

4-year B.Tech. (Biotechnology) Degree Course w.e.f. 2026-27 Batch

FIRST SEMESTER

Sr. No.	Course Code	Course Title	Course Category	ContactHours				Credits
				LT	PTotal			
1.	15B11MA112	Basic Mathematics-I	BSC	3	1	0	4	4
2.	15B11PH112	PhysicsforBiotechnology	BSC	3	1	0	4	4
3.	18B11CI111	Fundamentalsof Computers& Programming-I	ESC	3	1	0	4	4
4.	15B11HS112	English	HSC	1	0	2	3	2
5.	15B17PH171	PhysicsLab-1	BSC	0	0	2	2	1
6.	24B45CS111	Fundamentalsof Computers& Programming–Lab- I	ESC	0	0	2	2	1
7.	18B15GE111	EngineeringDrawing&Design	ESC	0	0	3	3	1.5
8.	24B11EC112	Basic Electronics for Biotechnology	ESC	3	1	0	4	4
9.	24B15EC112	Basic Electronics for Biotechnology Lab	ESC	0	0	2	2	1
		TOTAL					28	22.5

SECOND SEMESTER

Sr. No.	Course Code	Course Title	Course Category	ContactHours				Credits
				LTP Total				
1.	15B11MA212	BasicMathematics-2	BSC	3	1	0	4	4
2.	15B11PH212	BiophysicalTechniques	BSC	3	1	0	4	4
3.	18B11CI121	Fundamentalsof Computers& Programming-II	ESC	3	1	0	4	4
4.	18B15BT111	BasicBioscienceLab	BSC	0	0	2	2	1
5.	18B15CI121	ComputerProgramming Lab-II	ESC	0	0	2	2	1
6.	24B16HS111	Life Skills & Professional Communication Lab	HSC	0	0	2	2	Qualifying
7.	18B15GE112	Workshop	ESC	0	0	3	3	1.5
8	24B11HS111	Universal Human Values (UHV)	HSC	2	1	0	3	3
		TOTAL					24	18.5

THIRD SEMESTER

Sr. No.	Course Code	Course Title	Course Category	ContactHours				Credits
				LTPTotal				
1.	15B11MA302	Probabilityand Statistics	BSC	3	1	0	4	4
2.	15B11BT211	Biochemistry	PCC	3	0	0	3	3
3.	15B11BT311	ThermodynamicsandChemicalProcesses	PCC	3	0	0	3	3
4.	15B11BT313	Geneticsand DevelopmentalBiology	PCC	3	0	0	3	3
5.	15B17BT271	BiochemicalTechniquesLab	PCC	0	0	2	2	1
6.	15B17BT371	ThermodynamicsandChemicalProcesses Lab	PCC	0	0	2	2	1
7.	15B17BT373	GeneticsandDevelopmentalBiologyLab	PCC	0	0	2	2	1
8.	15B11HS211	Economics	HSC	2	1	0	3	3
9.	24B17BT211	Summer Training-I (4 weeks)	PRC	0	0	0	0	4
10.	19B13BT211	EnvironmentalStudies	OMC	3	0	0	3	audit
		TOTAL					25	23

FOURTH SEMESTER

Sr. No.	Course Code	Course Title	Course Category	ContactHours				Credits
				LT		PTotal		
1.	xxxxxxx	HSS Elective–1	HSC	2	1	0	3	3
2.	24B11BT211	Molecular Biology	PCC	3	1	0	4	4
3.	15B11BT411	IntroductiontoBioinformatics	PCC	3	1	0	4	4
4.	15B11BT312	Microbiology	PCC	3	1	0	4	4
5.	15B11BT414	Immunology	PCC	3	0	0	3	3
6.	15B17BT372	MicrobiologyLab	PCC	0	0	2	2	1
7.	15B17BT471	BioinformaticsLab	PCC	0	0	2	2	1
8.	15B17BT474	ImmunologyLab	PCC	0	0	2	2	1
		TOTAL					24	21

FIFTH SEMESTER

Sr. No.	Course Code	Course Title	Course Category	ContactHours				Credits
				LT		PTotal		
1.	24B11BT311	GeneticEngineering	PCC	3	1	0	4	4
2.	15B11BT413	Bioprocess Engineering	PCC	3	1	0	4	4
3.	26B11BT312	AI-Driven Biotechnology and Cloud Computing	PCC	3	0	0	3	3
4.	15B17BT472	GeneticEngineeringLab	PCC	0	0	2	2	1
5.	18B15BT311	Industrial BiotechnologyLab-1	PCC	0	0	2	2	1
6.	xxxxxxxx	DisciplineElective–1*	PEC	3	0	0	3	3
7.	xxxxxxxx	Science Elective	BSC	3		0	3	3
8.	20B13HS311	IndianConstitution&Traditional Knowledge	OMC	3	0	0	3	audit
9.	24B17BT311	Summer Training-II (at least 4 weeks)	PRC	0	0	0	0	4
		TOTAL					24	23

***List of Discipline Electives (Electives are subject to change from time to time)**

Sr. No.	Course Code	Course Title
1.	26B12BT312	Biocompliance and Safety standards
2.	26B12BT314	Environmental Law: Science, Policy and Practice
3.	26B12BT315	Food Process Engineering
4.	26B12BT313	Molecular Oncology

SIXTH SEMESTER

Sr. No.	Course Code	Course Title	Course Category	Contact Hours				Credits
				LT		P	Total	
1.	24B11BT312	Biocomputing and Applications	PCC	3	0	0	3	3
2.	15B11BT511	Cell Culture Technology	PCC	3	0	0	3	3
3.	24B11BT313	Food and Agribiotechnology	PCC	3	0	0	3	3
4.	XXXXXXXX	Discipline Elective-2*	PEC	3	0	0	3	3
5.	XXXXXXXX	Open Elective -1	OEC	2	0	0	2	2
6.	XXXXXXXX	Selected Value-Added Course	Value added	2	0	0	2	Audit
7.	26B15BT313	Biocomputing and AI Lab	PCC	0	0	2	2	1
8.	15B17BT571	Cell Culture Lab	PCC	0	0	2	2	1
9.	24B15HS311	Soft Skills for Employability	HSC	0	0	2	2	1
10.	24B17BT311	Minor Project	PRC	0	0	4	4	2
		TOTAL					26	19

***List of Discipline Electives (Electives are subject to change from time to time)**

Sr. No.	Course Code	Course Title
1.	16B1NBT631	Bioeconomics
2.	16B1NBT634	Genetic disorders and personalized medicine
3.	16B1NBT633	Instrumentation Techniques in Biotechnology
4.	16B1NBT632	Antimicrobial Resistance
5.	15B1NBT831	Biopharmaceutics and Pharmacokinetics

Value added course

Sr. No.	Course Code	Course Title
1.	21B13BT311	Biorisk and Biosecurity
2.	24B13BT311	Scientific writing and Communication
3.	25B12BT311	Introduction to Immunoinformatics
4.	25B12BT312	Waste to energy: technologies for circular economy

5.	21B13BT311	BIORISK AND BIOSECURITY
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SEVENTH SEMESTER

Sr. No.	Course Code	Course Title	Course Category	Contact Hours				Credits
				LT		P	Total	
1.	xxxxxxxx	Discipline Elective-3*	PEC	3	0	0	3	3
2.	xxxxxxxx	Discipline Elective-4*	PEC	3	0	0	3	3
3.	xxxxxxxx	Discipline Elective-5*	PEC	3	0	0	3	3
4.	xxxxxxxx	Open Elective-2	OEC	3	0	0	3	3
5.	15B19BT794	Major Project Part-1	PRC	0	0	0	8	4
6.	24B17BT411	Summer Training-III (atleast 4 weeks)	PRC	0	0	0	0	4
		TOTAL					20	20

***List of Discipline Electives (Electives are subject to change from time to time)**

Sr. No.	Course Code	Course Title
1.	17B1NBT734	Stem Cells and Healthcare
2.	15B1NBT832	Biostatistics and Its Applications
3.	17B1NBT737	Enzymes in food processing
4.	24B12BT411	Bioenergy and Biofuels
5.	17B1NBT739	Biocomputing and Applications
6.	17B1NBT735	Molecular Diagnostics

Open Electives

Sr. No.	Course Code	Course Title
1.	16B1NBT531	Networks of Life
2.	17B1NBT732	Healthcare Marketplace
3.	17B1NBT733	Stress: Biology, Behaviour and Management

EIGHTH SEMESTER

Sr. No.	Course Code	Course Title	Course Category	ContactHours				Credits
				LT		PTotal		
1.	xxxxxxxxx	DisciplineElective-6*	PEC	3	0	0	3	3
2.	xxxxxxxxx	DisciplineElective-7*	PEC	3	0	0	3	3
3.	xxxxxxxxx	OpenElective-3	OEC	3	0	0	3	3
4.	15B19BT891	MajorProjectPart-2	PRC	0	0	16	16	8
		TOTAL					25	17

***List of Discipline Electives (Electives are subject to change from time to time)**

Sr. No.	Course Code	Course Title
1.	25B12BT416	Radiation Biology and Technological Applications
2.	18B12BT415	IPR & Bioethics
3.	15B1NBT836	Human Nutrition & Health
4.	19B12BT411	Market Research in Biosciences

Open elective

Sr. No.	Course Code	Course Title
1.	18B12BT414	Machine Learning Tools in Bioinformatics

Total Credits for B.Tech. –164

Mandatory Internships/Summer Trainings

Summer Training -I (4 weeks) (In summer vacation after second semester)

Sr. No.	Course		Course Category	ContactHours				Credits
	No.	Title		LTP Total				
1.	24B17BT211	Inter/Intra institutional activities (Training with higher Institutions; Soft skill training organized by Training and Placement Cell of the respective institutions; contribution at incubation/ innovation /entrepreneurship cell of the institute; participation in conferences/ workshops/ competitions etc.; Learning at Departmental Lab/Tinkering Lab/ Institutional workshop; Working for consultancy/ research project within the institutes and Participation in all the activities of Institute's Innovation Council for eg: IPR workshop/Leadership Talks/ Idea/Design/ Innovation/ Business Completion/ Technical Expos etc.)	PRC1	0	0	8	8	4
		TOTAL					8	4

Summer Training -II (at least 4weeks) (In summer vacation after fourth semester)

Summer Training II (at least 4 weeks) (in summer vacation after fourth semester)									
Sr. No.	Course		Course Category	ContactHours				Credits	
	No.	Title		LTP Total					
1.	24B17BT311	Industrial/Govt./ NGO/MSME/Rural Internship/ Innovation /Entrepreneurship(Students maychoose either to work on innovation or entrepreneurial activities resulting in start-up or undergo internshipwith industry/ NGO’s/ Government organizations/ Micro/ Small/Medium enterprises to make themselvesready for the industry. In case student want to pursue their family business and don’t want to undergointernship, adeclaration by a parent may be submitted directly to the TPO.)	PRC1	0	0	8	8	4	
		TOTAL					8	4	

Summer Training -III (at least 4 weeks) (In summer vacation after sixth semester)

Summer Training - II (at least 7 weeks) (in summer vacation after 3rd semester)									
Sr. No.	Course		Course Category	ContactHours				Credits	
	No.	Title		LTP Total					
1.	24B17BT411	Industrial/Govt./ NGO/MSME/Rural Internship/ Innovation /Entrepreneurship(Students maychoose either to work on innovation or entrepreneurial activities resulting in start-up or undergo internshipwith industry/ NGO's/ Government organizations/ Micro/ Small/Medium enterprises to make themselvesready for the industry. In case student want to pursue their family business and don't want to undergointernship, a declaration by a parent may be submitted directly to the TPO.)	PRC1	0	0	8	8	4	
		TOTAL					8	4	