

### Microbiology (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 Microbiology</b>
		Biochemistry lab	0	0	4	2	
		Introduction to Microbiology and microbial diversity	4	0	0	4	
		Introduction to Microbiology and microbial diversity lab	0	0	4	2	
	Discipline Elective/ Minor course	Chemistry 1	4	0	0	4	
		Chemistry 1 lab	0	0	4	2	
	Ability Enhancement Course (AEC)	English Language & Soft Skills 1	1	0	0	1	
		English Language & Soft Skills 1 Lab	0	0	2	1	
	Skill enhancement course (SEC)	Biosafety and laboratory ethics	3	0	0	3	
	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	Microbial Growth and physiology	4	0	0	4	
		Microbial Growth and physiology lab	0	0	4	2	
		Enzyme, Metabolism and Bioenergetics	4	0	0	4	
		Enzyme, Metabolism and Bioenergetics lab	0	0	4	2	
	Discipline Elective// Minor course	Biotechnology for human welfare	4	0	0	4	
	Ability Enhancement Course (AEC)	English Language & Soft Skills 2	1	0	0	1	

		English Language & Soft Skills 2 Lab	0	0	2	1	
	Multidisciplinary (GE 2)	To be taken from the basket	2	0	0	2	
	Skill enhancement course (SEC)	Microbial entrepreneurship	3	0	0	3	
	Value added course	Constitution of India 2	1	0	0	1	
III	Core course	Cell Biology	4	0	0	4	(80) Diploma in Microbiology
		Cell Biology lab	0	0	4	2	
		Environmental microbiology	4	0	0	4	
		Environmental microbiology lab	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 & Soft Skills 3	1	0	0	1	
		English Language & 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	
IV	Core course	Microbial genetics	4	0	0	4	
		Microbial genetics lab	0	0	4	2	
		Molecular Biology	4	0	0	4	
		Molecular Biology lab	0	0	4	2	
	Discipline elective/ Minor course	Plant and animal biotechnology	4	0	0	4	
		Plant and animal biotechnology lab	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 & Soft Skills 4	1	0	0	1	
		English Language & 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 Microbiology”</b>
		Recombinant DNA technology lab	0	0	4	2	
		Immunology	4	0	0	4	
		Immunology lab	0	0	4	2	
		Virology and mycology	4	0	0	4	
		Virology and mycology lab	0	0	4	2	
	Discipline elective/ Minor course	Research methodology	3	0	0	3	
	Multidisciplinary (GE 5)	To be taken from the basket	2	0	0	2	
	Ability Enhancement Course (AEC)	English Language & Soft Skills 5	1	0	0	1	
		English Language & 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	
		Medical microbiology	4	0	0	4	

		Medical microbiology lab	0	0	4	2	
	Discipline elective/ Minor course	Bioprocess technology	4	0	0	4	
		Bioprocess technology 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 microbiology	2	0	0	2	
		AI/ML application in microbiology lab	0	0	2	1	
	Ability Enhancement Course (AEC)	English Language & Soft Skills 6	1	0	0	1	
		English Language & 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 Microbiology”
		Food Microbiology lab	0	0	4	2	
		Advanced microbiology	4	0	0	4	
		Advanced microbiology lab	0	0	4	2	
	Minor	Biophysical and Biochemical techniques	3	0	0	3	
		Biophysical and Biochemical techniques lab	0	0	4	2	
	Skill enhancement course (SEC)	Introduction to cell and tissue culture	2	0	0	2	
		Introduction to cell and tissue culture lab	0	0	2	1	
VIII	Research project /Dissertation	Research Project				12	
	Core course	Grand viva				4	
Total credits						194	