

Course Structure-B.Sc. Microbiology

School of Science													
Department of Biological Sciences													
Programme Name : B.Sc. Microbiology													
Programme Code:			With Effect From Academic Year: 2025-26										
Duration of Programme:03 Yrs / Honours													
Semester: I													
Course Category	Course Code	Course Title	Scheme of Study (Hours/Week)						Assessment Scheme (Marks)				Total Marks (TA+LA)
			Classroom Instruction (CI)		Lab Instruction (LI)	Hours (CIA+ SL)	Total Notional Hours (CI+LI+CI A+SL)/ for 15 weeks)	Total Credits (C)	Theory Assessment (TA)		Lab Assessment (LA)		
			L	T					Continuous Internal & Self-Learning Assessment (CIAs & SL)	End Semester Examination (ESE)	Continuous Internal & Self-Learning Assessment (CIAs & SL)	End Semester Examination (ESE)	
PCC	NYMII01	Microbial Diversity	3	-	-	3	6	3	50	50	-	-	100
PCC	NYMII02	Principles of Microbiology	3	-	-	3	6	3	50	50	-	-	100
PCC	NYMII03	Microbial Cultivation and Growth	3	-	-	3	6	3	50	50	-	-	100
OE	NSSO_	Open Elective – I	4	-	-	4	8	4	50	50	-	-	100
VSEC / PCC	NYMII11	Instrumentation Laboratory	-	-	2	-	-	1	-	-	50	50	100
VSEC / PCC	NYMII12	Biofertilizer Laboratory	-	-	2	-	-	1	-	-	50	50	100
VSEC / PCC	NYMII13	Basics in Microscopy Laboratory	-	-	2	-	-	1	-	-	50	50	100
VSEC / PCC	NYMII14	Microbial Mass Production Laboratory	-	-	2	-	-	1	-	-	50	50	100
VSEC / PCC	NYMII15	Microbial Cultivation Techniques Laboratory	-	-	2	-	-	1	-	-	50	50	100
AEC-II	NHSA...	Ability Enhancement Courses - I	2	-		2	4	2	-	-	50	50	100
VEC-II	NSSV...	Value Education Courses- I	2	-	4	-	-	2	-	-	50	50	100
VEC-II	NSSV...	Indian Knowledge System- I	-	-	4	-	-	2	-	-	50	50	100
CC-II	NSSC...	Co-curricular Course - I	-	-	4	2	4	2	-	-	50	50	100
Total			17	-	22	17	34	26	200	200	450	450	1300

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Duration of Programme:03 Yrs / Honours													
Semester: II													
Course Category	Course Code	Course Title	Scheme of Study (Hours/Week)						Assessment Scheme (Marks)				Total Marks (TA+LA)
			Classroom Instruction (CI)		Lab Instruction (LI)	Hours (CIA+SL)	Total Notional Hours (CI+LI+CI A+SL)/ for 15 weeks)	Total Credits (C) Continuous Internal & Self-Learning Assessment (CIAs & SL)	Theory Assessment (TA)		Lab Assessment (LA)		
			L	T					Continuous Internal & Self-Learning Assessment (CIAs & SL)	End Semester Examination (ESE)	Continuous Internal & Self-Learning Assessment (CIAs & SL)	End Semester Examination (ESE)	
PCC	NYMI201	Techniques in Microbiology	3	-	-	3	6	3	50	50	-	-	100
PCC	NYMI202	Fundamentals of Biochemistry	3	-	-	3	6	3	50	50	-	-	100
PCC	NYMI203	Fundamentals of Beverage Technology	3	-	-	3	6	3	50	50	-	-	100
OE	NSSO_	Open Elective – II	2	-	-	4	8	4	-	100	-	-	100
MDM	NYMIM01	Minor - I	2	-	-	-	4	2	50	50	-	-	100
VSEC / PCC	NYMI211	Advanced Bioinstrumentation Laboratory	-	-	2	-	-	1	-	-	50	50	100
VSEC / PCC	NYMI212	Fundamentals of Biochemistry Laboratory	-	-	2	-	-	1	-	-	50	50	100
VSEC / PCC	NYMI213	Fundamentals of Oenology Laboratory	-	-	2	-	-	1	-	-	50	50	100
VSEC / PCC	NYMI214	Basic techniques in beverage production Laboratory	-	-	2	-	-	1	-	-	50	50	100
VSEC / PCC	NYMI215	Techniques in Bio-farming Laboratory	-	-	2	-	-	1	-	-	50	50	100
AEC-II	NHSA...	Ability Enhancement Courses - II	-	-	4	-	4	2	-	-	50	50	100
VEC-II	NSSV...	Value Education Courses- II	2	-	-	2	4	2	50	50	-	-	100
CC-II	NSSC...	Co-curricular Course - II	-	-	4	-	4	2	-	-	50	50	100
Total			15		18	15	42	26	250	350	350	350	1300

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Programme Code: With Effect From Academic Year: 2025-26													
Duration of Programme:03 Yrs / Honours													
Semester: III													
Course Category	Course Code	Course Title	Scheme of Study (Hours/Week)						Assessment Scheme (Marks)				Total Marks (TA+LA)
			Classroom Instruction (CI)		Lab Instruction (LI)	Hours (CIA + SL)	Total Notional Hours (CI+LI+ CIA+SL) / for 15 weeks)	Total Credits (C)	Theory Assessment (TA)		Lab Assessment (LA)		
			L	T					Continuous Internal & Self-Learning Assessment CIAs & SL)	End Semester Examination (ESE)	Continuous Internal & Self-Learning Assessment (CIAs & SL)	End Semester Examination (ESE)	
PCC	NYMI301	Bacterial Cytology and Biochemistry	3	-	-	3	6	3	50	50	-	-	100
PCC	NYMI302	Air, Water and Soil Microbiology	3	-	-	3	6	3	50	50	-	-	100
PCC	NYMI303	Virology	3	-	-	3	6	3	50	50	-	-	100
OE	NSSO_	Open Elective – III (SWAYAM)	2	-	-	2	4	2	-	100	-	-	100
MDM	NYMIM02	Minor – II	4	-	-	-	8	4	50	50	-	-	100
VSEC / PCC	NYMI311	Basic Techniques in Microbiology Laboratory	-	-	2	-	-	1	-	-	50	50	100
VSEC / PCC	NYMI312	Bacterial Cytology and Biochemistry Laboratory	-	-	2	-	-	1	-	-	50	50	100
VSEC / PCC	NYMI313	Air, Water and Soil Microbiology Laboratory	-	-	2	-	-	1	-	-	50	50	100
AEC- IV	NHSA...	Ability Enhancement Course - III			4	-	-	2	-	-	50	50	100
FP	NYBS...	Analysis of Microbial Contamination and Adulteration	-	-	4	-	-	2	-	-	50	50	100
CC- IV	NSSC...	Co - curricular Course - III	-	-	4	-	-	2	-	-	50	50	100
Total			15		18	11	30	24	200	300	300	300	1100

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Programme Code: With Effect From Academic Year: 2025-26													
Duration of Programme:03 Yrs / Honours													
Semester: IV													
Course Category	Course Code	Course Title	Scheme of Study (Hours/Week)						Assessment Scheme (Marks)				Total Marks (TA+LA)
			Classroom Instruction (CI)		Lab Instruction (LI)	Hours (CIA+SL)	Total Notional Hours (CI+LI+CIA+SL)/ for 15 weeks)	Total Credits (C)	Theory Assessment (TA)		Lab Assessment (LA)		
			L	T					Continuous Internal & Self-Learning Assessment CIAs & SL)	End Semester Examination (ESE)	Continuous Internal & Self-Learning Assessment (CIAs & SL)	End Semester Examination (ESE)	
PCC	NYMI401	Cell Biology & Genetics	3	-	-	3	6	3	50	50	-	-	100
PCC	NYMI402	Molecular Biology	3	-	-	3	6	3	50	50	-	-	100
PCC	NYMI403	Mycology	3	-	-	3	6	3	50	50	-	-	100
OE	NSSO_	Open Elective – IV (SWAYAM)	2	-	-	2	4	2	-	100	-	-	100
MDM	NYCEM03	Minor – III	4	-	-	4	8	4	50	50	-	-	100
VSEC / PCC	NYMI411	Genetics Laboratory	-	-	4	-	-	2	-	-	50	50	100
VSEC / PCC	NYMI412	Cell Biology Laboratory	-	-	4	-	-	2	-	-	50	50	100
VSEC / PCC	NYMI413	Molecular Biology Laboratory	-	-	2	-	-	1	-	-	50	50	100
AEC- IV	NHSA...	Ability Enhancement Course - IV			4	-	-	2	-	-	50	50	100
CEP	NYBS...	Community Engagement Programme	-	-	4	-	-	2	-	-	50	50	100
CC- IV	NSSC...	Co - curricular Course - IV	-	-	4	-	-	2	-	-	50	50	100
	Total		15		22		30	26	200	300	300	300	1100

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Programme Code:				With Effect From Academic Year: 2025-26									
Duration of Programme: 03 Yrs / Honours													
Semester: V													
Course Category	Course Code	Course Title	Scheme of Study (Hours/Week)						Assessment Scheme (Marks)				Total Marks (TA+LA)
			Classroom Instruction (CI)		Lab Instruction (LI)	Hours (CIA+ SL)	Total Notional Hours (CI+LI+C IA+SL)/ for 15 weeks)	Total Credits (C)	Theory Assessment (TA)		Lab Assessment (LA)		
			L	T					Continuous Internal & Self-Learning Assessment (CIAs & SL)	End Semester Examination (ESE)	Continuous Internal & Self-Learning Assessment (CIAs & SL)	End Semester Examination (ESE)	
PCC	NYMI501	Medical Microbiology	4	-	-	4	8	4	50	50	-	-	100
PCC	NYMI502	Immunology	4	-	-	4	8	4	50	50	-	-	100
PCC	NYMI511	Medical Microbiology Laboratory	-	-	4	-	-	2	-	-	50	50	100
ME	NYMIE..	Major Elective - I	4	-	-	4	8	4	50	50	-	-	100
MDM	NYCEM05	Minor – IV	4	-	-	4	8	4	50	50	-	-	100
AEC- V	NHSA...	Ability Enhancement Course - V	-	-	4	-	-	2	-	-	50	50	100
VSC/ PCC	NYMI512	Immunology Laboratory	-	-	4	-	-	2	-	-	50	50	100
VSC/ PCC	NYMI513	Bioinformatics Laboratory	-	-	2	-	-	1	-	-	50	50	100
FP/CEP	NYMI514	Field Project/Community Engagement Programme	-	-	4	-	-	2	-	-	50	50	100
		Total	16		18	16	32	25	200	200	250	250	900

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Duration of Programme: 03 Yrs / Honours													
Semester: VI													
Course Category	Course Code	Course Title	Scheme of Study (Hours/Week)						Assessment Scheme (Marks)				Total Marks (TA+LA)
			Classroom Instruction (CI)		Lab Instruction (LI)	Hours (CIA+ SL)	Total Notional Hours (CI+LI+C IA+SL)/ for 15 weeks)	Total Credits (C)	Theory Assessment (TA)		Lab Assessment (LA)		
			L	T					Continuous Internal & Self-Learning Assessment (CIAs & SL)	End Semester Examination (ESE)	Continuous Internal & Self-Learning Assessment (CIAs & SL)	End Semester Examination (ESE)	
PCC	NYMI601	Enzymology	3	-	-	3	6	3	50	50	-	-	100
PCC	NYMI602	Food and Dairy Microbiology	3	-	-	3	6	3	50	50	-	-	100
PCC	NYMI603	Application of AI in Bioscience	3	-	-	3	6	3	50	50	-	-	100
ME	NYMIE..	Major Elective - II	4	-	-	4	8	4	50	50	-	-	100
MDM	NYCEM05	Minor – V	4	-	-	4	8	4	50	50	-	-	100
VSEC/ PCC	NYMI611	Enzymology Laboratory	-	-	4	-	-	2	-	-	50	50	100
VSEC/ PCC	NYMI612	Food Microbiology Laboratory	-	-	4	-	-	2	-	-	50	50	100
VSEC/ PCC	NYMI613	Dairy Microbiology Laboratory	-	-	2	-	-	1	-	-	50	50	100
OJT	NYMI614	On Job Training	-	-	8	-	-	4	-	-	50	50	100
Total			17		18	1	34	26	250	250	200	200	900

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Duration of Programme: 03 Yrs / Honours													
Semester: VII													
Course Category	Course Code	Course Title	Scheme of Study (Hours/Week)						Assessment Scheme (Marks)				Total Marks (TA+LA)
			Classroom Instruction (CI)		Lab Instruction (LI)	Hours (CIA+SL)	Total Notional Hours (CI+LI+CIA+SL)/ for 15 weeks)	Total Credits (C)	Theory Assessment (TA)		Lab Assessment (LA)		
			L	T					Continuous Internal & Self-Learning Assessment (CIAs & SL)	End Semester Examination (ESE)	Continuous Internal & Self-Learning Assessment (CIAs & SL)	End Semester Examination (ESE)	
PCC	NYMI701	Industrial Microbiology	4	-	-	4	8	4	50	50	-	-	100
PCC	NYMI702	Food and Beverage Technology	4	-	-	4	8	4	50	50	-	-	100
PCC	NYMI703	Molecular Biophysics	4	-	-	4	8	4	50	50	-	-	100
PCC	NYMI711	Industrial and Beverage Technology Laboratory	-	-	4	-	-	2	-	-	50	50	100
ME	NYMIE..	Major Elective - III	4	-	-	4	8	4	50	50	-	-	100
Minor	17RDP101	Research Methodology	4	-	-	4	8	4	50	50	-	-	100
	Total		20		4		40	22	250	250	50	50	600

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Duration of Programme: 03 Yrs / Honours													
Semester: VIII													
Course Category	Course Code	Course Title	Scheme of Study (Hours/Week)						Assessment Scheme (Marks)				Total Marks (TA+LA)
			Classroom Instruction (CI)		Lab Instruction (LI)	Hours (CIA+SL)	Total Notional Hours (CI+LI+CIA+SL)/ for 15 weeks)	Total Credits (C)	Theory Assessment (TA)		Lab Assessment (LA)		
			L	T					Continuous Internal & Self-Learning Assessment (CIAs & SL)	End Semester Examination (ESE)	Continuous Internal & Self-Learning Assessment (CIAs & SL)	End Semester Examination (ESE)	
PCC	NYMI801	Microbial Technology and Genetic Engineering	4	-	-	4	8	4	50	50	-	-	100
PCC	NYMI802	Ecology and Environmental Microbiology	4	-	-	4	8	4	50	50	-	-	100
PCC	NYMI803	Pharmaceutical Microbiology	4	-	-	4	8	4	50	50	-	-	100
PCC	NYMI811	Advanced Laboratory Techniques	-	-	4	-	-	2	-	-	50	50	100
ME	NYMIE..	Major Elective - IV	4	-	-	4	8	4	50	50	-	-	100
OJT	NYMI812	On Job Training	-	-	8	-	8	4	-	-	50	50	100
Total			16		12		40	22	200	200	100	100	600