MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL
(Formerly West Bengal University of Technology)
Syllabus of B. Sc in Microbiology
(Effective from 2023-24 Academic Sessions)

Graduate Attributes

By the end of the program the students will be able to:

- The course is emphasized on morphology, physiology and function of microorganisms in addition to several subjects including biochemistry, cell biology, immunology, virology, molecular biology and recombinant DNA technology.
- On successful completion of graduation, the students will gain insight of microbiology starting from history, basic laboratory techniques and fundamental knowledge about the microorganisms.
- They will acquire the skill in the use and care of basic microbiological equipment; performance of basic laboratory procedures in microbiology; proper collection and forwarding of microbiological and parasitological specimens to the laboratory.
- They will be well-informative about the integral role of microorganisms associated with specific disease, the concepts of microbial infections in animals & plants and to implement the acquired knowledge for prevention and control of microbial diseases.
- To learn and apply the standard laboratory techniques in the field of environmental, agricultural and industrial microbiology.
- To gain an in-depth idea on cellular metabolic activities in molecular level and their application to develop recombinant organisms.
- To understand the knowledge of developing the basic procedure of food production, therapeutic agents, metabolites, proteins and other beneficial products through recombinant micro-organisms.
- The skill enhancement elective course is designed to provide students with an opportunity to gain hands on experience in state-of-the-art laboratory equipments that could enrich them to perform high throughput research on microorganisms and execute diagnostic procedures required in food, dairy and pharmaceutical industries.
- This course will also help students to comprehend and write effective project reports in multidisciplinary environment. It will also help to the development of sound attitudes in relation to the role of medical microbiology in clinical and community medicine.

Curriculum Structure

SEM-1

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	DSC	BMMC-1101 & BMMC-1191	An introduction to basic microbiology	3	0	2	5
2.		BMMC-1102 & BMMC-1192	Cell Biology	3	0	2	5
3.	DSE	MIC101	Computer Fundamental	3	0	0	3
4.	GE		Any one from GE Basket A/D	3	0	0	3
5.	AEC C	AECC101	English & Professional Communication	2	0	0	2
6.	SEC	SEC181	Life Skills & Personality Development	2	0	0	2
7.	VAC	VAC181A/B/C	Yoga/ Health& Wellness/ Sports / Physical Fitness and Wellness/Community Services	2	0	0	2
Total Credit							22

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SEM-2

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	DSC	BMMC2101 & BMMC2191	Diversity Of Environmental Microflora	3	0	2	5
2.		BMMC-2102& BMMC-2192	Microbial Physiology & Biochemistry	3	0	2	5
3.	DSE	MIC201	Management Information System	3	0	0	3
4.	GE		Any one from GE Basket B/E	3	0	0	3
5.	AECC	AECC201	Modern Indian Languages and Literature	2	0	0	2
6.	SEC	SEC201	IT Tools for Business / Monetizing Social Media or Design Thinking	2	0	0	2
7.	VAC	VAC281A/B/C	Critical Thinking / NSS/ Mental Health/ Environmental Studies	2	0	0	2
Total Credit							22

SEM-3

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	DSC	BMMC3201 & BMMC3291	Molecular Biology	3	0	2	5
2.		BMMC-3202& BMMC3291	Clinical & Pharmaceutical Microbiology	3	0	2	5
3.	DSE	MIC301	Word and PowerPoint & Spreadsheet Application with Excel	3	1	0	4
4.	GE		Any one from GE Basket C/F	3	0	0	3
5.	AECC	AECC301	The Constitution and Human Rights	2	0	0	2
6.	SEC	SEC301	Understanding basics of Cyber Security	2	0	0	2
Total Credit							21

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SEM-4

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	DSC	BMMC- 4201	Microbial Genetics	4	0	0	4
2.		BMMC-4202	Bio-analytical Tools	4	0	0	4
3.		BMMC- 4203 & BMMC-4293	Environmental Microbiology	3	0	2	5
4.	DSE	MIC401	Basics of Operating System/ Database Management with SQL	3	1	0	4
5.		MIC402	Graphic Design with Photoshop and Illustrator/ Unix And Shell	3	1	0	4
6.	AECC	AECC401	Universal Human Values (UHV)	2	0	0	2
Total Credit							23

SEM-5

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	DSC	BMMC-5301 BMMC-5391	Recombinant DNA Technology	3	0	2	5
2.		BMMC-5302 BMMC-5392	Immunology	3	0	2	5
3.	DSE	MIC501	Cloud Computing /Introduction to Computer Network	3	1	0	4
4.		MIC502	E-commerce and Application	3	1	0	4
5.	SEC	SEC581	Internship to be started after exam of 4thsem (sem break) and completed within 5thsem (weekends)	0	0	4	4
Total Credit							22

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SEM-6

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	DSC	BMMC- 301	Virology	3	1	0	4
2.		BMMC-6302 BMMC-6392	Food and Industrial microbiology	3	0	2	5
3.		BMMC-6303 BMMC-6393	Agricultural Microbiology & Plant pathology	3	0	2	5
4.	DSE	MIC601	Web Development with HTML and CSS	3	1	0	4
5.		MIC602	Internet and Networking /ERP	3	1	0	4
Total Credit							22

SEM-7

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	DSC	BMMC-7401 BMMC-7491	Bioinformatics	3	0	2	5
2.		BMMC-7402	Advanced diagnostic approaches for microbial disease detection	4	1	0	5
3.		BMMC-7403	Research Methodology	4	0	0	4
4.	DSE	MIC701	Software Project Management /Introduction To Cyber Security and Cyber Laws	3	1	0	4
5.		MIC702	Digital Marketing/ Data Analysis and Interpretation	3	1	0	4
Total Credit							22

SEM-8

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	DSC	BMMC-4801	IPR, Bioethics and Bio-safety	4	1	0	5
2.		BMMC-4802	Microbial biotechnology -Recent techniques	4	1	0	5
4.	SEC	SEC881	Internship & Research Project/ Dissertation	0	0	12	12
Total Credit							22