Curriculum Version 1.00

B.Tech. (Biotechnology)

(For AY2026-27 onwards)

Credit distribution among baskets (Minimum credits to be earned = 160)		
Sl. No.	**Baskets**	**Credit Contribution**
1	School Core	55
2	Program Core	42
3	Discipline Elective	45
	Common Electives Basket	27
	Specialized Elective Baskets*	18
4	Open Elective	18
	Total Credits	**160**

	Specialized Elective Baskets*	
Sl.No.	**Name of the Basket**	**Minimum Credit Requirement**
1	Bioinformatics	3
2	Nanobiotechnology	3
3	Genomics	3
4	Bioprocess Technology	3
5	Biomedical Instrumentation	3
6	Tissue culture	3
	Total*	18

**** Remaining Credits, if any, to satisfy Specialized Elective Baskets credit requirement can be taken from any Specialized Elective Basket***

Sl. No.	Course Code		T	P	Credits
A. School Core - Minimum Credits to be earned from this basket (A+B+C+D+E+F+G+H) =					**55**
1	BIT1001	Introduction to Biotechnology	2	0	**2**
2	MAT1011	Biostatistics	2	2	**3**
3	MAT1014	Linear Algebra and Calculus using Matlab	3	2	**4**
4	CSE1005	Programming in Python	0	4	**2**
5	CSE1018	Object Oriented Programming in Java	2	4	**4**
6	CSE1017	Programming in C and C++	2	4	**4**
7	CSE2001	Data Structures and Algorithms	3	2	**4**
8	ECE1001	Fundamentals of Electrical and Electronics Engineering	3	2	**4**
9	MGT1101	Digital Entrepreneurship	2	0	**2**
10	ECE1008	Innovation Project using Arduino	-	-	**1**
11	ECE1009	Innovation Project using Raspberry Pi	-	-	**1**
12	BIT4001	B.Tech. Capstone Project	-	-	**4**
13	BIT4002	B.Tech. Internship	-	-	**6**
B. Modern Applied Sciences Basket - Min. credits to be earned from this basket =					**6**
1	PHY1006	Physics for Biologist	2	2	**3**
2	CHE1002	Chemistry for Biologist	2	2	**3**
C. English Basket - Min. credits to be earned from this basket =					**2**
1	ENG1001	Foundational English	0	2	**1**
1	ENG1002	Communicative English	0	2	**1**
2	ENG1003	Professional English	0	2	**1**
D. Foreign Languages Basket - Min. credits to be earned from this basket =					**1**
1	FRE1002	Communicative French	0	2	**1**
2	GER1002	Communicative German	0	2	**1**
E. Behavioural Science Basket (All Courses in this basket are mandatory) - Minimum Credits to be earned					**2**
1	PSY1001	Understanding Self for Effectiveness	0	2	**1**
2	PSY1002	Dynamics of Human Behaviour	0	2	**1**
F. Soft Skills Basket (All Courses in this basket are mandatory) - Minimum Credits to be earned from this					**3**
1	SSK2002	Being Corporate Ready	0	2	**1**
2	SSK3001	Problem Solving through Aptitude	0	2	**1**
3	CSE3050	Programming Skills for Employment	0	2	**1**
G. Non-Credit Pass/ Fail Type Core Courses (All Courses in this basket are mandatory)					**0**
1	CHE1001	Environmental Studies	-	-	**0**
2	CEA1001	Co-/ Extra-curricular Activities	-	-	**0**
H. Bridge Course(s) in this basket are mandatory - Minimum Credits to be earned from this basket =					**3 #**
1	BIT1003	Foundational Biology for Biotechnology	3	0	**3**
2	MAT1007	Foundational Mathematics for Biotechnology	3	0	**3**
I. Program Core (All Courses in this basket are mandatory) - Minimum Credits to be earned from this basket					**42**
1	BIT1005	Cell Biology	3	2	**4**
2	BIT1006	Human Anatomy and Physiology	3	0	**3**
3	BIT1007	Animal and Plant Sciences	3	2	**4**
4	BIT1008	Basic Microbiology	3	2	**4**
5	BIT1009	Basic Biochemistry	3	2	**4**
6	BIT2001	Molecular Biology and Genetic Engineering	3	2	**4**
7	BIT2002	Immunology	3	2	**4**
8	BIT2003	Principles of Genetics	3	2	**4**
9	BIT3001	Tissue Engineering	3	0	**3**
10	BIT3002	Introdcution to Bioinformatics	3	2	**4**
11	BIT3003	Bioprocess Technology	3	2	**4**
Discipline Electives - Minimum Credits to be earned from both Common and Specialized elective baskets =					**45**

Common Electives Basket - Minimum Credits to be earned from this basket =					**27**
1	BIT1010	Analytical and Instrumentation Techniques	2	2	**3**
2	BIT2004	Plant and Animal Biotechnology	3	0	**3**
3	BIT2005	Computational Biology	2	2	**3**
4	ECE2035	Bio-signals Processing	2	2	**3**
5	CSEXXXX	AI in Biology	2	2	**3**
6	ECE2036	Sensors, Devices and IoT	2	2	**3**
7	BIT3004	Stem Cells and Regenerative Medicine	3	0	**3**
8	BIT2006	Cancer Biology	3	0	**3**
9	BIT3005	Genomics and Proteomics	3	0	**3**
10	BIT1011	Environemetal Biotechnology	3	0	**3**
11	BIT2007	Forensic Science and Technology	3	0	**3**
12	BIT1012	Food Technology	3	0	**3**
13	BIT3006	Molecular Modelling and Drug Design	3	0	**3**
14	BIT2008	Diagnostic Techniques in Biotechnology	3	0	**3**
15	BIT2009	Clinical Data Management	2	0	**2**
16	BIT1013	Developmental Biology	3	0	**3**
17	BIT1014	Applied Ecology	2	0	**2**
18	BIT1015	Cell Culture Technologies	2	0	**2**
19	BIT2010	Data Analytics for Biotechnology	2	0	**2**
20	BIT3007	Medical Devices and Imaging	2	0	**2**
21	BIT2011	Bio-inspired Designs	2	0	**2**
22	BIT3008	Design of Medical Implants	2	0	**2**
23	BIT3009	Personalized Medicine	3	0	**3**
24	BIT2012	Bioethics, IPR and Biosafety	3	0	**3**
25	BIT1016	Introduction to Biotechnology Management	3	0	**3**
26	BIT2030	Bioenergy	2	0	**2**
27	BIT2031	Introduction to Nano-biomaterials	3	0	**3**
Specialized Electives Baskets - Minimum Credits to be earned from these baskets (I+J+K+L+M					**18**
I. Bioinformatics Basket - Minimum Credits to be earned from this basket =					**3**
1	BIT2013	Biological Data Analysis	2	2	**3**
2	BIT2014	Molecular Modelling and Drug Design	2	2	**3**
3	BIT2015	Cancer Biology and Informatics	3	0	**3**
4	BIT3010	Drug Discovery and Development	3	0	**3**
5	BIT3011	Systems Biology	3	0	**3**
6	BIT3012	Protein Engineering and Design	3	0	**3**
J. Nanobiotechnology - Minimum Credits to be earned from this basket =					**3**
1	BIT2016	Nanomedicine and Drug Delivery	2	2	**3**
2	BIT2017	Nanotechnology in Agriculture	3	0	**3**
3	BIT2018	Stem Cell in Nanotechnology	3	0	**3**
4	BIT3013	Biocomposites in Nanobiotechnology	2	2	**3**
5	BIT3023	3D Bioprinting	2	2	**3**
6	BIT3014	Nanomaterials in Environment	3	0	**3**
K. Genomics Basket - Minimum Credits to be earned from this basket =					**3**
1	BIT2019	Structural and Functional Genomics	3	0	**3**
2	BIT2020	Metagenomics	2	2	**3**
3	BIT2021	Epigenomics	3	0	**3**
4	BIT3015	Plant and Animal Genomics	3	0	**3**
5	BIT3024	Next-Generation Sequencing Technologies and Applicatio	3	0	**3**
6	BIT3016	Pharmacogenomics	3	0	**3**
L. Bioprocess Technology Basket - Minimum Credits to be earned from this basket =					**3**
1	BIT2022	Industrial Enzymology	2	2	**3**
2	BIT2023	Recombinant DNA Technology	2	2	**3**

3	BIT2024	Upstream Processing	3	0	**3**
4	BIT3017	Downstream Processing	2	2	**3**
5	BIT3018	Heat and Mass Transfer	3	0	**3**
6	BIT3019	Bioreactor Design	3	0	**3**
7	BIT3025	Industrial Microbiology	3	0	**3**
8	BIT3026	Bioassays in Bioprocess Technology	3	0	**3**
M. Biomedical Applications Basket - Minimum Credits to be earned from this basket =					**3**
1	BIT2025	Clinical Diagnostic Techniques	3	0	**3**
2	BIT2026	Medical Robotics	3	0	**3**
3	BIT2027	Clinical Embryology	2	2	**3**
4	BIT3020	Neurobiology and Cognitive Sciences	3	0	**3**
5	BIT3021	Pharmaceutical Biotechnology	2	2	**3**
6	BIT3027	Toxicology	3	0	**3**
N. Tissue Culture Basket - Minimum Credits to be earned from this basket =					**3**
1	BIT2033	Plant Tissue Culture	3	0	**3**
2	BIT2034	Animal Tissue Culture	3	0	**3**
3	BIT2032	Stem Cell in Tissue Culture	3	0	**3**
4	BIT3028	Advanced Applications of Tissue Culture	3	0	**3**
5	BIT3029	Commercialization and Regulatory Aspects in Tissue cultu	3	0	**3**
6	BIT3022	Micropropagation	2	2	**3**
Open Elective basket - Minimum Credits to be earned from this basket =					**18**
Any course from another ‘eligible’curriculum					
Any unused Discipline Elective from his/ her ‘own’ curriculum					
Any stand-alone course declared as “Open Elective” by School for a specific ‘eligible’ degree program					
School approved NPTEL/ Swayam courses for a maximum of 6-credits					

Credits and grades obtained in a bridge course are counted for the CGPA calculation, but the credits will not be counted towards the minimum credit requirements for