health Informatics	ECE – 581	Introduction to Fuzzy Logic
BI 565	Transcriptome and Translatome Informatics	ECE – 582	Neural Networks and its Applications
BI 566	Computational Biology & Computational Biochemistry	EC - 581	Energy Resource Technologies
BI 567	Artificial Intelligence, Soft Computing & Neural Networks	HUM – 581	Intellectual Property Rights for Engineers
BI 568	Fuzzy Sets & Models in Biology	HUM – 582	Applied Psychology: Human Centered Design and Engineering
BI 569	Computational Metagenomics	ME – 581	Value Engineering
BI 570	Computational Models for Biological Networks & Molecular Pathways	ME – 582	Design Thinking
BI 571	Data Security & Data Privacy	ME - 583	Mechatronics and NDT in Engineering
BI 572	Bioinformatics Computing	MME – 581	Advanced Instrumentation Methods for Material Analysis
BI 573	Chemo informatics & Drug Design	MME – 582	Smart Materials and their Application
BI 574	Machine Learning Techniques in	MBA - 581	Engineering Startup Management

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	Bioinformatics		
BI 575	Network Biology		
BI 576	Reactome and Interactome informatics		
BI 577	Biological Data Science		
BI 578	Data Mining, Data Analytics & Data Warehousing in Bioinformatics		
MTH 524	Research Methodology		