

BSc Medical Biotechnology (specialization in Bioinformatics) (4-years)
Curriculum Structure (2026-30)
SEMESTER I

S. No.	Course Code	Course Name	Category	L	T	P	Credits
1		Biochemistry-I	Discipline Core Course 1	3	0	1	4
2		Cell Biology	Discipline Core Course 2	3	0	0	3
3		Medical Physiology-I	Discipline Core Course 3	3	0	1	4
4		From Bucket-1	Generic Electives - 1	2	0	0	2
5		Foreign Language -I (French-1/German-1)	Ability Enhancement course-1	2	0	0	2
6		Computer fundamentals	Skill Enhancement course-1	2	0	1	3
7		Scientific writing	Value Added Course-1	2	0	0	2
TOTAL							20

SEMESTER II

S. No.	Course Code	Course Name	Category	L	T	P	Credits
1		Medical Physiology-II	Discipline Core Course 4	3	0	1	4
2		Biochemistry-II	Discipline Core Course 5	3	0	1	4
3		Genetics	Discipline Core Course 6	4	0	0	4
4		From Bucket -2	Generic Electives - 2	2	0	0	2
5		Foreign Language -II (French-II/German-II)	Ability Enhancement course-2	2	0	0	2
6		Introduction to Python and R Programming	Skill Enhancement course-2	2	0	1	3
7		Research Methodology	Value Added Course-2	2	0	0	2
TOTAL							21

SEMESTER III

S. No	Course Code	Course Name	Category	L	T	P	Credits
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1		Immunology	Discipline Core Course 7	3	0	2	5
2		Sequence Analysis and Alignment	Discipline Core Course 8	4	0	1	5
3		Molecular Biology	Discipline Core Course 9	3	0	2	5
4		From Bucket-3	Generic Electives - 3	2	0	0	2
5		Communicative English	Ability Enhancement course-3	2	0	0	2
6		AI and ML in Biomedical Sciences	Skill Enhancement course-3	2	0	1	3
TOTAL							22

SEMESTER IV

S. No.	Course Code	Course Name	Category	L	T	P	Credits
1		Bioinstrumentation	Discipline Core 10	4	0	0	4
2		Recombinant DNA Technology	Discipline Core 11	3	0	2	5
3		Microbial informatics	Discipline Core 12	3	0	0	3
4		Protein Structure and Database Design in Bioinformatics	Discipline Core 13	2	0	1	3
5		From Bucket 4	Generic Electives - 4	2	0	0	2
6		Intellectual Property rights	Ability Enhancement course-4	2	0	0	2
7		Bioethics and Biosafety	Multi-disciplinary course-1	2	0	0	2
TOTAL							21

SEMESTER V

S. No.	Course Code	Course Name	Category	L	T	P	Credits
1		Biostatistics	Discipline Core Course 14	3	0	0	3
2		Genomics and Bioinformatics	Discipline Core Course 15	3	0	1	4
3		Systems Biology	Discipline Core Course 16	2	0	1	3
4		DSE from Gr.1	DSE-1	2	0	1	3
5		From Bucket-5	Generic Electives - 5	2	0	0	2

6		Internship	Industrial/Academic Internship	0	0	6	6
TOTAL							21

SEMESTER VI

S. No.	Course Code	Course Name	Category	L	T	P	Credits
1		Advanced Bioinformatic Tools	Discipline Core Course 17	3	0	1	4
2		Drug Discovery and Development	Discipline Core Course 18	3	0	1	4
3		DSE from Gr.2	DSE-2	2	0	1	3
4		DSE from Gr.3	DSE-3	2	0	1	3
5		Professional Communication and Personality Development	Value Added-4	2	0	0	2
6		From Bucket-6	Generic Electives - 6	2	0	0	2
TOTAL							18

*After 3 years: B.Sc. (Hons) in Medical Biotechnology (specialization in Bioinformatics),
Total Credits = 124*

SEMESTER VII

S. No.	Course Code	Course Name	Category	L	T	P	Credits
1		Machine Learning and Big Data Analytics in Omics Research	Discipline Core Course 19	3	0	1	4
2		DSE from Gr.4	DSE-4	3	0	1	4
3		DSE from Gr.5	DSE-5	3	0	1	4
4		From Bucket-7	Generic Electives - 7	3	0	0	3
5		From Bucket-8	Generic Electives - 8	3	0	0	3
TOTAL							18

SEMESTER VIII

S. No.	Course Code	Course Name	Category	L	T	P	Credits
1		Dissertation/Project	Dissertation/Project	0	0	18	18
TOTAL							18

*After 4 years, Students will get the degree of B.Sc. (Hons Research) Medical Biotechnology
(specialization in Bioinformatics),
Total Credits=160*

List of Discipline Specific Electives (DSE)

Semester	Code	Electives- Course Name	L	T	P	C	Group
Sem V		Microbial and Environmental Biotechnology	3	0	0	3	DSE-1
Sem V		Introduction to Nanobiotechnology	3	0	0	3	DSE-1
Sem V		Animal Cell Culture	3	0	0	3	DSE-1
Sem VI		MySQL Database Management System	3	0	1	4	DSE-2
Sem VI		Programming and Web Development and applications	3	0	1	4	DSE-2
Sem VI		Cancer Biology and Epigenetics	4	0	0	4	DSE-3
Sem VI		Advanced Cell Biology and Pathology	4	0	0	4	DSE-3
Sem VI		Advanced Immunology and vaccinology	4	0	0	4	DSE-3
Sem VII		Bioinformatics in Clinical Diagnostics	3	0	1	4	DSE-4
Sem VII		Pharmacogenomics and Personalized Medicine	4	0	0	4	DSE-4
Sem VII		High-Performance Computing in Bioinformatics	3	0	1	4	DSE-4
Sem VII		Cancer Genomics and Bioinformatics	3	0	1	4	DSE-5
Sem VII		Metagenomics and Microbiome Analysis	3	0	1	4	DSE-5
Sem VII		Single-Cell Omics and Analysis	3	0	1	4	DSE-5

List of General (GE)

Semester	Course Code	Course Name	L	T	P	Credits	Bucket
Sem I		Indian Knowledge System	2	0	0	2	Bucket-1

Sem I		Food, Nutrition and Hygiene	2	0	0	2	Bucket-1
Sem II		Health Information Management	2	0	0	2	Bucket-2
Sem II		Nutraceutical and Functional Food	2	0	0	2	Bucket-2
Sem III		Hospital and Healthcare Administration	2	0	0	2	Bucket-3
Sem III		Nutritional Care in Disease Conditions	2	0	0	2	Bucket-3
Sem IV		Renewable Energy and Green Technology	2	0	0	2	Bucket-4
Sem IV		Ecology and Environment	2	0	0	2	Bucket-4
Sem V		Introduction to Entrepreneurship	2	0	0	2	Bucket-5
Sem V		Biodiversity and Taxonomy	2	0	0	2	Bucket-5
Sem VI		Project Management	2	0	0	2	Bucket-6
Sem VI		Food Quality Testing and Evaluation	2	0	0	2	Bucket-6
Sem VII		Art of happiness	2	0	0	2	Bucket-7
Sem VII		Disaster Management	2	0	0	2	Bucket-7
Sem VII		Regulatory Affairs in Clinical Research	2	0	0	2	Bucket-8
Sem VII		Clinical Psychology	2	0	0	2	Bucket-8