



**The University of Burdwan**

**Dept. of Microbiology,**

**New CBCS Syllabus for M.Sc. Microbiology Course: Effective from 2020- 2022 session onwards.**

**Programme Employability of the M.Sc. Microbiology Syllabus**

Modification of curriculum is carried out on a regular basis to cope with the latest development and discoveries in the field of Microbiology and to make the course effective and relevant to the local/ national and global developmental needs.

Microorganisms are omnipresent. The whole biosphere depends on the activities of microorganisms and they influence human society in countless ways. Role of microorganisms is indispensable in the field of medicine, agriculture, food & beverages, leather, space research, bioremediation, biomass production etc. Regular up gradation of the course curriculum is necessary to develop trained personnel to apply modern technologies and knowledge for exploiting microbes for mankind in a more meaningful way and to face the challenges in those fields. Students of this course will acquire knowledge not only on basic principles and techniques of bacteriology, virology, mycology, immunology and parasitology, but also will be familiar with the application of their knowledge to improve crop productivity, to discover novel and effective medicines against newly emerging deadly pathogens, to apply microbes for the development of fuel, for decreasing greenhouse gasses, for the production of cosmetics that protect skin from damaging UV rays and what not. To give them a preliminary idea about research, project work, seminar lecture and review writing are integral part of the curriculum. **Social outreach is a compulsory course to make the students familiar with the actual scenario of our society.** Through their laboratory courses they will be familiar with laboratory safety rules and will be expert in routine and specialized microbiological skills including accurately reporting statistically valid observations and analysis applicable to clinical, industrial and agricultural research. Hopefully, this course will make students able to communicate scientific concepts, experimental results and analytical arguments clearly and concisely, both verbally and in writing, making them eligible for higher studies, jobs in various sectors and entrepreneurship development in the field of Microbiology.

#### Program Outcome

On completion of the Post Graduate Degree Programme a student should be able to acquire the following outcome-

Subject knowledge-

Expected to acquire comprehensive knowledge and understanding of the subject studied in the Masters Programme which will make them eligible for higher studies, jobs in various sectors and entrepreneurship development in the field of study.

Research Related Skills

### Semester III

Course				Lec t. Hr /we ek	Dur. of Exam (in H)	Marks			Credi t
Course code	Type	T/P	Name			I.A	E. T	Total	
MSMI301	Core	T	Industrial Microbiology & Recombinant DNA Technology	4	2	10	40	50	4
MSMI302	Core	T	Agriculture & Environmental Microbiology	4	2	10	40	50	4
MSMI303	Core	P	Industrial Microbiology & Recombinant DNA Technology	8	6	10	40	50	4
MSMI304	GE	T	Introduction to General & Applied Microbiology	2	1	5	20	25	2
OR									
MSWM304	GE	T	May be obtained from SWAYAM					25	2
MSMI305-I	DE	P	Agriculture & Environmental Microbiology	8	6	10	40	50	4
OR									
MSMI305-II	DE	T	Advance Microbial genetics	4	2	10	40	50	4
MSMI306	DE	T	Food Microbiology, IPR, Biosafety & Bioethics	4	2	10	40	50	4
OR									
MSWM306	DE	T	May be obtained from SWAYAM					50	4
MSMI307	CE	P.	Community Engagement Activities			5	20	25	2
						Total credit			24

\*\* CE: Compulsory Community Engagement Programme; DE: Discipline-centric Elective; GE: Generic elective.

## Semester IV

Course				Lect. Hr /week	Dur. of Exam (in H)	Marks			Credit
Course code	Type	T/P	Name			I.A.	E.T	Total	
MSMI401	CC	T	Immunology	4	2	10	40	50	4
MSMI402	CC	T	Medical Microbiology	4	2	10	40	50	4
MSMI403	CC	P	Immunology & Medical Microbiology	8	6	10	40	40	4
MSMI404-I	DE	P	Food Microbiology, IPR and Bio-safety	8	6	10	40	40	4
OR									
MSMI404-II	DE	T	Advance Agriculture Microbiology	4	2	10	40	50	4
MSMI405-I	DE	P	Review	4	--	10	40	50	4
OR									
MSMI405-II	DE	T	Advance Food Microbiology	4	2	10	40	50	4
MSMI406	CC	P	Project	4	---	10	40	50	4
					Total credit				24

DE: Discipline-centric Elective; GE: Generic elective.