University of Management & Technology, Lahore

Office of the Registrar, Johar Town C-II Lahore, Ph. #: 042-35212820

Roadmap

Program Name: **BS Microbiology**

Program Scheme of Studies

Structure of the Scheme	
Courses Credit Hours	138
Major Courses: (Credit Hours)	16 (53)
Technical Electives: (Credit Hours)	4 (12)
Supporting Science: (Credit Hours)	9 (29)
University Electives: (Credit Hours)	2 (0)
Internship: (Credit Hours)	1 (3)
Capstone / COOP: (Credit Hours)	2 (6)
Undergraduate 2.0 courses: (Credit hours)	16 (35)
Total Credit Hours:	138

Program Road Map (BS Microbiology) Applicable from Spring 2026

1st Year							
1st Semester				**2nd Semester**			
Code	**Course Title**	**Cr. Hrs.**	**Prerequisite**	**Code**	**Course Title**	**Cr. Hrs**	**Prerequisite**
EN110	English-I	3		QM111	Quantitative Skills and Reasoning	3	MA101
MA101	Calculus	3		BT201	Genetics	3	
IS135	Computer Applications	3		EN112	English-II	3	EN110
BT101	Cell Biology	3		HM113	Ideology and Constitution of Pakistan	2	
MB203	Fundamentals of Microbiology	3+1		ITC122	Understanding of Quran-II	1	ITC111
ITC111	Understanding of Quran-I	1		MB201	Introduction to Biotechnology	3	
				MB102	Microbial Diversity & Systematics	3	
Semester Credit Hours		17		**Semester Credit Hours**		18	
2nd Year							
3rd Semester				**4th Semester**			
Code	**Course Title**	**Cr. Hrs.**	**Prerequisite**	**Code**	**Course Title**	**Cr. Hrs**	**Prerequisite**
ISL101	Islamic Studies/Ethics	2		SD420	Arts and humanities (Foreign Language)	2	
BT303	Biochemistry-I	3+1		MB312	Genetic Engineering	3	BT307
MK210	Social Sciences (Principles of Marketing)	2		SD210	Civics and Community Engagement	2	
CH211	Natural Sciences (Everyday science)	2		MG224	Innovation and Entrepreneurship	2	
AI210	Think AI	2		BT304	Immunology	3	
BT307	Molecular Biology	3+1		BT305	Biochemistry-II	3	BT303
MB204	Medical Microbiology	3		POL101	Pakistan Studies	2	
Semester Credit Hours		19		**Semester Credit Hours**		17	
3rd Year							
5th Semester				**6th Semester**			
Code	**Course Title**	**Cr. Hrs.**	**Prerequisite**	**Code**	**Course Title**	**Cr. Hrs**	**Prerequisite**
MB301	Mycology	3		SD102	21st Century Skills	0	
BT308	Microbial Biotechnology	3		MB404	Molecular Mechanism of Antimicrobial Agents	3	
SD100	English Immersion	0		BT301	Bioinformatics	3+1	
MB303	Fresh Water Microbiology	3		MB302	Industrial Microbiology	3+1	
MB304	Environmental Microbiology	3+1		SC401	Scientific Inquiry & Research Methods	3	
MB401	Food Microbiology	3+1		MB202	General Virology	3	
Semester Credit Hours		17		**Semester Credit Hours**		17	
4th Year							
7th Semester				**8th Semester**			
Code	**Course Title**	**Cr. Hrs.**	**Prerequisite**	**Code**	**Course Title**	**Cr. Hrs**	**Prerequisite**
BT432	Biosafety, Biosecurity & Bioethics	3		MB403	Vaccinology	3	
BT433	Artificial Intelligence in Biosciences	3		xxx	Elective-III	3	
MB405	Soil & Agricultural Microbiology	3		xxx	Elective-IV	3	
xxx	Capstone-I/ COOP-I	3		xxx	Capstone-II/ COOP-II	3	
xxx	Elective-I	3					
xxx	Elective-II	3					
Semester Credit Hours		18		**Semester Credit Hours**		12	

Mandatory: Internship of 3 Credit hours during the program.

Total Credit Hours: 138

List of Electives

Code	Course Title	Credit Hours
BT420	Commercialization of Biological Products	3
BT413	Cell and Tissue Culture	3
BT419	Laboratory Quality Assurance and Quality Control	3
BT427	Animal Biotechnology	3
BT425	Marine Biotechnology	3
BT417	Biochemistry of Drugs and Resistance	3
BT426	Biosensors	3
BT416	Pharmaceutical Biotechnology	3
MB416	Epigenetics	3
BC401	Human Physiology	3

Note: Electives may be offered based on faculty availability and alignment with national and international curricula. Relevant courses from other schools may also be offered.

Compliance Certificate for UG 2.0

☐ **It is hereby certified** that the General Education Courses have been incorporated into the roadmap of BS Microbiology in accordance with the Undergraduate 2.0 Policy. Approval by ACM is pending. UG 2.0 roadmap will be implemented from Spring 2026.

☐ **The General Education Courses are not compliant** with the Undergraduate 2.0 Policy due to the requirements of the respective Accreditation Council, as detailed below:

	UG 2.0			Deviation		Reason
Sr	**Course Title**	**Cr Hrs**		**Course Title**	**Cr Hrs**	
1	**-**	**-**		**-**	**-**	**-**
2	**-**	**-**		**-**	**-**	**-**

Chairperson of Department

Dean concerned

Director AAQIC

Registrar

	UG 2.0			Deviation		Reason
Sr	**Course Title**	**Cr Hrs**		**Course Title**	**Cr Hrs**	
1	English-I	3 (3-0)				
2	Calculus	3 (3-0)				
3	Applications of Information & Communication Technologies (ICT) *	3 (3-0)				
4	Quran-I	1				
5	English-II	3 (3-0)				
6	Quantitative Skills and Reasoning	3 (3-0)				
7	Natural Science Elective (Everyday Science)	2 (2-0)				
8	Ideology & Constitution of Pakistan *	2 (2-0)				
9	Quran-II	1				
10	Social Science***	2 (2-0)				
11	Islamic Studies/Ethics	2 (2-0)				
12	Innovation and Entrepreneurship *	2 (2-0)				
13	Arts & Humanities ****	2 (2-0)				
14	Civics & Community Engagement *	2 (2-0)				
15	Pak Studies	2 (2-0)				
16	Think AI	2 (2-0)				