

Bachelor of Science (Biotechnology)

B.Sc. (Biotechnology) - For AY2026-27 onwards

Curriculum Version 1.00

Credit distribution among baskets (Minimum credits to be earned = 120)		
Sl. No.	Baskets	Credit Contribution
1	School Core	30
2	Program Core	42
3	Discipline Elective	42
	Common Electives Basket	27
	Specialized Elective Baskets*	15
4	Open Elective	6
Total Credits		120

Specialized Elective Baskets*		
Sl.No.	Name of the Basket	Minimum Credit Requirement
1	Bioinformatics	3
2	Agriculture & Food Sciences	3
3	Environmental & Industrial Biotechnology	3
4	Cell & Tissue Culture	3
5	Biopharmaceutics & Healthcare	3
Total*		15

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

Sl. No.	Course Code	Course Name	T	P	Credits
A. School Core - Minimum Credits to be earned from this basket (A+B+C+D+E+F)=					30
1	BIT1001	Introduction to Biotechnology	2	0	2
2	CSE2052	Introduction to AI and ML	3	2	4
3	MAT1011	Biostatistics	2	2	3
4	PHY1006	Physics for Biologist	2	2	3
5	CHE1002	Chemistry for Biologist	2	2	3
6	BIT3031	B.Sc. Internship	0	0	3
7	BIT3032	B.Sc. Capstone Project	0	0	4
B. English Basket - Min. credits to be earned from this basket =					2
1	ENG1004	Functional English	0	2	1
2	ENG1005	Advanced Communicative English	0	2	1
C. 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
D. Behavioural Science Basket (All Courses in this basket are mandatory) - Minimum Credits to be earned from this basket =					2
1	PSY1001	Understanding Self for Effectiveness	0	2	1
2	PSY1002	Dynamics of Human Behaviour	0	2	1
E. Soft skill Basket (All Courses in this basket are mandatory) - Minimum Credits to be earned from this basket =					3
1	SSK2002	Being Corporate Ready	0	2	1
2	SSK3001	Problem Solving Skills through Aptitude	0	2	1
3	SSK3002	Programming Skills for Employment	0	2	1
F. Non-Credit Pass/ Fail Type Courses (All Courses in this basket are mandatory)					0
1	CHE1001	Environmental Studies	Pass / Fail		
2	POS1022	Ethics and Social Responsibility	Pass / Fail		
G. Program Core (All Courses in this basket are mandatory) - Minimum Credits to be earned from this basket =					42
1	BIT1009	Basic Biochemistry	3	2	4
2	BIT1008	Basic Microbiology	3	2	4
3	BIT1013	Developmental Biology	2	0	2
4	BIT1019	Cell and Molecular Biology	3	0	3
5	BIT1021	Bioinstrumentation	3	2	4
6	BIT3002	Introduction to Bioinformatics	3	2	4
7	BIT2002	Immunology	3	2	4
8	BIT1020	Principles of Genetics	3	0	3
9	BIT2004	Plant and Animal Biotechnology	3	0	3
10	BIT2023	Recombinant DNA Technology	2	2	3
11	BIT1018	Plant Sciences	2	2	3
12	BIT1017	Animal Sciences	2	2	3
13	BIT1023	Introduction to Environmental Biotechnology	2	0	2
H. Discipline Electives - Minimum Credits to be earned from both Common and Specialized elective baskets (I+J) =					42
I. Common Electives Basket - Minimum Credits to be earned from this basket =					27
1	BIT2035	Applied and Medical Microbiology	2	2	3
2	CSE2069	Data Analytics	2	2	3
3	BIT3033	Synthetic Biology	3	0	3
4	BIT2022	Industrial Enzymology	2	2	3
5	BIT2012	Bioethics, IPR and Biosafety	3	0	3
6	BIT3005	Genomics and Proteomics	2	2	3
7	BIT3034	Bio-Nano Sensors	2	0	2
8	BIT2005	Computational Biology	2	2	3
9	BIT2036	Structural Biology	3	0	3
10	BIT2037	Vaccine Design and Development	2	0	2
11	BIT3030	Fundamentals of Human Anatomy and Physiology	3	2	4
12	BIT3006	Molecular Modelling and Drug Design	2	2	3
13	BIT3011	Systems Biology	3	0	3
14	BIT2038	Nutritional Biochemistry	2	2	3
15	BIT2006	Cancer Biology	3	0	3
16	BIT3035	Human Health and Microbiome	2	0	2
17	BIT2039	Public Health Microbiology	2	2	3
18	BIT3036	Stem Cell Engineering	3	0	3
19	BIT2040	Fundamentals of Upstream and Downstream Process	2	2	3
20	BIT1014	Applied Ecology	2	0	2
21	BIT2013	Biological Data Analysis	2	2	3
22	BIT2041	Carbon Capture and Carbon Biotechnology	2	0	2
23	BIT3037	Precision Medicine	2	0	2
24	BIT3038	Digital Pathology and Biomedical Imaging	3	0	3
25	BIT3039	Gene and Immunotherapy	3	0	3
26	BIT3040	Biosimilars and Bioprocessing Compliance	3	0	3
27	BIT2042	AI in Biological Sciences	2	0	2
28	BIT2043	Medical Writing	2	0	2

J. Specialized Electives Baskets - Minimum Credits to be earned from these baskets (K+L+M+N+O) =					15
K. Bioinformatics Basket - Minimum Credits to be earned from this basket =					3
1	CSE2051	Introduction to Database Management Systems	3	0	3
2	BIT3041	Structural Bioinformatics	2	2	3
3	BIT3042	Programming for Bioinformatics	2	2	3
4	BIT3043	Basics of AI in Lifesciences	2	2	3
5	BIT3044	Genomics and Next-Generation Sequencing Analysis	2	2	3
L. Agriculture & Food Sciences - Minimum Credits to be earned from this basket =					3
1	BIT3045	Biotechnology for Crop Improvement	3	0	3
2	BIT3046	Agricultural Microbiology and Disease Management	2	2	3
3	BIT3047	Nutraceuticals	2	2	3
4	BIT2044	Food Biotechnology	3	0	3
5	BIT3048	Functional Foods and Probiotics	3	0	3
6	BIT3049	Food Toxicology and Allergens	3	0	3
M. Environmental & Industrial Biotechnology Basket - Minimum Credits to be earned from this basket =					3
1	BIT3050	Precision Fermentation and Alternative Proteins	3	0	3
2	BIT3051	Biofuels and Renewable Energy	3	0	3
3	BIT3052	Resource Recovery and Waste Management	3	0	3
4	BIT3053	Environmental Policies and Practices	3	0	3
5	BIT3054	Marine Biotechnology	3	0	3
N. Cell and Tissue Culture Basket- Minimum Credits to be earned from this basket =					3
1	BIT3055	Assay Validation and GLP	3	0	3
2	BIT3056	Preclinical Testing and Alternative Animal Models	3	0	3
3	BIT3022	Micropropagation	2	2	3
4	BIT3001	Tissue Engineering	3	0	3
5	BIT3004	Stem Cells and Regenerative Medicine	3	0	3
O. Biopharmaceuticals & Healthcare Basket - Minimum Credits to be earned from this basket =					3
1	BIT3021	Pharmaceutical Biotechnology	2	2	3
2	BIT2008	Diagnostics Techniques in Biotechnology	3	0	3
3	BIT3057	Basics of Pharmacology and Toxicology	3	0	3
4	BIT3058	Essentials in Bioassay Development	3	0	3
5	BIT3059	Fundamentals of Clinical Data Management	3	0	3
Open Elective basket - Minimum Credits to be earned from this basket =					6
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 3-credits					