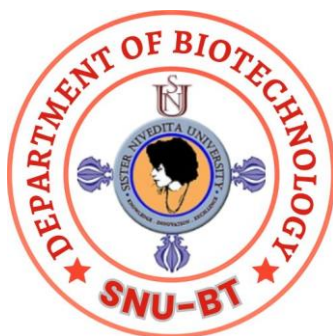


SISTER NIVEDITA UNIVERSITY

Undergraduate course structure for Biotechnology

As per NEP 2020 regulation and according to UGC-CBCS



Course structure for

B.Sc. in Microbiology

And

B.Sc. Honours in Microbiology / B.Sc. Honours with Research in Microbiology

Category definition with credit breakup

Semester	Credits										Credits /Semester
	MC/ME	ME		Non-Major		MDC	AEC	SEC	VAC	INT	
		Course	Project	NM	NV						
I	10			2	1+1		2	3	2		21
II	10				1+1	3	2	3	2		22
III	10			4	1+1	3	2				21
IV	10			4	1+1	3	2				21
V	15				1+1			3	2		22
VI	15			4	1+1					3	24
VII	19			4							23
VIII		8/20	12/0	2							22
Credits/Course	109			32		9	8	9	6	3	
Total Credit											176

Major – Major Program Specific Course – Compulsory (MC); Major Program Specific Course – Elective (ME); NM – Non-Major Specific Subject Course; NV – Non-Major vocational education and training; MDC – Multidisciplinary courses; AEC – Ability Enhancement Courses; SEC – Skill Enhancement Courses; VAC – Value Added Courses; INT – Internship; Project – Project.

Category	Course name	Credit	Teaching Scheme		
			L	T	P
Semester I					
MC 1	Biochemistry	3	3	0	0
	Biochemistry Lab	2	0	0	4
MC 2	Eukaryotic Microbiology	3	3	0	0
	Eukaryotic Microbiology Lab	2	0	0	4
NM 1	Introduction to Microbiology	2	2	0	0
NV 1	Vocational - EAA I (Yoga/ Sports/ NCC/ NSS)	1	0	0	2
NV 2	Vocational - Soft Skill Development I	1	1	0	0
AEC 1	Communicative English I	2	2	0	0
VAC1	Environmental Science I	2	2	0	0
SEC1	Computer Application	3	2	0	2
Total Credit = 23			Teaching Hour =		
Semester II					
MC 3	Bioenergetics and Metabolism	3	3	0	0
	Bioenergetics and Metabolism Lab	2	0	0	4
MC 4	Cell Biology and Cell Signalling	3	3	0	0
	Cell Biology and Cell Signalling Lab	2	0	0	4
NV 3	Vocational - EAA II (Yoga/ Sports/ NCC/ NSS)	1	0	0	2
NV4	Vocational - Soft Skill Development II	1	1	0	0
MDC 1	Selected by the candidate (Elective)	3	3	0	0
AEC 2	Communicative English II	2	2	0	0
VAC 2	Environmental Science II	2	2	0	0
SEC 2	Selected by the candidate (Elective)	3	3	0	0
Total Credit = 22			Teaching Hour =		
Semester III					
MC 5	Fundamentals of Molecular Biology	3	3	0	0
	Fundamentals of Molecular Biology Lab	2	0	0	4
MC 6	Bacteriology and Virology	3	3	0	0
	Bacteriology and Virology Lab	2	0	0	4
NM 2	Minor I - Selected by the candidate	3	3	0	0
	Minor I - Lab Selected by the candidate	1	0	0	2
NV 5	Vocational - Mentored Seminar I	1	1	0	0
NV 6	Vocational - Soft Skill Development III	1	1	0	0
MDC2	Selected by the candidate (Elective)	3	3	0	0
AEC3	Logical Ability I / Foreign Language I	2	2	0	0
Total Credit = 21			Teaching Hour =		
Semester IV					
MC 7	Immunology	3	3	0	0
	Immunology Lab	2	0	0	4
MC 8	Genetics	3	3	0	0
	Genetics Lab	2	0	0	4
NM 3	Minor II - Selected by the candidate	3	3	0	0
	Minor II - Lab Selected by the candidate	1	0	0	2
NV 7	Vocational - Mentored Seminar II	1	1	0	0
NV8	Vocational - Soft Skill Development IV	1	1	0	0
MDC3	Selected by the candidate (Elective)	3	3	0	0
AEC4	Logical Ability II / Foreign Language II	2	2	0	0
Total Credit = 21			Teaching Hour =		

Category	Course name	Credit	Teaching Scheme		
			L	T	P
Semester V					
MC 9	Biophysical Chemistry and Instrumentation	3	3	0	0
	Biophysical Chemistry and Instrumentation Lab	2	0	0	4
MC 10	Recombinant DNA Technology	3	3	0	0
	Recombinant DNA Technology Lab	2	0	0	4
MC 11	Microbial Physiology and Metabolism	3	3	0	0
	Microbial Physiology and Metabolism Lab	2	0	0	4
NV 9	Vocational - Mentored Seminar III	1	1	0	0
NV10	Vocational – Soft Skill Development V	1	1	0	0
SEC 3	Selected by the candidate (Elective)	3	3	0	0
VAC 3	Ethics Study and IPR / elective	2	2	0	0
Total Credit = 22			Teaching Hour =		
Semester VI					
MC 12	Biostatistics and Bioinformatics	3	3	0	0
	Biostatistics and Bioinformatics Lab	2	0	0	4
MC 13	Environmental Microbiology and Ecology	3	3	0	0
	Environmental Microbiology and Ecology Lab	2	0	0	4
MC 14	Industrial and Food Microbiology	3	3	0	0
	Industrial and Food Microbiology Lab	2	0	0	4
NM4	Minor III – Selected by the candidate	3	3	0	0
	Minor III – Lab Selected by the candidate	1	0	0	2
NV 11	Vocational - Mentored Seminar IV	1	1	0	0
NV12	Vocational – Soft Skill Development VI	1	1	0	0
INT1	Internship	3	0	0	6
Total Credit = 24			Teaching Hour =		
Semester VII					
MC 15	Structural Biology and Data Science	3	3	0	0
	Structural Biology and Data Science Lab	2	0	0	4
MC 16	Medical Microbiology and Cancer Biology	3	3	0	0
	Medical Microbiology and Cancer Biology Lab	2	0	0	4
MC 17	Agricultural Microbiology	3	3	0	0
	Agricultural Microbiology Lab	2	0	0	4
MC 18	Genomics, Proteomics and Metabolomics	2	2	0	0
MC 19	Molecular Nanomachines	2	2	0	0
NM 5	Minor IV – Selected by the candidate	3	3	0	0
	Minor IV – Lab Selected by the candidate	1	0	0	2
Total Credit = 23			Teaching Hour =		
Semester VIII					
MC 20	Microbial Quality control in Industries	4	4	0	0
MC 21	Emerging Techniques and Trends in Microbiology	2	2	0	0
MC 22	Microbiology Epilogue	2	2	0	0
NM6	Evolutionary Biology	2	2	0	0
ME - Project / Courses	Project/ Research Design and Communication (Mandatory), [Pharmacovigilance, Bio-entrepreneurship, Molecular Diagnostics, Biosafety and Public health (Any 2)]	12/(4+4+4)	0/12	0	24/0
Total Credit = 22			Teaching Hour =		