

Progressive Education Society's
Modern College of Arts, Science and Commerce (Autonomous)
Shivajinagar, Pune 5

(An Autonomous College Affiliated to Savitribai Phule Pune University)

Framework of Syllabus

For

M.Sc. Microbiology

(Based on NEP 2020 framework)
(To be implemented from the Academic Year 2023-24)

Semester 1 (First Year)

Course Type	Code	Course	Course / Paper Title	Hour s/ Week	Cred it	CI A	ES E	Total
Major Mandato ry Theory (4+4+4+2)	23ScMicP111	Major Theory Paper 1	Microbial Taxonomy & Systematics	4	4	50	50	100
	23ScMicP112	Major Theory Paper 2	Biochemistry and Metabolism	4	4	50	50	100
	23ScMicP113	Major Practical 1	Practical course based on Microbial Taxonomy & Systematics	8	4	50	50	100
	23ScMicP114	Major Practical 2	Practical course based on Biochemistry	4	2	25	25	50
Major Electiv e Theory (4)	23ScMicP121	Major Elective 1 (Theory + Practical)	Instrumentation & Molecular biophysics (Theory)	2	2	25	25	50
			Practical based on Biophysics	4	2	25	25	50
	23ScMicP122	Major Elective 2 (Theory + Practical)	Cell cytology & Communication Biology (Theory)	2	2	25	25	50
			Practical Based on Communication Biology	4	2	25	25	50
RM (4)	23ScMicP131	RM Section 1	Research Methodology Basics & Research in Microbiology	2	2	50	50	100
		RM Section 2		4	2			
OJT (4)		–	–	–	–	–	–	–
Total				32	22	275	275	550

Semester 2 (First Year)

Course Type	Code	Course	Course / Paper Title	Hours/Week	Credit	CIA	ESE	Total
Major Mandatory Theory (4+4+4+2)	23ScMicP211	Major Theory Paper 1	Industrial Wastewater Treatment & Management	4	4	50	50	100
	23ScMicP212	Major Theory Paper 2	Enzymology, Biochemistry and Metabolism	4	2	25	25	50
	23ScMicP213	Major Practical 1	Practical course I: Based on Industrial Wastewater Treatment	8	4	50	50	100
	23ScMicP214	Major Practical 2	Practical course II: Based on Enzymology	4	2	25	25	50
Major Electives (4)	23ScMicP221	Major Elective 1 (Theory + Practical)	Quantitative Biology	2	2	25	25	50
			Practicals based on Quantitative Biology	4	2	25	25	50
	23ScMicP222	Major Elective 2 (Theory + Practical)	Microbial & Plant Physiology	2	2	25	25	50
			Practicals based on Microbial & Plant Physiology	4	2	25	25	50
RM (4)		–	–	–	–	–	–	–
OJT (4)	23ScMicP241	OJT	On Job Training	8	4	50	50	100
Total				32	22	275	275	550

Semester 3 (Second Year)

Course Type	Code	Course	Course / Paper Title	Hours/Week	Credit	CIA	ESE	Total
Major Mandatory Theory (4+4+4+2)	23ScMicP311	Major Theory Paper 1	Immunology	4	4	50	50	100
	23ScMicP312	Major Theory Paper 2	Molecular Biology & Biotechnology I	4	4	50	50	100
	23ScMicP313	Major Practical 1	Practical Course I : Practicals based on Molecular Biology	8	4	50	50	100
	23ScMicP314	Major Practical Paper 2	Practical Course II : Practicals based on Immunology	4	2	25	25	50
Major Electives (4)	23ScMicP321	Major Elective 1 (Theory + Practical)	Microbial Technology	2	2	25	25	50
			Practicals based on Microbial Technology	4	2	25	25	50
	23ScMicP322	Major Elective 2 (Theory)	Microbial Technology and Pharmaceutical Microbiology	4	4	50	50	100
RP (4)	23ScMicP352	RP	Research Project	8	4	50	50	100
OJT (4)								
Total				28	22	275	275	550

Semester 4 (Second Year)

Course Type	Code	Course	Course / Paper Title	Hours/Week	Credit	CIA	ESE	Total
Major Mandatory Theory (4+4+4)	23ScMicP411	Major Theory Paper 1	Pharmaceutical & Medical Microbiology	4	4	50	50	100
	23ScMicP412	Major Theory Paper 2	Virology	4	4	50	50	100
	23ScMicP413	Major Practical 1	Practical Course I : Practicals based on Pharmaceutical Microbiology and Virology	8	4	50	50	100
Major Electives (4)	23ScMicP421	Major Elective 1 (Theory)	Molecular Biology & Biotechnology II (Elective)	4	4	50	50	100
	23ScMicP422	Major Elective 2 (Theory)	Virology and Molecular Biology (Elective)	4				
RP (4)	23ScMicP452	RP	Research Project	12	6	75	75	150
OJT (4)								
Total				22	22	275	275	550

OJT : On Job Training: Internship/Apprenticeship
FP : Field Project
RM: Research Methodology
RP: Research Project