

### Biotechnology (B.Sc.) Course Structure

Semester	Type of Course	Course Title	Hours per week			Credits	Cumulative Minimum Credits required for Certificate/ Diploma/ Degree/ Honours
			Lecture	Tutorial	Practical		
<b>I</b>	Core Course	Biochemistry	4	0	0	4	<b>(40) Certificate in Biotechnology</b>
		Biochemistry lab	0	0	4	2	
		Biotechnology for Human Welfare	4	0	0	4	
	Discipline Elective/ Minor course	Chemistry 1	4	0	0	4	
		Chemistry 1 lab	0	0	4	2	
	Ability Enhancement Course (AEC)	English Communication & Personality Development 1	1	0	0	1	
		English Communication & Personality Development 1 lab	0	0	2	1	
	Skill enhancement course (SEC)	Industrial fermentation	2	0	0	2	
		Industrial fermentation lab	0	0	2	1	
	Multidisciplinary (GE 1)	To be taken from the basket	2	0	0	2	
	Value added course	Constitution of India 1	1	0	0	1	
<b>II</b>	Core course	Mammalian physiology	4	0	0	4	
		Mammalian physiology lab	0	0	4	2	
		Enzyme and Metabolism	4	0	0	4	
		Enzyme and Metabolism lab	0	0	4	2	
	Discipline Elective/ Minor course	General Microbiology	4	0	0	4	
		General Microbiology lab	0	0	4	2	
	Ability Enhancement Course (AEC)	English Communication & Personality Development 2	1	0	0	1	

		English Communication & Personality Development 2 lab			2	1	
	Multidisciplinary (GE 2)	To be taken from the basket	2	0	0	2	
	Skill enhancement course (SEC)	IPR, Biosafety and Bioethics	3	0	0	3	
	Value added course	Constitution of India 2	1	0	0	1	
<b>III</b>	Core course	Cell Biology	4	0	0	4	<b>(80) Diploma in Biotechnology</b>
		Cell Biology lab	0	0	4	2	
		Plant Physiology	4	0	0	4	
		Plant Physiologylab	0	0	4	2	
	Discipline Elective/ Minor course	Chemistry 2	4	0	0	4	
		Chemistry 2 lab	0	0	4	2	
	Multidisciplinary (GE 3)	To be taken from the basket	2	0	0	2	
	Skill enhancement course (SEC)	Biostatistics	3	0	0	3	
	Ability Enhancement Course (AEC)	English language and soft skills 3	1	0	0	1	
		English language and soft skills 3 lab	0	0	2	1	
	Value added course	Climate change and its impact in daily life 1	1	0	0	1	
Summer Internship	Training Program	0	0	0	2		
<b>IV</b>	Core course	Genetics	4	0	0	4	
		Genetics lab	0	0	4	2	
		Molecular Biology	4	0	0	4	
		Molecular Biology lab	0	0	4	2	
	Discipline elective/ Minor course	Microbial Ecology	4	0	0	4	
		Microbial Ecologylab	0	0	4	2	
	Multidisciplinary (GE 4)	To be taken from the basket	2	0	0	2	

	Skill enhancement course (SEC)	Basics of Bioinformatics	2	0	0	2	
		Basics of Bioinformatics lab	0	0	2	1	
	Ability Enhancement Course (AEC)	English language and soft skills 4	1	0	0	1	
		English language and soft skills 4 lab	0	0	2	1	
	Value added course	Climate change and its impact in daily life 2	1	0	0	1	
<b>V</b>	Core Course	Recombinant DNA technology	4	0	0	4	<b>(120) Degree in “Bachelor of Science Honors in Biotechnology”</b>
		Recombinant DNA technology lab	0	0	4	2	
		Immunology and Molecular Diagnostics	4	0	0	4	
		Immunology and Molecular Diagnosticslab	0	0	4	2	
	Discipline elective/ Minor course	Research methodology	4	0	0	4	
	Multidisciplinary (GE 5)	To be taken from the basket	2	0	0	2	
	Ability Enhancement Course (AEC)	English language and soft skills 5	1	0	0	1	
		English language and soft skills 5 lab	0	0	2	1	
	Value added course	Gender sensitization 1	1	0	0	1	
	Summer Internship	Training Program	0	0	0	2	
<b>VI</b>	Core Course	Genomics and Proteomics	4	0	0	4	
		Genomics and Proteomics lab	0	0	4	2	
		Bioprocess Technology	4	0	0	4	
		Bioprocess Technology lab	0	0	4	2	
	Discipline elective/ Minor	Medical Microbiology	4	0	0	4	

	course						
		Medical Microbiology lab	0	0	4	2	
	Multidisciplinary (GE 6)	To be taken from the basket	2	0	0	2	
	Skill enhancement course (SEC)	AI/ML application in Biotechnology	2	0	0	2	
		AI/ML application in Biotechnology lab	0	0	2	1	
	Ability Enhancement Course (AEC)	English Communication & soft skill 6	1	0	0	1	
		English Communication & soft skills 6 lab	0	0	2	1	
	Value added course	Gender sensitization 2	1	0	0	1	
VII	Core Course	Food Microbiology	4	0	0	4	(160) Degree in "Bachelor of Science Honours in Research in Biotechnology"
		Food Microbiology lab	0	0	4	2	
		Introduction to cell and tissue culture	4	0	0	4	
		Introduction to cell and tissue culture lab	0	0	4	2	
	Minor	Biophysical and Biochemical techniques	4	0	0	4	
		Biophysical and Biochemical techniques lab	0	0	4	2	
	Skill enhancement course (SEC)	Advanced Bioinformatics	2	0	0	2	
		Advanced Bioinformatics lab	0	0	2	1	
VIII	Research project /Dissertation	Research Project				12	
	Core course	Grand viva				4	
	<b>Total credits</b>				<b>190</b>		