B.Tech. Bioinformatics (Specialization in Artificial Intelligence)

Program Structure

Sem	Name of Course	Type	L	T	P	S	C
1	Principles of Bioelectronics	Integrated	3	0	1	0	4
1	Engineering Chemistry/Applied Physics	Integrated	3	0	1	0	4
1	Applied Mathematics for Bioengineering	Theory	3	0	0	0	3
1	Engineering Design and Prototyping	Comprehensive	1	0	2	1	4
1	Foundations of Biology for Engineers	Theory	3	0	0	0	3
1	Physical Education & YOGA	Theory	2	0	0	0	0
							18
Sem	**Name of Course**	**Type**	**L**	**T**	**P**	**S**	**C**
2	ENVIRONMENTAL IMPACT ANALYSIS	Theory	2	0	0	0	0
2	Advanced Applied Mathematics for Bioengineering	Integrated	3	0	1	0	4
2	Engineering Chemistry/Applied Physics	Integrated	3	0	1	0	4
2	**Biopython**	Integrated	3	0	1	0	4
2	Engineering Communication Skills	Theory	2	0	0	0	2
2	Basics of Bioinformatics	Theory	3	0	0	0	3
2	Universal Human Values and Professional Ethics	Integrated	2	0	1	0	3
							20
Sem	**Name of Course**	**Type**	**L**	**T**	**P**	**S**	**C**
3	Structural Biology	Integrated	3	0	1	0	4
3	Principles of Biochemistry	Integrated	3	0	1	0	4
3	CELL AND MOLECULAR BIOLOGY	Theory	3	0	0	0	3
3	Database Management Systems	Integrated	3	0	1	0	4
3	Bioinnovation and Entrepreneurship	Theory	1	0	0	0	1
3	**Professional Elective -1**						
3	AI in Biosciences & Technology	Integrated	2	0	1	0	3

Sem	Name of Course	Type	L	T	P	S	C
3	Fundamentals of Cancer Biology	Theory	3	0	0	0	3
3	Genetic Engineering	Theory	3	0	0	0	3
3	**Open Elective -1**						
3	OOPS Using Python	Integrated	2	0	1	0	3
3	Pharmaceutical Chemistry	Theory	3	0	0	0	3
3	Introduction to Healthcare Systems	Theory	3	0	0	0	3
							22
Sem	**Name of Course**	**Type**	**L**	**T**	**P**	**S**	**C**
4	System Biology	Integrated	3	0	1	0	4
4	Genetics and Evolutionary Biology	Theory	3	0	0	0	3
4	Statistical Applications in Bioinformatics	Integrated	3	0	1	0	4
4	Fundamentals of Data Structures	Integrated	3	0	1	0	4
4	Constitution of India	Theory	2	0	0	0	0
4	Engineering Economics	Theory	1	0	0	0	1
4	**Professional Elective -2**						
4	Immunoinformatics	Theory	3	0	0	0	3
4	Bioprocess Engineering	Theory	3	0	0	0	3
4	Epidemiology and Global Health	Theory	3	0	0	0	3
4	**Open Elective -2**						
4	Data structure & Algorithms using Python	Integrated	2	0	1	0	3
4	BioPearl	Integrated	2	0	1	0	3
4	Machine Learning for BioPharma	Integrated	2	0	1	0	3
							22
Sem	**Name of Course**	**Type**	**L**	**T**	**P**	**S**	**C**
5	Machine Learning–I	Integrated	3	0	1	0	4
5	Structural Bioinformatics	Integrated	3	0	1	0	4
5	Pharmacogenomics & Informatics	Integrated	2	0	1	0	3
5	Algorithm in Bioinformatics	Theory	3	0	0	0	3
5	Summer Training & Minor Project-1	Project	0	0	1	0	1
5	MOOCS Course -1	Theory	2	0	0	0	2
5	**Professional Elective -3**						
5	Molecular Diagnostics and Therapeutics	Theory	3	0	0	0	3
5	Protein Engineering	Theory	3	0	0	0	3

Sem	Name of Course	Type	L	T	P	S	C
5	Chemiinformatics	Theory	3	0	0	0	3
5	**Open Elective -3**						
5	Operating Systems	Integrated	2	0	1	0	3
5	Pharmacology & Toxicology	Theory	3	0	0	0	3
5	AI in Drug Safety	Integrated	2	0	1	0	3
							23
Sem	**Name of Course**	**Type**	**L**	**T**	**P**	**S**	**C**
6	Machine Learning–II	Integrated	3	0	1	0	4
6	Omics Technology	Theory	3	0	0	0	3
6	Computational Drug Discovery	Integrated	3	0	1	0	4
6	Next Generation Sequencing (NGS)	Integrated	2	0	1	0	3
6	Indian Knowledge System	Theory	1	0	0	0	1
6	Statistical Analysis using R	Integrated	2	0	1	0	3
6	**Professional Elective -4**						
6	Health Informatics	Theory	3	0	0	0	3
6	Animal Biotechnology	Theory	3	0	0	0	3
6	Advanced Genomics	Theory	3	0	0	0	3
6	**Open Elective -4**						
6	Mobile App Development (React Native)	Integrated	2	0	1	0	3
6	Translational Bioinformatics	Integrated	2	0	1	0	3
6	Cloud Computing for Bioinformatics	Integrated	2	0	1	0	3
							24
Sem	**Name of Course**	**Type**	**L**	**T**	**P**	**S**	**C**
7	Network Biology & Pathway Analysis	Integrated	3	0	1	0	4
7	Deep Learning	Integrated	3	0	1	0	4
7	Research Methodology	Theory	2	0	2	0	2
7	Prototype Development	Lab	0	0	1	0	1
7	Summer Training & Minor Project-2	Project	0	0	1	0	1
7	MOOCS Course -2	Theory	2	0	0	0	2
7	**Professional Elective -5**						
7	Medical Imaging and Diagnostic Techniques	Theory	3	0	0	0	3
7	Advanced Structural Bioinformatics	Integrated	2	0	1	0	3
7	MLOps for Bioinformatics	Integrated	2	0	1	0	3
7	**Open Elective -5**						
7	Natural Language Processing	Integrated	2	0	1	0	3
7	Computer Vision	Integrated	2	0	1	0	3

Sem	Name of Course	Type	L	T	P	S	C
7	GenAI for Biology	Integrated	2	0	1	0	3
							20
Sem	Name of Course	Type	L	T	P	S	C
8	Project & Dissertation	Project					14
		Total					163