



MGM INSTITUTE OF HEALTH SCIENCES

(Deemed to be University u/s 3 of UGC Act, 1956)

Grade 'A' Accredited by NAAC

Sector-01, Kamothe, Navi Mumbai -410 209

Tel 022-27432471, 022-27432994, Fax 022 -27431094

E-mail: registrar@mgmuhs.com; Website : www.mgmuhs.com

COMPETENCY BASED MEDICAL EDUCATION

(CBME)

(with effect from 2019-2020 Batches)

Curriculum for
Second M.B.B.S
Microbiology

Amended as per AC-52/2025, Dated 28/11/2025

Amended History

1. Approved as per BOM 57/2019 [Resolution no. 3.1.1.13], Dated 26/04/2019.
2. Amended upto BOM 62/2020 [Resolution No. 3.2.2.1, Resolution No. 3.2.2.11], Dated 16/09/2020.
3. Amended upto BOM 63/2021 [Resolution No. 4.4.1.2.i], Dated 17/02/2021.
4. Amended upto AC-41/2021 [Resolution No. 4.15], Dated 27/08/2021.
5. Amended upto AC-44/2022 [Resolution No. 5.18], Dated 09/12/2022.
6. Amended upto AC-46/2023 [Resolution No. 5.14], dated 28/04/2023.
7. Amended as per Resolution No. 5.12 of AC-48/2023, dated 12/12/2023.
8. Amended as per [Resolution No. 4.12, (Annexure-43)]of AC-49/2024, dated 25/04/ 2024.
9. Amended as per [Resolution No. 4.42] of AC-50/2024, dated 27/11/2024.
10. Amended as per **AC-51/2025**, [Resolution No. 4.18, (Annexure-40C)], [Resolution No. 4.1 (Annexure-41)], [Resolution No. 4.21 (Annexure-43B)], [Resolution No. 4.22, (Annexure-44C)], Dated 27/11/2024. (**For admission batch 2024-25 onwards**)
11. Amended as per AC-52/2025, [Resolution No. 6.10, (Annexure-43)]; Dated 28/11/2025.

IInd MBBS CBME Curriculum

Microbiology

Lectures	SGT/ SEM/ CD/ DOAP/ Integration	SDL	TOTAL
70 hrs	110 hrs	10 hrs	190 hrs

List of Lectures (70 Hrs):

No	COMPETENCY The student should be able to		Lectures	No of Hrs
Topic: General Microbiology and Immunity		Number of competencies: (11)		Number of
		procedures that require certification : (01)		
MI 1.1	Describe the different causative agents of Infectious diseases+A208the methods used in their detection	L	1. history of Microbiology 2. Bacterial Morphology 3. Physiology and Metabolism of bacteria 4. Culture Methods 5. General Virology 6. General Parasitology 7.General Mycology	7Hrs
MI1.3	Describe the epidemiological basis of common infectious diseases	L	8. Infection	1 Hr
MI1.4	Classify and describe the different methods of sterilization and disinfection. Discuss the application of the different methods in the laboratory, in clinical and surgical practice	L	9. Sterilisation 10. Disinfection	2 Hrs
MI1.6	Describe the mechanisms of drug resistance, and the methods of antimicrobial susceptibility testing and monitoring of antimicrobial therapy	L	11. Bacterial Genetics 1 12. Bacterial Genetics 2	2 Hrs
MI1.7	Describe the immunological mechanisms in health	L	13. Immunity 14. Antigen 15. Antibody 16. Complement	4 Hrs
MI1.8	Describe the mechanisms of immunity and response of	L	17. Structure and Function of Immune System 18. AMI and CMI	2 Hr

	the host immune system to infections			
MI1.9	Discuss the immunological basis of vaccines and describe the Universal Immunisation schedule	L	19. Immunoprophylaxis	1 Hr
MI1.10	Describe the immunological mechanisms in immunological disorder (hypersensitivity, autoimmune disorders and immunodeficiency states) and discuss the laboratory methods used in detection.	L	20. Hypersensitivity 21. Autoimmunity	2 Hrs
MI1.1 1	Describe the immunological mechanisms of transplantation and tumor immunity	L	22. Transplantation 23. Tumour Immunity and IDD	2 Hrs
	TOTAL		23	23 Hrs
Topic: CVS and Blood Number of competencies: (7) Number of procedures that require certification : (NIL)				
MI2.1	Describe the etiologic agents in rheumatic fever and their diagnosis	L		2hrs
MI2.2	Describe the classification etio-pathogenesis, clinical features and discuss the diagnostic modalities of Infective endocarditis	L	1. Streptococcus, 2. Pneumococcus and Enterococcus	
MI2.4	List the common microbial agents causing anemia. Describe the morphology, mode of infection and discuss the pathogenesis, clinical course diagnosis and prevention and treatment of the common microbial agents causing Anemia	L	3. Dengue and Chickungunya	1 hr
MI2.5	Describe the etio-pathogenesis and discuss the clinical evolution and the laboratory diagnosis of kalaazar, malaria, filariasis and other common parasites prevalent in India	L	4. Trypanosoma 5. Filaria 6. Leishmania (Kala Azar)	3 hrs
MI2.7	Describe the epidemiology, the etio- pathogenesis, evolution complications, opportunistic infections,	L	7. HIV	1 hr

	diagnosis, prevention and the principles of management of HIV			
	TOTAL		7	7 Hrs
Topic: Gastrointestinal and hepatobiliary system				
Number of competencies: (8) Number of procedures that require certification : (NIL)				
MI3. 1	Enumerate the microbial agents causing diarrhea and dysentery. Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of these agents	L	1. E.coli, Proteus, Klebsiella 2. Vibrio 3. E.histolytica 4. Taenia 5. Ascaris, Hookworm Trichuris, E Vermicularis, Strongyloides	5 hrs
MI3. 3	Describe the enteric fever pathogens and discuss the evolution of the clinical course and the laboratory diagnosis of the diseases caused by them	L	6. Enteric Fever and Non typhoidal salmonella	1 hr
MI3. 5	Enumerate the causative agents of food poisoning and discuss the pathogenesis, clinical course and laboratory diagnosis	L		
MI3. 6	Describe the etio-pathogenesis of Acid peptic disease (APD) and the clinical course. Discuss the diagnosis and management of the causative agent of APD	L	7. H.pylori, campylobacter and Cl.difficile	1 hr
MI3. 7	Describe the epidemiology, the etio-pathogenesis and discuss the viral markers in the evolution of Viral hepatitis. Discuss the modalities in the diagnosis and prevention of viral hepatitis	L	8. Hepatitis	1hr
	TOTAL		8	8 hrs
Topic: Musculoskeletal system skin and soft tissue infections				
Number of competencies: (3) Number of procedures that require certification : (NIL)				
MI4.1	Enumerate the microbial agents causing anaerobic infections. Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of anaerobic infections	L	1. Cl.perfringens 2. Cl.tetani and Cl.botulinum	2 hrs

MI4.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of bone & joint infections	L	3. Staphylococcus	1 hr
MI4.3	Describe the etiopathogenesis of infections of skin and soft tissue and discuss the clinical course and the laboratory diagnosis	L	4. M leprosy 5. Dermatophytes 6. Actinomycetes	3 hrs
	TOTAL		6	6 hrs
Topic: Central Nervous System infections Number of competencies: (3) Number of procedures that require certification : (NIL)				
MI5.1	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of meningitis	L	1. H.influenzae 2. Cryptococcus and Mucor 3. Toxoplasma	3 hrs
MI5.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of encephalitis	L	4. polio virus 5. Rabies Virus	2hrs
	TOTAL		5	5 hr
Topic: Respiratory tract infections Number of competencies: (3) Number of procedures that require certification : (02)				
MI6.1	Describe the etiopathogenesis, laboratory diagnosis and prevention of Infections of upper and lower respiratory tract	L	1. C.Diphtheria 2. M.Tb 3. Atypical Mycobacteria 4. Bordatella 5. Mycoplasma and Chlamydia 6. Orthomyxo virus 7. Paramyxovirus	7 hrs
	TOTAL		7	7 hr
Topic: Genitourinary & Sexually transmitted infections Number of competencies: (3) Number of procedures that require certification : (NIL)				
MI7.1	Describe the etiopathogenesis and discuss the laboratory diagnosis of infections of genitourinary system	L	1. Gonococci and NGU 2. Herpes and CMV	2 hrs
MI7.2	Describe the etiopathogenesis and discuss the laboratory diagnosis of sexually transmitted infections. Recommend preventive measures	L	3. T pallidum	1 hr
MI7.3	Describe the etiopathogenesis, clinical	L	4. UTI	1 hr

	features, the appropriate method for specimen collection, and discuss the laboratory diagnosis of Urinary tract infections			
	TOTAL		4	4 hr
Topic: Zoonotic diseases and miscellaneous Number of competencies: (16) Number of procedures that require certification : (01)				
MI8.1	Enumerate the microbial agents and their vectors causing Zoonotic diseases. Describe the morphology, mode of transmission, pathogenesis and discuss the clinical course laboratory diagnosis and prevention	L	1. Yersinia 2. Leptospira and Borrelia 3. E. granulosus	3 hrs
MI8.2	Describe the etio-pathogenesis of opportunistic infections (OI) and discuss the factors contributing to the occurrence of OI, and the laboratory diagnosis	L	4. Candida 5. Histoplasma and Other dimorphic fungi	2 hrs
MI8.3	Describe the role of oncogenic viruses in the evolution of virus associated malignancy	L	6. Oncogenic Viruses and emerging and re emerging infections	1hr
MI8.4	Describe the etiologic agents of emerging Infectious diseases. Discuss the clinical course and diagnosis	L		
MI8.5	Define Healthcare Associated Infections (HAI) and enumerate the types. Discuss the factors that contribute to the development of HAI and the methods for prevention	L	7. Pseudomonas and HAI and its control	1hr
MI8.6	Describe the basics of Infection control	L		
MI8.8	Describe the methods used and significance of assessing the microbial contamination of food, water and air	L	8. Microbiology of Food, water and Air	1 hr
MI8.9	Discuss the appropriate method of collection of samples in the performance of laboratory tests in the	L	9. Collection of Sample	1 hr

	detection of microbial agents causing infectious diseases			
MI8.12	Discuss confidentiality pertaining to patient identity in laboratory results	L	10. National Health Programs in the prevention of common infectious disease and Bioethics: Universal Safety Principles	1hr
MI8.16	Describe the National Health Programs in the prevention of common infectious disease (for information purpose only as taught in CM)	L		
	TOTAL		10	10 hrs

System wise Total of Lectures:

Sr No	Systems	No of Lecture	Hrs
1	Gen Microbiology and Immunology	23	23
2.	CVS and Hematology	7	7
3.	GIT and Hepatobiliary	8	8
4.	Musculoskeletal and Skin soft tissue	6	6
5.	Central Nervous system	5	5
6.	Respiratory System	7	7
7.	Genitourinary and Sexually transmitted Infections	4	4
8.	Zoonotic and Miscellaneous	10	10
	TOTAL	70	70 Hrs

LIST of SGTs/ Sem/ Integrated/ DOAP: (110 Hrs)

No	COMPETENCY The student should be able to	SGT/Sem/Case/Integrated	No of Hrs	Practical DOAP	No of Hrs
Topic: General Microbiology and Immunity Number of competencies: (11) procedures that require certification : (01) Number of					
MI 1.1	Describe the different causative agents of Infectious diseases+ A208 the methods used in their detection	1. Culture Medias (SG) 2. Biochemicals (SG)	2 hrs		
MI1.2	Perform and identify the different causative agents of Infectious diseases by Gram Stain, ZN stain and stool routine microscopy	-		1. Diagnostic Microbiology 1 2. Morphology of Bacteria 3. Microscopy 4. Gram staining 5. ZN Staining	10 hrs
MI1.4	Classify and describe the different methods of sterilization and disinfection. Discuss the application of the different methods in the laboratory, in clinical and surgical practice			6. Sterilisation and Disinfection	2 hrs
MI1.5	Choose the most appropriate method of sterilization and disinfection to be used in specific situations in the laboratory, in clinical and surgical practice	3. Disinfection (Lab, OT, OPD) (Integrated)	1 hr		
MI1.6	Describe the mechanisms of drug resistance, and the methods of antimicrobial susceptibility testing and monitoring of antimicrobial therapy	4. Bacteriophage (Sem) 5. Minimisation of Drug Resistance and antibiotic Policy (SG)	2 hrs	7. Diagnostic Microbiology 2 and Gram Staining 8. ZN Staining (repeat)	4hrs
MI1.7	Describe the immunological mechanisms in health			9. Serological Reactions 1	4 hrs
MI1.8	Describe the mechanisms of immunity and response of the host immune system to infections			10. Serological reactions 2	
	TOTAL	5	5 Hrs	10	20hrs

Topic: CVS and Blood certification : (NIL)		Number of competencies: (7)	Number of procedures that require certification : (NIL)		
MI2.1	Describe the etiologic agents in rheumatic fever and their diagnosis	1. Causative agents of Rheumatic Fever and its diagnosis (Integrated)	1 hr		
MI2.2	Describe the classification etio-pathogenesis, clinical features and discuss the diagnostic modalities of Infective endocarditis	2. classification etio-pathogenesis, clinical features and discuss the diagnostic modalities of Infective endocarditis (Sem)	1 hr		
MI2.3	Identify the microbial agents causing Rheumatic Heart Disease & infective Endocarditis			1. Streptococcus, Pneumococcus and Enterococcus	2hrs
MI2.4	List the common microbial agents causing anemia. Describe the morphology, mode of infection and discuss the pathogenesis, clinical course diagnosis and prevention and treatment of the common microbial agents causing Anemia	3. Rickettsia (SG)	1hr		
MI2.5	Describe the etio-pathogenesis and discuss the clinical evolution and the laboratory diagnosis of kalaazar, malaria, filariasis and other common parasites prevalent in India	4. Integrated : Malaria	2 hrs		
MI2.6	Identify the causative agent of malaria and filariasis			2. Blood protozoa	2 hrs
MI2.7	Describe the epidemiology, the etio- pathogenesis, evolution complications, opportunistic infections, diagnosis, prevention and the principles of management of HIV	5.Integrated: HIV	2 hrs		
	TOTAL	5	7 Hrs	2	4hrs
Topic: Gastrointestinal and hepatobiliary system		Number of competencies: (8)	Number of procedures that require certification : (NIL)		

MI3. 1	Enumerate the microbial agents causing diarrhea and dysentery. Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of these agents	1. Shigella (SG) 2. Isospora , Cryptospora (Sem) 3. Giardia (Sem)	3hrs	1. Enterobacteriaceae (E coli, Proteus, Klebsiella) 2. Vibrio and Shigella 3. Intestinal Nematodes and Stool Examination	6 hrs
MI3. 2	Identify the common etiologic agents of diarrhea and dysentery			4. Intestinal Protozoa and Stool Examination	2hrs
MI3. 4	Identify the different modalities for diagnosis of enteric fever. Choose the appropriate test related to the duration of illness			5. Salmonella	2hrs
MI3. 5	Enumerate the causative agents of food poisoning and discuss the pathogenesis, clinical course and laboratory diagnosis	4. Food Poisoning (Integrated)	2hr		
MI3. 7	Describe the epidemiology, the etio-pathogenesis and discuss the viral markers in the evolution of Viral hepatitis. Discuss the modalities in the diagnosis and prevention of viral hepatitis	5. Liver Fluke (SG) 6. Integrated: Hepatitis	2hrs		
MI3. 8	Choose the appropriate laboratory test in the diagnosis of viral hepatitis with emphasis on viral markers			6. Diagnostic tests used in Virology	2hrs
	TOTAL	6	7Hrs	6	12 hrs
Topic: Musculoskeletal system skin and soft tissue infections of procedures that require certification : (NIL)			Number of competencies: (3)		Number
MI4.1	Enumerate the microbial agents causing anaerobic infections. Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of anaerobic infections	1. Non sporing anaerobes (SG)	1hr	1. Clostridia and Non sporing anaerobes	2 hrs

MI4.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of bone & joint infections			2. Staphylococcus	2 hrs
MI4.3	Describe the etiopathogenesis of infections of skin and soft tissue and discuss the clinical course and the laboratory diagnosis	2. Pox Virus (Sem) 3. Mycetoma and S/c Mycosis (Integrated) 4. B anthracis (Integrated)	3hrs	3. Mycology 4. M leprae 5. Bacillus	6 hrs
	TOTAL	4	4hrs	5	10 hrs
Topic: Central Nervous System infections Number of competencies: (3) Number of procedures that require certification : (NIL)					
MI5.1	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of meningitis	1. Meningococcus and Meningitis (Integrated)	1hr		
MI5.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of encephalitis	2. Slow Viral Diseases (SEM)	1hr		
MI5.3	Identify the microbial agents causing meningitis			1. Microbial agents causing Meningitis (Meningococcus)	2 hrs
	TOTAL	2	2hrs	1	2 hrs
Topic: Respiratory tract infections Number of competencies: (3) Number of procedures that require certification : (02)					
MI6.1	Describe the etiopathogenesis, laboratory diagnosis and prevention of Infections of upper and lower respiratory tract	1. Tuberculosis (Integrated) 2. Lung fluke (SEM) 3. Legionella (SEM) 4. Aspergillus (SG) 5. Other opportunistic fungi (SG) 6. Adenovirus (SEM)	6hrs		
MI6.2	Identify the common etiologic agents of upper respiratory tract infections (Gram Stain)			1. C diphtheria and Gram staining	6 hrs
MI6.3	Identify the common etiologic agents of lower respiratory tract infections (Gram Stain & Acid fast)			2. Bordatella and Hemophilus 3. M tuberculosis and ZN staining	

	stain)				
	TOTAL	6	6hrs	3	6 hrs
Topic: Genitourinary & Sexually transmitted infections Number of competencies: (3) Number of procedures that require certification : (NIL)					
MI7.1	Describe the etio-pathogenesis and discuss the laboratory diagnosis of infections of genitourinary system	1. T vaginalis (SEM)	1hr	1.Gonococcus	2hrs
MI7.2	Describe the etio-pathogenesis and discuss the laboratory diagnosis of sexually transmitted infections. Recommend preventive measures	2. STDs (Integrated)	1hr	2. Spirochaetes	2 hrs
MI7.3	Describe the etio-pathogenesis, clinical features, the appropriate method for specimen collection, and discuss the laboratory diagnosis of Urinary tract infections	3. UTI (SEM)	1hr		
	TOTAL	3	3hrs	2	4hrs
Topic: Zoonotic diseases and miscellaneous Number of competencies: (16) Number of procedures that require certification : (01)					
MI8.1	Enumerate the microbial agents and their vectors causing Zoonotic diseases. Describe the morphology, mode of transmission, pathogenesis and discuss the clinical course laboratory diagnosis and prevention	1. Zoonosis and Brucella (SG)	1hr	1. Yersinia and Brucella	2 hrs
MI8.4	Describe the etiologic agents of emerging Infectious diseases. Discuss the clinical course and diagnosis	2. Emerging and Re-emerging infections (Integration) 3. Misc bacteria (SEM)	2 hr		
MI8.5	Define Healthcare Associated Infections (HAI) and enumerate the types. Discuss the factors that contribute to the development of HAI and the	4. HAI (SEM) 5. Integrated: PUO	1hrs 2 hrs		

	methods for prevention				
MI8.6	Describe the basics of Infection control	6. Infection Control (Integration)	1hrs		
MI8.7	Demonstrate Infection control practices and use of Personal Protective Equipments (PPE)			2. Pseudomonas and HAI and PPE	2 hrs
MI8.8	Describe the methods used and significance of assessing the microbial contamination of food, water and air				
MI8.9	Discuss the appropriate method of collection of samples in the performance of laboratory tests in the detection of microbial agents causing infectious diseases	7. Biomedical waste Disposal (SG)	1Hrs		
MI8.10	Demonstrate the appropriate method of collection of samples in the performance of laboratory tests in the detection of microbial agents causing Infectious diseases			3. Collection of samples and Medical Entomology	2 hrs
MI8.11	Demonstrate respect for patient samples sent to the laboratory for performance of laboratory tests in the detection of microbial agents causing Infectious diseases	8. confidentiality pertaining to patient identity in laboratory results (SG)	1hr		
MI8.12	Discuss confidentiality pertaining to patient identity in laboratory results				
MI8.13	Choose the appropriate laboratory test in the diagnosis of the infectious disease	9. Appropriate laboratory test in the diagnosis of the infectious disease (SEM)	1hr		
MI8.15	Choose and Interpret the results of the laboratory tests used in diagnosis of the infectious disease	10. Molecular tests (SG) 11. Serological Reactions (SG)	1hr 1hr		
	TOTAL	11	12 hrs	3	6hrs

Pandemic Module in Microbiology

Pandemic Module 2.1	Hours already allotted in Syllabus
<p>Infection Control: Part II Air borne precautions Contact Precautions</p> <p>Infection Control Committee</p>	<p>MI 8.6: Describe the basics of Infection control</p> <ul style="list-style-type: none"> • 1Hr- Lecture (Interactive session) • 1 Hr- Integrated session (Debriefing and Feedback) <p>MI 8.8: Describe the methods used and significance of assessing the microbial contamination of food, water and air</p> <ul style="list-style-type: none"> • 1 Hr – Lecture (Case discussion)) <p>MI 6.3: Identify the common etiologic agents of lower respiratory tract infections</p> <ul style="list-style-type: none"> • 2hr DOAP Bordatella and Heamophillus (Visit to Isolation ward/ Video/ Photos of Isolation ward)
Pandemic Module 2.3	Hours already allotted in Syllabus
<p>Sample Collection, Microbial diagnosis, Serologic testsand their performanceparameters</p>	<p>MI 8.9: Discuss the appropriate method of collection of samples in the performance of laboratory tests in the</p> <ul style="list-style-type: none"> • 1 Hr lecture (Interactive session) • 1 SGT <p>MI 8.10: Demonstrate the appropriate method of collection of samples in the performance of laboratory tests in the detection of microbial agents causing Infectious diseases</p> <ul style="list-style-type: none"> • 2Hrs DOAP (Sample collection and Visit to lab)

	<p>MI8.15 and MI 8.13:Choose and Interpret the results of the laboratory tests used in diagnosis of the infectious disease</p> <ul style="list-style-type: none">• 2 hrs SGT (small group activity)• 1 hr Seminar (Discussion and closure)
--	---

System wise Total SGTs/ Sem/ Integrated/ DOAP:

Sr No	Systems	No of SGT/ Seminars/	Hrs	DOAP session/Practicals	Hrs
1	Gen Microbiology and Immunology	5	5	10	20
2.	CVS and Hematology	5	7	2	4
3.	GIT and Hepatobiliary	6	7	6	12
4.	Musculoskeletal and Skin soft tissue	4	4	5	10
5.	Central Nervous system	2	2	1	2
6.	Respiratory System	6	6	3	6
7.	Genitourinary and Sexually transmitted Infections	3	3	2	4
8.	Zoonotic and Miscellaneous	11	12	3	6
	TOTAL	42	46 Hrs	32	64 Hrs
	GRAND TOTAL	110 hrs			

L: Lecture SG: Small Group CD: Case Discussion SEM: Seminar DOAP: Demonstrate, Observe, Assess and Perform

SDL (Self Directed Learning):

Sr No	Topics	No of Hrs
1	ELISA test	1hr
2	Widal test	1hr
3	Needle stick Injury	1Hr
4	Hand Hygiene	1Hr
5	MRSA Surveillance	1hr
6	Antibiotic Sensitivity testing	1hr
7	Antimicrobial agents	1hr
8	Viral Vaccines	1hr
9	Malarial Vaccines	1hr
10	Free living amoeba	1hr
	Total	10 Hrs

Resolution No. 4.12 of Academic Council (AC-49/2024): Resolved to approve the change in MBBS Microbiology assessment Pattern (University and IA) to be applicable for batch admitted in academic year 2023-24 onwards [ANNEXURE-43].

Summary of Changes

1. Redistribution of topics in Paper 1 and Paper 2 (Musculoskeletal system shifted from Paper 1 to Paper 2 for University and Prelim exams)
2. Weightage of MCQs changed accordingly.
3. New AETCOM Modules added to portion in Paper 1 and Paper 2 (As given in New NMC Guidelines)
4. AETCOM short note made compulsory (no option given) in both papers.
5. Internal assessment calculation pattern changed as per new NMC guidelines.

(Changes are Highlighted in Yellow colour)

Mahatma Gandhi Mission Medical College (Kamothe, Aurangabad, Sanpada)
Department of Microbiology
Revised (March 2024) Examination Assessment Pattern

Sr. No.	Exam	Theory	Practical
1.	1 st Internal assessment examination	100	100
2.	2 nd Internal assessment examination	100	100
2.	Preliminary examination	200	100
Total		400	300

- Preliminary examination pattern will be as per University examination
- Respective colleges/ departments will conduct internal assessment examinations and maintain records of the same.

Format of question paper Time – 3 hrs.

Preliminary & University

Applicable from Admission Batch Aug 2023

Each subject– 2 papers (I / II) – 100 X 2 = Total 200 Marks

Portion:

Paper 1	General Microbiology, Immunology, CVS& Blood, GI &Hepatobiliary, Aetcom module 2.2
Paper 2	CNS infections, Respiratory Tract Infections, Genitourinary Infections & STIs, Musculoskeletal skin and subcutaneous infections, Zoonotic &Miscellaneous, Aetcom module 2.3, 2.5,

Theory Paper Pattern and Marks Distribution: (3hrs)

Paper	Section	Type and Number of Questions	Marks allotted	Total Marks
Paper 1	Section A	MCQs (20) Gen Micro and Immuno-7 CVS & Blood-7 GI and Hepatobiliary-6	20 X 1mk each = 20Mks	20
	Section B	SAQs (4/5)	4X 6Mks each = 24Mks	40

		(1 SAQ from Aetcom compulsory question)	6 Mks	
		LAQs (1/2) (Atleast 1 LAQ clinical Based)	1X 10Mks each=10Mks	
	Section C	SAQs (5/6)	5X 6Mks each =30Mks	40
		LAQs (1/2) (Atleast 1 LAQ clinical Based)	1X 10Mks each=10Mks	
TOTAL				100

Paper	Section	Type and Number of Questions	Marks allotted	Total Marks
Paper 2	Section A	MCQs (20) CNS-4 Resp Tract-4 Genitourinary and STIs-4 Zoonotic and Misc-4 Musculoskeletal, skin and subcut-4	20 X1mk each= 20Mks	20
	Section B	SAQs (4/5) (1 SAQ from Aetcom compulsory question) LAQs (1/2) (Atleast 1 LAQ clinical Based)	4X 6Mks each =24Mks 6 Mks 1X 10Mks each=10Mks	40
	Section C	SAQs (5/6)	5X 6Mks each =30Mks	40
		LAQs (1/2)	1X 10Mks each=10Mks	

		(Atleast 1 LAQ clinical Based)		
			TOTAL	100

Practicals Pattern and Marks Distribution:

Grams Staining	10Mks
ZN Staining	10Mks
Stool examination	10 Mks
Spots	10 Mks
Clinical Case	20Mks
OSPE (Wearing and removing Gloves/ Hand washing)	10 Mks
Viva 1	15Mks
Viva 2	15Mks
TOTAL	100Mks

INTERNAL EXAMS

There will be 2 Internal Exams besides prelims
 There will be only one theory paper for both Internal Exams.
 Prelims will be exactly like University exam

1st Internal Exam: End of January (Theory 100Mks, Practicals 100Mks)

2nd Internal Exam: End of April (Theory 100 Mks, Practicals 100Mks)

Portion for Internal Exams:

1st Internal Exam:

General Microbiology , Immunology, CVS and Blood infections (Except Malaria and HIV)

2nd Internal Exam:

HIV, Malaria, Gastrointestinal and Hepatobiliary infections, Respiratory tract Infections

Prelims:

Paper 1	General Microbiology, Immunology, CVS& Blood, GI &Hepatobiliary, Aetcom module 2.2
Paper 2	CNS infections, Respiratory Tract Infections, Genitourinary Infections &STIs,, Musculoskeletal skin and subcutaneous infections, Zoonotic &Miscellaneous, Aetcom module 2.3, 2.5

1stand 2ndInternal Exams: (Time 3hrs)

Theory Paper Pattern and Marks Distribution:

Paper	Section	Type and Number of Questions	Marks allotted	Total Marks
1 theory Paper only	Section A	MCQs (20)	20 X 1mk each= 20Mks	20
	Section B	SAQs (4/5) (1 SAQ from Aetcom compulsory question)	4X 6Mks each =24Mks 6 Mks	40

		LAQs (1/2) (Atleast 1 LAQ clinical Based)	1X 10Mks each=10Mks	
	Section C	SAQs (5/6) LAQs (1/2) (Atleast 1 LAQ clinical Based)	5X 6Mks each =30Mks 1X 10Mks each=10Mks	40
TOTAL				100

Practicals Pattern and Marks Distribution:

Grams Staining	15Mks
ZN Staining	15 Mks
Spots	10 Mks
Clinical Case (1)	20Mks
OSPE (wearing and removing gloves/ hand washing)	10Mks
Viva	30Mks
Total	100Mks

Professor & Head Department of Name of Institute

Resolution No.3.1.2.3 of BOM-59/2019: The updated list of Text books and Reference books for 2nd MBBS (Microbiology, Pharmacology, Pathology, FMT) are approved. [**Annexure-8**]

(To be merged with syllabus i.e. Annexure-69 of BOM-57/2019 dt.26/04/2019)

Recommended Books

A. Text Books :

Sr. No.	Name of the Book	Author
1	Textbook of Medical Microbiology	Prof C.P. Baveja
2	A Textbook of Microbiology	Apoorba Shastri
3	Textbook of Medical Microbiology	Rajesh Bhatia & Itchpujani
4	Textbook of Medical Parasitology	C K Jayaram Panikar
5	Medical Parasitology	C.P.Baveja V.Baveja
6	Textbook of Medical Parasitology	S C Parija

B. Reference Books :

Sr. No.	Name of the Book	Author
1	Textbook of Microbiology	R. Ananthanarayan C K Jayaram Panikar
2	A Textbook of Microbiology	P. Chakraborty
3	A textbook of Microbiology	Surinder Kumar
4	Textbook of Parasitology	Damle and Karyakarte
5	A Textbook of Parasitology	Dr.K.D. Chatterjee.
6	Practical Microbiology	Dr. Anuradha De
7	A textbook of Bioethics for Healthcare Professionals	Princy Palatty
8	Bioethics	Dr Chaudhary
9	MCQs in Microbiology	Dr Shilpa Nair

MGM Medical College, Navi Mumbai
Department of Pathology

Annexure 1(c)

Name of the Board of Studies (Para-Clinical) to be held on 21st Sep 2022

(1) Item Number :- 1

New pattern: Day to Day assessment pattern for internal assessment calculations according to NMC for pathology, Microbiology and Pharmacology

Sr. No.	Criteria	Theory	Practical
1.	*All internal assessment examinations including preliminary examination	80	60
2.	Day to Day assessment		
	➤ Day to Day assessment : Theory tests/ Seminars/ Quizzes)	20	-
	➤ Day to Day assessment : Practical/ clinical tests, OSPE, and Directly observed Procedural Skills (DOPS)	-	20
3.	Logbook + Journals (Journal + AETCOM logbook)	-	20
Total		100	100

***Internal assessment examinations marks conversion to internal assessment marks - Theory**

– Total 400 marks of internal exams including Prelims will be converted to 80

Practical – Total 300 marks of internal exams including Prelims will be converted to 60

4. Approved the changes in CBME Second professional teaching hours in Phase II MBBS 2022-23 (late admission batch 2022) as per Resolution No. 5.12 of AC-48/2023, dated 12/12/2023 [ANNEXURE-21-A, 21-H & 21-D].

राष्ट्रीय आयुर्विज्ञान आयोग
National Medical Commission
(Undergraduate Medical Education Board)

Annexure-21A of AC-48/2023

No. U.11026/02/2022-UGMEB/

Dated the 7th Dec 2022

CIRCULAR

Academic Cell of Undergraduate Medical Education Board(UGMEB) hereby issues updated phase-wise academic calendar and curriculum for 2022-23 batch of MBBS. The details may kindly be seen as **Annexure**.

2. All Deans/Principals of medical colleges and Registrar/ Vice-Chancellors of concerned universities may implement the same for MBBS batch admitted during the academic session 2022-23.

3. This issues with the approval of the President, UGMEB.

Encl : A/a.


21/12/2022
(Shambhu Sharan Kumar)
Director, UGMEB

- (i) All Dean/Principal of medical colleges
- (ii) All Registrar/Chancellor of medical universities
- (iii) DMMP(NMC) to upload on NMC's website

Academic calendar for Phase-I of MBBS, 2022-23 batch

Date	:	15 th Nov 2022 to 15 th Dec 2023
Time allotted	:	13 months (approx. 57 weeks)
Time available	:	Approx. 42 weeks (excluding 15 weeks) (Prelim/University Exam & Results -10 weeks + Vacation -3 weeks + Public Holidays -2 weeks)
42 wks x 39 hrs = 1638 hrs available hours for Teaching Learning		

Academic calendar for Phase-II of MBBS 2022-23 batch

Date	:	16 th Dec 2023 to 15 th Jan 2025
Time allotted	:	13 months (approx. 57 weeks)
Time available	:	Approx. 42 weeks (excluding 15 weeks) (Prelim/University Exam & Results -10 weeks + Vacation -3 weeks + Public Holidays -2 weeks)

Time available in hours: (39 hours/week) = 1638 hours.

Academic calendar for Phase-III of MBBS 2022-23 batch

Date	:	16 th Jan 2025 to 30 th Nov 2025
Time allotted	:	10.5 months (approx. 46 weeks)
Time available	:	Approx. 35 weeks (excluding 11 weeks) (Prelim/University Exam & Result - 6 weeks + Vacation -3 weeks + Public Holiday -2 weeks)

Time available in hours: (39 hours/week) = 35 X 39 = 1365 hrs

Academic calendar for Phase-IV of MBBS 2022-23 batch

Date	:	1 st Dec 2025 to 15 th May 2027
Time allotted	:	17.5 months (approx.78 weeks)
Time available	:	Approx. 57 weeks (excluding 21 weeks) (Prelim/University Exam & Result - 16 weeks + Vacation - 3 weeks + Public holiday - 2 weeks)

Time available in hours: (39 hours/week) = 57 X 39 = 2223 hrs

TOTAL TIME IN HOURS : 6864

Clinical postings : 132 weeks

Total : 176 weeks

Electives:

Block - 1 of 15 days may be offered in **Final MBBS part 1,**

Subjects: Anatomy/ Physiology/ Biochemistry/Pathology/ Blood Banking/
Microbiology/ Pharmacology/ Forensic Medicine and Toxicology.

Block - 2 of 15 days may be offered in **Final MBBS part 2,**

Subjects: Gen. Medicine and allied, Gen. Surgery and allied.

KEY CHANGES FROM GMER 2019:

1. Theory sessions of Dermatology, Radiology, Psychiatry, Anesthesiology, Respiratory Medicine shifted to final phase.
2. Theory sessions of Otorhinolaryngology and Ophthalmology reduced and remaining sessions shifted to final phase.
3. Clinical posting of Otorhinolaryngology as well as Ophthalmology from Phase-II of MBBS has been shifted to Phase-III part I and part II
4. Newer elements of Pandemic Module, and Family Adoption Programme in Community Medicine included.
5. No postings during electives.
6. Clinical Postings have been re-scheduled to facilitate learning and help students cope up with introduction of common national exit test.
7. No supplementary batches. Supplementary exams to be conducted by the end of one (1) month of results of regular exams. Results be declared within a fortnight of the end of last exam.

These changes are proposed to ensure:

1. Ease of rotation of students in the posting and ensure minimum number of students in each posting.
 2. Provide increased hours and shifting posting to final year in some allied subjects based on feedback by faculty from these departments.
-

TIME TABLE – CURRICULUM : II MBBS, PHASE 2

Subjects	Lectures	Small Group Learning(tutorials/seminars)/Integrated learning (Hours)	Clinical Postings (Hours)*	Self Directed Learning (Hours)	Total
Pathology	80	158	-	17	255
Pharmacology	80	158	-	17	255
Microbiology	70	140	-	10	220
Community Medicine (+ Family adoption Program)	20	023	(27)	10	80 (43+10+27)
Forensic Medicine and Toxicology	15	28	-	5	48
Clinical Subjects	75**	-	585***	-	660
Attitude, Ethics & Communication Module (AETCOM)	-	29	-	8	37
Sports and extracurricular activities	-	-	-	20	20
Pandemic module					28
Total	340		612		1603
Surplus hours					35
Final total	340	536	612	87	1638##

Surplus hours can be given to FAP/second year subjects needing more teaching hours, Skill lab training/ artificial intelligence and information technology in pre-clinical and para-clinical subjects.

Includes 28 hrs of Pandemic module and 35 hrs of Surplus

Annexure Item 3

1. **Item:** Restructuring the 2nd MBBS syllabus in line with Competency based medical education (CBME) guidelines by MCI

- MCI has proposed the following teaching hours for 2nd Professional YR (MBBS) subjects

Subjects	Lectures (Hours)	Small Group Teaching / Tutorials / Integrated Learning / Seminars / Practical (Hours)	Clinical Postings (Hours)	Self directed learning (Hours)	Total (Hours)
Pathology	80	138		12	230
Pharmacology	80	138		12	230
Microbiology	70	110		10	190
Community Medicine	20	30		10	60
Forensic Medicine and Toxicology	15	30		5	50
Clinical Subjects	75		540		615
Professional Development including Ethics (AETCOM etc.)		29		8	37
Sports and Extracurricular activities					28
Formative assessment and term examinations					?
Total					1440

CBME UG CURRICULUM (II-MBBS)

Microbiology

Lectures	SGT/ SEM/ CD/ DOAP/ Integration	SDL	TOTAL
70 hrs	110 hrs	10 hrs	190 hrs

Pharmacology

Lectures	Practical//Tutorials/Integrated Learning /Seminars / Small group teaching	SDL	TOTAL
82 hrs	140 hrs	12 hrs	234 hrs

Pathology

Lectures	Practical//Tutorials/Integrated Learning /Seminars / Small group teaching	SDL	TOTAL
80 hrs	138 hrs	12 hrs	230 hrs

Forensic Medicine

Lectures	Practical//Tutorials /Seminars / Small group teaching	SDL	TOTAL
10 hrs	32 hrs	-	42 hrs

Microbiology, Navi Mumbai

CBME UG CURRICULUM (II-MBBS)

Lectures	SGT/ SEM/ CD/ DOAP/ Integration	SDL	TOTAL
70 hrs	110 hrs	10 hrs	190 hrs

List of Lectures (70 Hrs):

No	COMPETENCY The student should be able to		Lectures	No of Hrs
Topic: General Microbiology and Immunity procedures that require certification : (01)		Number of competencies: (11)		Number of
MI 1.1	Describe the different causative agents of Infectious diseases+the methods used in their detection	L	1. history of Microbiology 2. Bacterial Morphology 3. Physiology and Metabolism of bacteria 4. Culture Methods 5. General Virology 6. General Parasitology 7.General Mycology	7Hrs
MI 1.3	Describe the epidemiological basis of common infectious diseases	L	8. Infection	1 Hr
MI 1.4	Classify and describe the different methods of sterilization and disinfection. Discuss the application of the different methods in the laboratory, in clinical and surgical practice	L	9. Sterilisation 10. Disinfection	2 Hrs
MI 1.6	Describe the mechanisms of drug resistance, and the methods of antimicrobial susceptibility testing and monitoring of antimicrobial therapy	L	11. Bacterial Genetics 1 12. Bacterial Genetics 2	2 Hrs
MI 1.7	Describe the immunological mechanisms in health	L	13. Immunity 14. Antigen 15. Antibody 16. Complement	4 Hrs
MI 1.8	Describe the mechanisms of immunity and response of the host immune system to infections	L	17. CMI 18. AMI	2 Hrs
MI 1.9	Discuss the immunological basis of vaccines and describe the Universal Immunisation schedule	L	19. Immunoprophylaxis	1 Hr
MI 1.10	Describe the immunological mechanisms in immunological disorder (hypersensitivity, autoimmune disorders and immunodeficiency states) and discuss the laboratory methods used in detection.	L	20. Hypersensitivity 21. Autoimmunity and Immunodeficiency	2 Hrs
MI 1.11	Describe the immunological mechanisms of transplantation and tumor immunity	L	22. Transplantation 23. Tumour Immunity	2 Hrs
TOTAL			23	23 Hrs
Topic: CVS and Blood (NIL)		Number of competencies: (7)		Number of procedures that require certification :
MI 2.1	Describe the etiologic agents in rheumatic fever and their diagnosis	L	1. Streptococcus, 2. Pneumococcus and Enterococcus	2hrs

Annexure-21D of AC-48/2023

MGM Medical college and Hospital (Kamothe and Aurangabad Campus)

Summary of changes made in Microbiology Syllabus for MBBS Admission Batch Nov 2022

	Previous Syllabus		Revised Syllabus		No of hours increased
No of hours for DOAP	110		140		
MI 2.3	1. Streptococcus, Pneumococcus and Enterococcus	2 hrs	1.Streptococcus, Pneumococcus and Enterococcus 2.Grams staining	4 Hrs	2
MI 3.1	1. Enterobacteriaceae (E coli, Proteus, Klebsiella) 2. Vibrio and Shigella 3. Intestinal Nematodes and Stool Examination	6 hrs	1. Enterobacteriaceae (E coli, Proteus, Klebsiella) 2. Vibrio and Shigella 3. Intestinal Nematodes 4. Stool Examination	8 Hrs	2
MI 3.2	1.Intestinal Protozoa and Stool Examination	2 hrs	1.Intestinal Protozoa 2.Stool Examination	4 hrs	2
MI 3.5	-	-	1. stool examination	2 Hrs	2
MI 4.1	1.Clostridia and Non sporing anaerobes	2 hrs	1.Clostridia and Non sporing anaerobes 2.ZN staining	4 hrs	2
MI 6.1	-	-	1.ZN Staining	2 hrs	2
MI 7.1	1.Gonococcus	2 Hrs	1. Gonococcus 2.Grams staining	4 Hrs	2
MI 8.1	1.Yersinia and Brucella	2 Hrs	1.Yersinia and Brucella 2.Grams staining 3.ZN staining	6 Hrs	4
MI 8.7	1. Pseudomonas 2. HAI and PPE(hand hygiene)	2 hrs	1.Pseudomonas 2. HAI and PPE (hand hygiene-1st) 3. HAI and PPE (glove wearing) 4.Hand Hygiene 5.Glove wearing 6.Grams Staining	12 hrs	10
MI 8.10	1.Collection of samples and Medical Entomology	2 hrs	1. Collection of samples and Medical Entomology 2. Stool examination	4 hrs	2
TOTAL					30 Hrs

Pandemic Module- 10 Hrs included in syllabus

Skill sessions- 4 hrs included in syllabus to be accommodated in surplus hours

Resolution No. 4.42 of Academic Council (AC-50/2024): Resolved to adopt the new CBME Guidelines dated 12.9.2024 for the MBBS admission batch 2024. [ANNEXURE-58]

BOS Microbiology Sept 2024

Annexure- 4: Adoption of Guidelines for CBME curriculum dated 12.9.24 for Microbiology

Salient Features in Microbiology (Admission Batch 2024)

(MGM- Kamothe, Sambhaji Nagar, Sanpada, Nerul)

A. Subject goals

At the end of Microbiology teaching-learning activities learner should be able to:

- i. Comprehend the immunological mechanisms in health and disease.
- ii. Comprehend the of role of microbial agents in health and disease.
- iii. Correlate the natural history, mechanisms and clinical manifestations of infectious diseases as they relate to the properties of microbial agents.
- iv. Comprehend the principles and application of infection control measures.
- v. Comprehend the basis of choice of laboratory diagnostic tests and their interpretation.
- vi. Comprehend the principles of antimicrobial therapy and the control and prevention of infectious diseases.
- vii. Comprehend the mechanisms of antimicrobial resistance (AMR) and its prevention along with concept and application of the antimicrobial stewardship program.
- viii. Demonstrate the knowledge of outbreak investigation and its control.
- ix. Describe commensals, opportunistic and pathogenic organisms and explain host parasite relationship.

- x. Describe the characteristics (morphology, cultural characteristics, resistance, virulence factors, incubation period, mode of transmission etc.) of different microorganisms.
- xi. Explain the various defense mechanisms of the host against the microorganisms which can cause human infection.
- xii. Describe the laboratory diagnosis of microorganisms causing human infections and disease.
- xiii. Describe the prophylaxis for the particular infecting microorganisms.
- xiv. Operate routine and sophisticated instruments in the laboratory.
- xv. Demonstrate respect for patient samples, confidentiality pertaining to patient identity in laboratory results and effective communication skills in patient care.

B. Distribution of Microbiology subject Hours and Competencies

Subjects	Large group teaching	SGT/ Practicals/ Tutorials/ Seminars	Clinical Postings*	SDL	Total
Microbiology	75	143	-	10	228

SGT: Small group teaching SDL: Self-directed learning

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
MICROBIOLOGY (Topics = 11, Competencies = 74)							
Topic 1: General Microbiology, Ethics & Communication		Number of competencies: (13)		Number of competencies that require certification: (02)			
MI 1.1	Discuss notable historical events, scientific developments and contributions of key scientists in the evolution of medical microbiology. Discuss the role of microbes in health and disease	K	K	N	LGT	Written assessment, Viva Voce	-
MI 1.2	Describe basic morphology, physiology/characteristics, classification and common infections /diseases caused by bacteria, viruses, fungi and parasites.	K	KH	Y	LGT	Written assessment, Viva Voce	
MI 1.3	Describe the basic principles of molecular biology and the concept and significance of studying molecular genetics. Discuss molecular techniques applied to disease diagnosis in clinical microbiology.	K	KH	Y	LGT	Written assessment, Viva Voce	
MI 1.4	Describe the laboratory methods used to detect causative agents of infectious diseases.	K	KH	Y	LGT	Written assessment, Viva Voce	
MI 1.5	Discuss the appropriate method of collecting and transporting samples to detect microbial agents, including instructions to be given to patients before sample collection.	K	KH	Y	LGT/ SGT	Written assessment, Viva Voce	
MI 1.6	Demonstrate the appropriate method of collection and transport of samples for the detection of microbial agents including instructions to be given to patients before sample collection.	S	SH	Y	DOAP, Role play	Practical exercises /OSPE	3
MI 1.7	Discuss the attitude & behaviors that portray respect & demonstrate respect for patient samples sent to the laboratory for performance of laboratory tests in the detection of microbial agents causing Infectious diseases	A	SH	Y	SGT, Role play	Observation, Viva Voce, Scenario based questions	

MI 1.8	Discuss and demonstrate effective communication skills with patients, relatives and clinicians during sample collection and pre/posttest counseling	C	SH	Y	Role play	OSPE, Observation, Scenario based questions	
MI 1.9	Discuss & demonstrate confidentiality pertaining to patient identity in a laboratory results	A	SH	Y	SGT, Role play	Scenario based questions, Viva Voce	
MI 1.10	Perform Gram stain, ZN stain, and routine stool examination to identify the different causative agents of infectious diseases from the clinical specimen	S	P	Y	DOAP	Practicals/OSPE	3 for each procedure
MI 1.11	Describe the epidemiological basis of infectious diseases and their application.	K	KH	Y	LGT	Written assessment, Viva Voce	
MI 1.12	Classify and describe the different methods of sterilization and disinfection. Discuss the mechanism of action, application and quality control of different methods in the laboratory and in clinical and surgical practices.	K	KH	Y	LGT SGT	Written assessment, Case discussion exercise, Case based MCQ, Viva Voce	
MI 1.13	Choose the most appropriate method of sterilization and disinfection to be used in specific situations in the laboratory, in clinical and surgical practice.	K	KH	Y	SGT, Case discussion	Written assessment/Viva voce/	
Topic 2 : Basic Immunology & Immunological disorders		Number of competencies: (08)			Number of competencies that require certification: (NIL)		
MI 2.1	Explain the role of immunological mechanisms in health and disease (innate and acquired immunity).	K	KH	Y	LGT	Written assessment, Case based MCQ, Viva Voce	
MI 2.2	Describe the structure and functions of immune system and its components (antigens, antibodies and complement systems).	K	KH	Y	LGT SGT	Written assessment, Case based MCQ, Viva Voce	
MI 2.3	Describe the host immune responses in Microbial infections (humoral and cellular immune response).	K	KH	Y	LGT SGT	Written assessment, Case based MCQ, Viva Voce	
MI 2.4	Explain the immune response in different types of infections (bacterial, mycobacterial, viral, fungal and parasitic infections)	K	KH	Y	LGT SGT	Written assessment, Case based MCQ, Viva Voce	

MI 2.5	Discuss the principles and applications of laboratory tests used in diagnostic microbiology based on the host's immune response.	K	KH	Y	LGT SGT	Written assessment, Case based MCQ, Viva Voce	
MI 2.6	Discuss the immunological basis of disease prevention through active and passive immune prophylaxis. Discuss the importance of herd immunity in prevention and control of infectious disease in community.	K	KH	Y	LGT SGT	Written assessment, Case based MCQ, Viva Voce	
MI 2.7	Describe the immunological mechanisms in immunological disorders (hypersensitivity, autoimmune disorders and immunodeficiency states) and discuss the laboratory methods used in their detection.	K	KH	Y	LGT SGT	Written assessment, Case based MCQ, Viva Voce	
MI 2.8	Describe the immunological mechanisms involved in transplantation, tumour immunity and their applications in disease management.	K	KH	N	LGT, SDL`	MCQ, Viva Voce	
Topic 3: CVS and Blood		Number of competencies: (13)			Number of competencies that require certification: (1)		
MI 3.1	Describe the etiopathogenesis, clinical features, complications/sequelae and laboratory diagnosis of rheumatic fever.	K	KH	Y	LGT SGT, Case-based discussion	Written/ Viva voce	
MI3.2	Describe the classification etio-pathogenesis, clinical features of Infective endocarditis (IE).	K	KH	Y	LGT, SGT, Case based discussion	Written/ Viva voce	
MI 3.3	Discuss the diagnostic modalities of IE available with special emphasis on concept of sepsis and blood culture collection & processing.	K	KH	Y	LGT, SGT , Case based discussion	Written/ Viva voce	2
MI 3.4	Diagnose a clinically suspected case of rheumatic fever/IE based on the findings of various microscopic, serological and culture investigations.	K	KH	Y	LGT, SGT, Case based discussion	Case based exercise, Case based MCQ, Viva voce	
MI 3.5	Define & describe types of Pyrexia of unknown origin (PUO). Discuss the etiopathogenesis and diagnostic modalities available to rule out infective causes of PUO.	K	KH	Y	LGT, SDL, SGT , Case-based discussion	Written assessment/ Viva voce	
MI 3.6	Classify & describe the enteric fever pathogens. Discuss the evolution of the clinical course, pathogenesis, complications, laboratory diagnosis and prevention of enteric fever.	K	KH	Y	LGT. SGT, Case-based discussion	Case based exercise, Written assessment, Case based MCQ, Viva voce	

MI 3.7	Choose the most appropriate laboratory test in a suspected case of enteric fever based on the duration of illness and in a suspected case of carrier.	K	KH	Y	Interpretational exercises (Practicals)	Case based exercise, Case based MCQ, interpretational exercise, Viva Voce	
MI 3.8	Read and interpret the results of various laboratory investigations in a suspected case of enteric fever with special emphasis on serological test results.	K	KH	Y	Interpretational exercises (Practicals)	Case discussion exercise, Case based MCQ, interpretation exercise, Viva Voce	
MI 3.9	Enumerate the common infective causes of anaemia and describe the mechanisms involved in causing anaemia by them.	K	KH	Y	LGT	Written assessment	
MI 3.10	Describe the morphology, life cycle, pathogenesis, laboratory diagnosis, prevention and control of the common parasites causing anaemia.	K	KH	Y	LGT	Written assessment, Case based exercise, Case based MCQ, Viva Voce	
MI 3.11	Describe the morphology, life cycle, pathogenesis, clinical presentation, laboratory diagnosis and prevention of hemoparasites commonly prevalent in India (e.g. causing kala-azar, malaria, filariasis etc.)	K	KH	Y	LGT, SGT, SDL	Written assessment, Case discussion exercise, Case based MCQ, Viva Voce	
MI 3.12	Differentiate agents of malignant malaria from agents of benign malaria reported in peripheral blood smear examination/ serology and explain its clinical significance.	K,	KH	Y	Case-based discussion with reports (Practicals)	Interpretational exercise, Case based exercise, Case based MCQ, Viva Voce	
MI 3.13	Describe the epidemiology, the etio- pathogenesis, evolution complications, opportunistic infections, diagnosis, prevention and the principles of management of HIV	K	KH	Y	LGT, SDL	Written assessment, Case based MCQ, Viva Voce	
Topic 4: Gastrointestinal and Hepatobiliary system		Number of competencies:(09)			Number of competencies that require certification:(01)		
MI 4.1	Define and differentiate between diarrhea, dysentery and food poisoning. Enumerate the microbial agents causing them.	K	KH	Y	LGT	Written assessment, Case based MCQ, Viva Voce	

MI 4.2	Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of bacterial, viral, parasitic and fungal agents causing diarrhoea.	K	KH	Y	LGT	Written assessment, Case based MCQ, Viva Voce	
MI 4.3	Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of bacterial, viral, parasitic and fungal agents causing dysentery	K	KH	Y	LGT with case discussions	Written assessment, Case based MCQ, Viva Voce	
MI 4.4	Identify the common etiologic agents of diarrhoea and dysentery by stool microscopic examination.	S	SH	Y	DOAP (Practicals)	Interpretational exercises /practical exercise	3
MI 4.5	Enumerate the bacterial, viral, parasitic and fungal agents of food poisoning and discuss their pathogenesis, clinical course and laboratory diagnosis.	K	KH	Y	LGT with case discussion , SGT	Written assessment, Case based MCQ, Viva Voce	
MI 4.6	Describe the infective aetiology, pathogenesis and clinical course of Acid peptic disease (APD) and Discuss the laboratory diagnosis and management of the causative agent of APD.	K	KH	Y	LGT with case discussion, SDL	Written assessment, Case based MCQ, Viva Voce	
MI 4.7	Describe the epidemiology, etiopathogenesis, clinical features and complications of viral hepatitis.	K	KH	Y	LGT with case / clinical report discussion	Written assessment, Case based MCQ, Viva Voce	
MI 4.8	Discuss the modalities in laboratory diagnosis, with special emphasis on viral markers and preventive strategies for viral hepatitis caused by hepatitis viruses.	K	KH	Y	LGT with case / clinical report discussion	Written assessment, Case based MCQ, Viva Voce	
MI 4.9	Suggest the most appropriate laboratory test based on history and clinical presentation in a suspected case of viral hepatitis and interpret the type and progress of viral hepatitis based on the laboratory report of viral markers in a case of infection by hepatitis virus.	K	KH	Y	SDL, SGT with case / clinical report discussion	Written assessment, Case based MCQ, Viva Voce	
Topic 5: Musculoskeletal system, Skin and Soft tissue infections		Number of competencies: (05)			Number of competencies that require certification: (NIL)		
MI 5.1	Enumerate the microbial agents causing anaerobic infections. Describe the pathogenesis, clinical course and the laboratory diagnosis of anaerobic infections.	K	KH	Y	LGT with case discussion	Written assessment, Case based MCQ, Viva Voce	
MI 5.2	Explain the etiopathogenesis, clinical course & laboratory diagnosis of bone & joint infections caused by bacterial, fungal, viral and parasitic agents.	K	KH	Y	LGT with case discussion	Written assessment, Case based MCQ, Viva Voce	

MI 5.3	Explain the etiopathogenesis, clinical course and the laboratory diagnosis of skin and soft tissue infections caused by bacterial, fungal, viral and parasitic agents.	K	KH	Y	LGT with case discussion SGT	Written assessment, Case based MCQ, Viva Voce	
MI 5.4	Differentiate between infective and non-infective lesions in the skin. Enlist microbes causing systemic disease with involvement of skin.	K	KH	N	LGT	Written assessment, Viva voce	
MI 5.5	Describe the etiopathogenesis, clinical course, complications and laboratory diagnosis of mycobacterial infections involving skin & soft tissue with special emphasis on sample collection from/of skin	K	KH	Y	LGT, SGT, SDL	Written assessment	
Topic 6 : Central Nervous System infections		Number of competencies: (03)			Number of competencies that require certification: (NIL)		
MI 6.1	Enumerate the microbial agents causing meningitis. Explain the pathogenesis, clinical course and laboratory diagnosis of meningitis caused by bacterial, fungal, viral and parasitic agents.	K	KH	Y	LGT with case discussion SGT	Written assessment, Case based MCQ, Viva Voce	
MI 6.2	Enumerate the microbial agents causing encephalitis Explain the pathogenesis, clinical course and laboratory diagnosis of encephalitis caused by bacterial, fungal, viral and parasitic agents.	K	KH	Y	LGT with case discussion SGT, SDL	Written assessment, Case based MCQ, Viva Voce	
MI 6.3	Identify the microbial agents causing meningitis from a Gram stained given smear. Read & Interpret the microscopic findings and culture report of CSF to diagnose a case of bacterial, viral, fungal or parasitic infection in CNS	K	KH	Y	SGT	Written assessment, Case based MCQ, Viva Voce, OSCE	
Topic 7: Respiratory tract infections		Number of competencies: (05)			Number of competencies/ skills that require certification: (02)		
MI 7.1	Explain the etiopathogenesis, laboratory diagnosis and prevention of Infections of the upper respiratory tract caused by bacterial, viral, fungal and parasitic agents.	K	KH	Y	LGT with case discussion SGT	Written assessment, Case based MCQ, Viva Voce	
MI 7.2	Explain the etiopathogenesis, laboratory diagnosis and prevention of Infections of the lower respiratory tract caused by bacterial, mycobacterial, viral, fungal and parasitic agents.	K	KH	Y	LGT with case discussion SGT	Written assessment, Case based MCQ, Viva Voce	
MI 7.3	Enlist & identify the etiological agents of lower respiratory infection in specific situations like age, immune status, community-acquired pneumonia, hospital-acquired pneumonia etc	K	KH	Y	LGT with case discussion , SGT	Written assessment, Case based MCQ, Viva Voce	
MI 7.4	Identify the common etiologic agents of upper respiratory tract infections in a Gram Stain/ Albert stained smear of throat swab and correlate with the clinical findings provided.	S	P	Y	DOAP Practicals	OSPE, Clinical case based exercises	3

MI 7.5	Identify the common etiologic agents of lower respiratory tract infections in a provided Gram Stained & Acid fast stained smear of sputum/BAL/tracheal aspirate and correlate with the clinical findings provided	S	P	Y	DOAP Practicals	OSPE, Clinical case based exercises	3
Topic:8 Genitourinary and Sexually Transmitted Infections		Number of competencies: (04)			Number of competencies that require certification: (NIL)		
MI 8.1	Describe the etiopathogenesis and discuss the laboratory diagnosis of common bacterial, viral, fungal and parasitic infections of the genitourinary system	K	KH	Y	LGT/ SGT	Written assessment, Viva voce	-
MI 8.2	Enlist common sexually transmitted infections (STI). Explain the pathogenesis, laboratory diagnosis and prevention of common bacterial and viral sexually transmitted infections.	K	KH	Y	LGT/ SGT	Written assessment, Viva Voce	
MI 8.	Explain the concept and utility of Syndromic management of STI.	K	KH	Y	SDL/ SGT	Written assessment, Viva voce	
MI 8.4	Explain etiopathogenesis, clinical course, and the appropriate method for specimen collection, and discuss the laboratory diagnosis of different clinical and epidemiological types of urinary tract infections.	K	KH	Y	LGT/ SGT	Written assessment, Viva voce	
Topic 9: Zoonotic diseases and Miscellaneous		Number of competencies: (06)			Number of competencies that require certification: (NIL)		
MI 9.1	Define and classify Zoonotic infections. Explain etio-pathogenesis, vectors, clinical course, transmission, risk factors, laboratory diagnosis, and preventive & control strategies of different zoonotic infections caused by bacterial, viral, fungal and parasitic agents.	K	KH	Y	LGT/ SGT	Written assessment, Viva voce	
MI 9.2	Describe the etiopathogenesis and laboratory diagnosis of opportunistic infections(OI) along with factors predisposing to the development of OI by bacterial, viral, fungal and parasitic agents.	K	KH	Y	LGT, SGT	Written assessment, Viva voce	
MI 9.3	Choose the most suitable microbiological investigation in a given clinical situation and Interpret the results of the laboratory tests for the diagnosis of the infectious disease	K	SH	Y	Case based exercise, SGT	Cased based exercises, Case based MCQ	
MI 9.4	Describe the etiopathogenesis of infective causes of malignancy and explain the mechanisms used by oncogenic viruses in the development of virus-associated malignancies, along with their preventive measures.	K	KH	Y	LGT SGT	Written assessment, Viva voce	

MI 9.5	Describe the concept of emerging & re-emerging Infectious diseases. Explain the factors responsible for emergence and re-emergence of these disease and strategies for their prevention and control.	K	KH	Y	LGT, small group discussion, SDL	Written assessment, Viva voce	
MI 9.6	Describe the National Health Programs in the prevention of common infectious diseases and discuss the National reference centres for disease diagnosis and control	K	K	N	LGT	Written assessment, Viva voce	
Topic 10: Healthcare-associated infections (HAI)		Number of competencies: (05)			Number of competencies that require certification: (01)		
MI 10.1	Enumerate different causative agents and the types of Healthcare-Associated Infections (HAI). Define HAI and describe the chain of transmission and its role in preventing HAI.	K	K	Y	LGTs, SGT	Written assessment, Viva voce	
MI 10.2	Describe the standard & transmission based precautions for infection control and the role of the hospital infection control committee (HICC) in the prevention of HAI.	K	KH	Y	LGTs, SGT	MCQ, viva voce	
MI 10.3	Demonstrate hand washing, donning- doffing of PPE and segregation of Biomedical waste	S	SH	Y	DOAP, Role-play, SGT, Practicals	OSPE, Direct Observation with checklist	3 each
MI 10.4	Describe the methods used and significance of assessing the microbial contamination of food, water and air (in hospital surveillance)	K	KH	N	Interactive LGTs	Written assessment, MCQ, Viva Voce	
MI 10.5	Describe the commonly detected drug-resistant microbes in HAI. Explain the mechanism of evolution, spread, and control of antimicrobial drug resistance in hospitalized patients.	K	KH	Y	LGT, SGT	Written assessment, MCQ, Viva Voce	
Topic 11: Antimicrobial resistance (AMR) & Antimicrobial Stewardship (AMSP)		Number of competencies: (03)			Number of competencies that require certification: (Nil)		
MI 11.1	Describe the genotypic & phenotypic mechanisms of antimicrobial drug resistance and the methods of antimicrobial susceptibility testing, along with interpretation of the antimicrobial susceptibility testing report	K	KH	Y	LGT, SGT	Written assessment, MCQ, Viva Voce, Interpretational exercise	
MI 11.2	Explain intrinsic & acquired drug resistance along with the antimicrobial spectrum of important human pathogens and its application in clinical therapy.	K	KH	Y	LGT, SGT	Written assessment, MCQ, Viva Voce	
MI 11.3	Explain the concept and application of the antimicrobial stewardship program including rational antimicrobial prescription and your role in its implementation.	K	KH	Y	LGT, SGT	Written assessment, MCQ, Viva Voce	

AETCOM PhaseII		
Paper	Module number	Hours
Microbiology Paper 1	2.1	5 Hrs
Microbiology Paper 2	2.8	6 Hrs

C. Marks distribution for Microbiology for University Annual Examinations

Phase-IIMBBS	Theory	Practicals
Microbiology-2 papers	Paper 1-100	100
	Paper 2-100	

Criteria for passing in a subject: A candidate shall obtain a cumulative 50% marks in University conducted examination including theory and practical and not less than 40% separately in Theory and in Practical in order to be declared as passed in that subject. **In subjects that have two papers, the learner must secure a minimum 40% marks in aggregate (both theory papers together).**

Annexure 11- Phase II Alignment

	Pathology	Microbiology	Pharmacology
1 st month	Gen. Path	Gen. Micro, Communication and Ethics(14 competencies)	Gen. Pharm
2 nd month	Gen. Path	Gen. Micro, Communication and Ethics(14 competencies)	Gen. Pharm
3 rd month	Inflammation Immunology HIV	Immunology and Immunological Disorders (8 competencies)	(ANS/PNS) NSAIDs
4 th month	Immunology	Immunology and Immunological Disorders	Immunosuppressants CVS
	CVS	CVS & Bloodstream infections (1.5 months)	
1st Internal Assessment			
5 th month	CVS Hematology	CVS & Bloodstream infections (1.5 months)	CVS Blood
6 th month	Respiratory System (2-3 weeks)	Respiratory System (2.5 weeks) Tb	Chemo
7 th month	Respiratory system	CNS 1.5 weeks	Respiratory System TB (7 hours)
	CNS 2 hours Kidney		CNS 4weeks
2nd Internal Assessment			
8 th month	Kidney Genito-urinary 2 weeks	Genito-urinary and STI 2 wks GIT Hepatobiliary	Chemotherapy
9 th month	GIT Hepatobiliary	GIT Hepatobiliary	GIT
10 th month	Bone Breast Skin, eye, joints Endocrine	Musculoskeletal system, Skin and Soft Tissue Infections (2 weeks) Zoonotic & Miscellaneous Infections (2 weeks) HAI and Antimicrobial Stewardship Hospital Infection Control	Drugs on skin, ocular Endocrine
3rd Internal Assessment/ Pre University			
11 th month	Phase 2 University Exam		

E. Internal Assessment (IA): (Out of 100 for Theory and 100 for Practical)

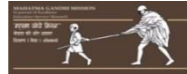
Internal assessment shall be based on day-to-day assessment. It shall relate to different ways in which learners participate in the learning process including assignments, preparation for seminar, clinical case presentation, preparation of clinical case for discussion, clinical case study/ problem solving exercise, participation in project for health care in the community.

F. ATTENDANCE CRITERIA

- There shall be a minimum of 75% attendance in theory and 80% attendance in practical /clinical for eligibility to appear for the examinations in that subject.
- There shall be a minimum of 75% attendance in AETCOM
- Learners who do not have at least 75% attendance in the electives will not be eligible for the Third Professional - Part II examination/ NEXT.
- The student will be allowed remedial measures only if attendance is more than 60% for each component.

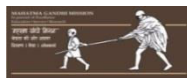
Resolution No. 4.22 of Academic Council (AC-51/2025):

Resolved to adopt the NMC new competencies for UG MBBS Pathology, Pharmacology, **Microbiology** and FMT (teaching hours in 2nd & 3rd year) Admission batch 2024 [ANNEXURE-44A, 44B, **44C**, 44D1 & 44D2].



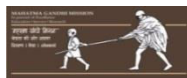
MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

GENERAL MICROBIOLOGY [LECTURES : 16 , AIT: 1,SGT 5, ROLE PLAY: 1,SEM : 3, DOAP : 08]		
SUGGESTED TEACHING LEARNING METHOD	COMPETENCY	NAME OF TOPIC
L1	MI 1.1 Discuss notable historical events, scientific developments and contributions of key scientists in the evolution of medical microbiology. Discuss the role of microbes in health and disease	History of Microbiology
L2	MI 1.2 Describe basic morphology, physiology/characteristics, classification and common infections/diseases caused by bacteria, viruses, fungi and parasites.	Bacterial Morphology
DOAP 1	MI 1.2 Describe basic morphology, physiology/characteristics, classification and common infections/diseases caused by bacteria, viruses, fungi and parasites.	Morphology of Bacteria Overview of lab diagnosis of bacterial infection
L3	MI 1.2 Describe basic morphology, physiology/characteristics, classification and common infections/diseases caused by bacteria, viruses, fungi and parasites.	Physiology and Metabolism of bacteria
L4	MI 1.2 Describe basic morphology, physiology/characteristics, classification and common infections/diseases caused by bacteria, viruses, fungi and parasites.	Culture Methods including methods of anaerobiosis
L5	MI 1.2 Describe basic morphology, physiology/characteristics, classification and common infections/diseases caused by bacteria, viruses, fungi and parasites.	General Virology I
L6	MI 1.2 Describe basic morphology, physiology/characteristics, classification and common infections/diseases caused by bacteria, viruses, fungi and parasites.	General Virology II
L7	MI 1.2 Describe basic morphology, physiology/characteristics, classification	General Parasitology I



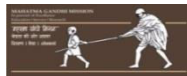
MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

	and common infections/diseases caused by bacteria, viruses, fungi and parasites.	
L8	MI 1.2 Describe basic morphology, physiology/characteristics, classification and common infections/diseases caused by bacteria, viruses, fungi and parasites.	General Parasitology II
L9	MI 1.2 Describe basic morphology, physiology/characteristics, classification and common infections/diseases caused by bacteria, viruses, fungi and parasites.	General Mycology
L10	MI 1.3 Describe the basic principles of molecular biology and the concept and significance of studying molecular genetics. Discuss molecular techniques applied to disease diagnosis in clinical microbiology.	Bacterial Genetics 1
L11	MI 1.3 Describe the basic principles of molecular biology and the concept and significance of studying molecular genetics. Discuss molecular techniques applied to disease diagnosis in clinical microbiology.	Bacterial Genetics 2 and antimicrobial stewardship program [Bioethics]
SGT 1	MI 1.3 Describe the basic principles of molecular biology and the concept and significance of studying molecular genetics. Discuss molecular techniques applied to disease diagnosis in clinical microbiology.	Minimization of drug resistance & antibiotic policy [Bioethics]
SGT 2	MI 1.4 Describe the laboratory methods used to detect causative agents of Infectious diseases.	Culture Medias
SGT 3	MI 1.4 Describe the laboratory methods used to detect causative agents of Infectious diseases.	Biochemical
L12	MI 1.4 Describe the laboratory methods used to detect causative agents of Infectious diseases.	Laboratory methods for identification of bacteria
DOAP 2	MI 1.4 Describe the laboratory methods used to detect causative agents of Infectious diseases.	Culture Medias and Biochemical's
SGT 4	MI 1.5	Collection & transport of samples



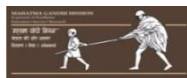
MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

	Discuss the appropriate method of collecting and transporting samples to detect microbial agents, including instructions to be given to patients before sample collection.	
DOAP 3	MI 1.6 Demonstrate the appropriate method of collection and transport of samples for the detection of microbial agents including instructions to be given to patients before sample collection.	Diagnostic Microbiology : Collection & Transport of samples including instructions to be given to patients
SGT 5	MI 1.7 Discuss the attitude & behaviors that portray respect & demonstrate respect for patient samples sent to the laboratory for performance of laboratory tests in the detection of microbial agents causing Infectious diseases	Respect of patient samples [Bioethics]
Role Play 1	MI 1.8 Discuss and demonstrate effective communication skills with patients, relatives and clinicians during sample collection and pre/posttest counseling MI 1.9 Discuss & demonstrate confidentiality pertaining to patient identity in laboratory results	Communication skills during sample collection , HIV: Confidentiality pertaining to patient identity in laboratory results & Disclosure of laboratory report and pre & post test counseling [Bioethics]
DOAP 4	MI 1.10 Perform Gram stain, ZN stain, and routine stool examination to identify the different causative agents of infectious diseases from the clinical specimen	Microscopy, Micrometry
DOAP 5	MI 1.10 Perform Gram stain, ZN stain, and routine stool examination to identify the different causative agents of infectious diseases from the clinical specimen	Gram Staining
DOAP 6	MI 1.10 Perform Gram stain, ZN stain, and routine stool examination to identify the different causative agents of infectious diseases from the clinical specimen	ZN staining
DOAP 7	MI 1.10 Perform Gram stain, ZN stain, and routine stool examination to identify the different causative agents of infectious diseases from the clinical specimen	Stool Examination



MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

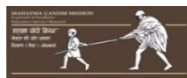
L13	MI 1.11 Describe the epidemiological basis of infectious diseases and their application.	Infection
L14	MI 1.12 Classify and describe the different methods of sterilization and disinfection. Discuss the mechanism of action, application and quality control of different methods in the laboratory and in clinical and surgical practices.	Sterilisation[Bioethics]
L15	MI 1.12 Classify and describe the different methods of sterilization and disinfection. Discuss the mechanism of action, application and quality control of different methods in the laboratory and in clinical and surgical practices.	Disinfection
DOAP 8	MI 1.12 Classify and describe the different methods of sterilization and disinfection. Discuss the mechanism of action, application and quality control of different methods in the laboratory and in clinical and surgical practices.	Sterilisation and Disinfection
AIT 1 (Nesting)	MI 1.13 Choose the most appropriate method of sterilization and disinfection to be used in specific situations in the laboratory, in clinical and surgical practice.	Disinfection including Case discussion (LAB, OT, OPD) VI: -/ GEN SURGERY
L16	MI 11.1 Describe the genotypic & phenotypic mechanisms of antimicrobial drug resistance and the methods of antimicrobial susceptibility testing, along with interpretation of the antimicrobial susceptibility testing report MI 11.2 Explain intrinsic & acquired drug resistance along with the antimicrobial spectrum of important human pathogens and its application in clinical therapy.	Methods of antimicrobial susceptibility testing , Mechanisms of drug resistance in bacteria and intrinsic resistance



MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

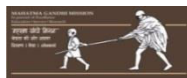
SEM 1	MI 1.2 Describe basic morphology, physiology/characteristics, classification and common infections/diseases caused by bacteria, viruses, fungi and parasites.	Bacteriophage
SEM 2	MI 1.2 Describe basic morphology, physiology/characteristics, classification and common infections/diseases caused by bacteria, viruses, fungi and parasites.	Cultivation of viruses
SEM 3	MI 1.11 Describe the epidemiological basis of infectious diseases and their application.	Normal Human Micro biota

IMMUNOLOGY [LECTURES : 13 ,DOAP : 01]		
SUGGESTED TEACHING LEARNING METHOD	COMPETENCY	NAME OF TOPIC
L1	MI 2.1 Explain the role of immunological mechanisms in health and disease (innate and acquired immunity).	Immunity
L2	MI 2.2 Describe the structure and functions of immune system and its components (antigens, antibodies and complement systems).	Antigen
L3	MI 2.2 Describe the structure and functions of immune system and its components (antigens, antibodies and complement systems).	Antibody



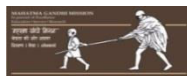
MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

L4	MI 2.2 Describe the structure and functions of immune system and its components (antigens, antibodies and complement systems).	Complement
L5	MI 2.2 Describe the structure and functions of immune system and its components (antigens, antibodies and complement systems).	Structure and Function of Immune System
L6	MI 2.3, Describe the host immune responses in Microbial infections (humoral and cellular immune response). MI 2.4 Explain the immune response in different types of infections (bacterial, mycobacterial, viral, fungal and parasitic infections)	AMI and CMI ,Immune AND Immune Response in different types of infection
L7	MI 2.5 Discuss the principles and applications of laboratory tests used in diagnostic microbiology based on the host's immune response.	Antigen -Antibody Reactions part I
L8	MI 2.5 Discuss the principles and applications of laboratory tests used in diagnostic microbiology based on the host's immune response.	Antigen -Antibody Reactions part II
DOAP 1	MI 2.5 Discuss the principles and applications of laboratory tests used in diagnostic microbiology based on the host's immune response.	Serological reactions : Choose & Interpret the results of laboratory tests used in diagnosis of the infectious disease
L9	MI 2.6 Discuss the immunological basis of disease prevention through active and passive immuneprophylaxis. Discuss the importance of herd Immunity in prevention and control of infectious disease in community	Immunoprophylaxis
L10	MI 2.7 Describe the Immunological Mechanisms In immunological disorders(hypersensitivity, autoimmune disorders and immunodeficiency states) and discuss the laboratory methods used in their detection.	Hypersensitivity
L11	MI 2.7 Describe the Immunological Mechanisms In immunological disorders (hypersensitivity, autoimmune disorders and	Autoimmunity



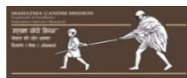
MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

	immunodeficiency states) and discuss the laboratory methods used in their detection.	
L12	MI 2.7 Describe the Immunological Mechanisms In immunological disorders (hypersensitivity, autoimmune disorders and immunodeficiency states) and discuss the laboratory methods used in their detection.	IDD and Tumour Immunity
L13	MI 2.8 Describe the immunological mechanisms involved in transplantation, tumor immunity and their applications in disease management.	Transplantation Immunity



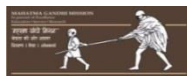
MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

CVS & BLOOD [LECTURES : 7 ,AIT: 4, SGT 3, SEM : 2, DOAP : 04]		
SUGGESTED TEACHING LEARNING METHOD	COMPETENCY	NAME OF TOPIC
AIT 1 (Nesting)	MI 3.1, Describe the etiopathogenesis, clinical features, complications/sequelae and laboratory diagnosis of rheumatic fever. MI 3.2, Describe the classification etio-pathogenesis, clinical features of Infective endocarditis (IE). MI 3.3, Discuss the diagnostic modalities of IE available with special emphasis on concept of sepsis and blood culture collection & processing. MI 3.4 Diagnose a clinically suspected case of rheumatic fever/IE based on the findings of various microscopic, serological and culture investigations.	Bacterial endocarditis and Rheumatic Fever including Case discussion HI/VI: Pathology / General Medicine
AIT 2 (Nesting)	MI 3.5 Define & describe types of Pyrexia of unknown origin (PUO). Discuss the etiopathogenesis and diagnostic modalities available to rule out Infective causes of PUO.	PUO including Case discussion VI: General Medicine



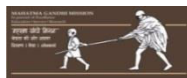
MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

SEM 1	<p>MI 3.1, Describe the etiopathogenesis, clinical features, complications/sequelae and laboratory diagnosis of rheumatic fever.</p> <p>MI 3.2, Describe the classification etio-pathogenesis, clinical features of Infective endocarditis(IE).</p> <p>MI 3.3, Discuss the diagnostic modalities of IE available with special emphasis on concept of sepsis and blood culture collection & processing.</p> <p>MI 3.4 Diagnose a clinically suspected case of rheumatic fever/IE based on the findings of various microscopic, serological and culture investigations</p>	<p>Bacterial endocarditis and Rheumatic Fever [Case discussion] HI/VI: Pathology / General Medicine</p>
L1	<p>MI 3.6 Classify & describe the enteric fever pathogens. Discuss the evolution of the clinical course, pathogenesis, complications, laboratory diagnosis and prevention of enteric fever.</p>	<p>Enteric Fever and Non typhoidal salmonella [Case discussion]</p>
DOAP 1	<p>MI 3.7 Choose the most appropriate laboratory test in a suspected case of enteric fever based on the duration of illness and in a suspected case of carrier.</p> <p>MI 3.8 Read and interpret the results of various laboratory investigations in a suspected case of enteric fever with special emphasis on serological test results.</p>	<p>Enteric Fever and Non typhoidal salmonella</p>
SGT 1	<p>MI 3.5 Define & describe types of Pyrexia of unknown origin (PUO). Discuss the etiopathogenesis and diagnostic modalities available to rule out Infective causes of PUO.</p>	<p>Leptospira and Borrelia</p>
SGT 2	<p>MI 3.5 Define & describe types of Pyrexia of unknown origin (PUO). Discuss the etiopathogenesis and diagnostic modalities available to rule out Infective causes of PUO.</p>	<p>Rickettsia</p>



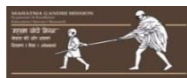
MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

SGT 3	MI 3.5 Define & describe types of Pyrexia of unknown origin (PUO). Discuss the etiopathogenesis and diagnostic modalities available to rule out Infective causes of PUO.	Brucella
L2	MI 3.9 Enumerate the common infective causes of anemia and describe the mechanisms involved in causing anemia by them. 3.10 Describe the morphology, lifecycle, pathogenesis, laboratory diagnosis, prevention and control of the common parasites causing anemia.	Anemia :Common parasites causing anemia: Hookworm ,Trichuris, Schistosoma sp, D. latum
DOAP 2	MI 3.9 Enumerate the common infective causes of anemia and describe the mechanisms involved in causing anemia by them. MI 3.10 Describe the morphology, lifecycle, pathogenesis, laboratory diagnosis, prevention and control of the common parasites causing anemia.	Common parasites causing anemia: Hookworm ,Trichuris, Schistosoma sp, D. latum
L3	MI 3.5 Define & describe types of Pyrexia of unknown origin (PUO). Discuss the etiopathogenesis and diagnostic modalities available to rule out Infective causes of PUO MI 6.2 Enumerate the microbial agents causing encephalitis Explain the pathogenesis, clinical course and laboratory diagnosis of encephalitis Caused by bacterial, fungal, viral and parasitic agents.	Enlist arboviruses . Enlist causative agents of viral hemorrhagic fever Dengue and Chickungunya
SEM 2	MI 3.5 Define & describe types of Pyrexia of unknown origin (PUO). Discuss the etiopathogenesis and diagnostic modalities available to rule out Infective causes of PUO MI 6.2 Enumerate the microbial agents causing encephalitis Explain the pathogenesis, clinical course and laboratory diagnosis of encephalitis Caused by bacterial, fungal, viral and parasitic agents.	Viral hemorrhagic fever



MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

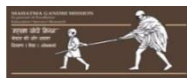
AIT 3 (Nesting)	MI 3.11 Describe the morphology, lifecycle, pathogenesis, clinical presentation, laboratory diagnosis and prevention of hemoparasites commonly prevalent in India (e.g. causing kala-azar, malaria, filariasis etc.) MI 3.12 Differentiate agents of malignant malaria from agents of benign malaria reported in peripheral blood smear examination/ serology and explain its clinical significance.	Malaria with Case discussion HI/VI: Pathology , General Medicine
L4	MI 3.11 Describe the morphology, lifecycle, pathogenesis, clinical presentation, laboratory diagnosis and prevention of hemoparasites commonly prevalent in India (e.g. causing kala-azar, malaria, filariasis etc.)	Trypanosoma
L5	MI 3.11 Describe the morphology, lifecycle, pathogenesis, clinical presentation, laboratory diagnosis and prevention of hemoparasites commonly prevalent in India (e.g. causing kala-azar, malaria, filariasis etc.)	Filaria
L6	MI 3.11 Describe the morphology, lifecycle, pathogenesis, clinical presentation, laboratory diagnosis and prevention of hemoparasites commonly prevalent in India (e.g. causing kala-azar, malaria, filariasis etc.)	Leishmania (Kala Azar)
DOAP 3	MI 3.12 Differentiate agents of malignant malaria from agents of benign malaria reported in peripheral blood smear examination/ serology and explain its clinical significance.	Malaria , Kala Azar, Schistosoma sp, Filaria
L7	MI 3.13 Describe the epidemiology, the pathogenesis, evolution complications, opportunistic infections, diagnosis, prevention and the principles of management of HIV	HIV & Post exposure prophylaxis
AIT 4 (Nesting)	MI 3.13 Describe the epidemiology, the pathogenesis, evolution	HIV HI/VI: Pathology , General Medicine



MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

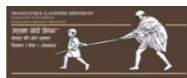
	complications, opportunistic infections, diagnosis, prevention and the principles of management of HIV	
DOAP 4	MI 3.13 Describe the epidemiology, the etiopathogenesis, evolution complications, opportunistic infections, diagnosis, prevention and the principles of management of HIV	HIV

RESPIRATORY TRACT INFECTIONS [LECTURES :10, AIT:1 ,SGT 1, SEM : 3 DOAP 04]		
SUGGESTED TEACHING LEARNING METHOD	COMPENCY	NAME OF TOPIC



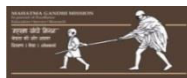
MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

L1	MI 7.1 Explain the etiopathogenesis, laboratory diagnosis and prevention of Infections of the upper respiratory tract caused by bacterial, viral, fungal and parasitic agents.	Streptococcus
L2	MI 7.2 Explain the etiopathogenesis, laboratory diagnosis and prevention of Infections of the lower respiratory tract caused by bacterial, mycobacterial, viral, fungal and parasitic agents.	Pneumococcus and Enterococcus
L3	MI 7.1 Explain the etiopathogenesis, laboratory diagnosis and prevention of Infections of the upper respiratory tract caused by bacterial, viral, fungal and parasitic agents.	C. Diphtheria [Case discussion]
L4	MI 7.3 Enlist & identify the etiological agents of lower respiratory infection in Specific situations like age, immunestatus, community-acquired pneumonia, hospital-acquired pneumonia etc	Pseudomonas
AIT 1 (Integration)	MI 7.2 Explain the etiopathogenesis, laboratory diagnosis and prevention of Infections of the lower respiratory tract caused by bacterial, mycobacterial, viral, fungal and parasitic agents.	M. Tuberculosis with Case discussion] HI/VI:, Pathology, General Medicine
L5	MI 7.2 Explain the etiopathogenesis, laboratory diagnosis and prevention of Infections of the lower respiratory tract caused by bacterial, mycobacterial, viral, fungal and parasitic agents.	Atypical Mycobacteria
L6	MI 7.2 Explain the etiopathogenesis, laboratory diagnosis and prevention of Infections of the lower respiratory tract caused by bacterial, mycobacterial, viral, fungal and parasitic agents.	Bordetella
L7	MI 7.2 Explain the etiopathogenesis, laboratory diagnosis and prevention of Infections of the lower respiratory tract caused by bacterial, mycobacterial, viral, fungal and parasitic agents.	Chlamydia
SGT 1	MI 7.2, Explain the etiopathogenesis, laboratory diagnosis and prevention of Infections of the lower respiratory tract caused by bacterial, mycobacterial, viral, fungal and parasitic agents.	Mycoplasma and Laboratory diagnosis of pneumonia [CAP & HAP] [Case discussion]



MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

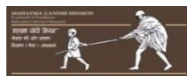
	MI 7.3 Enlist & identify the etiological agents of lower respiratory infection in Specific situations like age, immunestatus, community-acquired pneumonia, hospital-acquired pneumonia etc	
L8	MI 7.2 Explain the etiopathogenesis, laboratory diagnosis and prevention of Infections of the lower respiratory tract caused by bacterial, mycobacterial, viral, fungal and parasitic agents.	Orthomyxovirus
L9	MI 7.2 Explain the etiopathogenesis, laboratory diagnosis and prevention of Infections of the lower respiratory tract caused by bacterial, mycobacterial, viral, fungal and parasitic agents.	Paramyxovirus
L10	MI 7.2 Explain the etiopathogenesis, laboratory diagnosis and prevention of Infections of the lower respiratory tract caused by bacterial, mycobacterial, viral, fungal and parasitic agents.	Histoplasma and Other dimorphic fungi
DOAP 1	MI 7.4 Identify the common etiological agents of upper respiratory tract Infections in a Gram Stain/Albert stained smear of throat swab and correlate with the clinical findings provided. MI 7.5 Identify the common etiologic agents of lower respiratory tract infections in a provided Gram Stained & Acid fast stained smear of sputum/BAL/tracheal aspirate and correlate with the clinical findings provided	Streptococcus, Pneumococcus and Enterococcus
DOAP 2	MI 7.4 Identify the common etiological agents of upper respiratory tract Infections in a Gram Stain/Albert stained smear of throat swab and correlate with the clinical findings provided.	C diphtheriae , Gram staining
DOAP 3	MI 7.5 Identify the common etiologic agents of lower respiratory tract infections in a provided Gram Stained & Acid fast stained smear of	M tuberculosis and ZN staining



MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

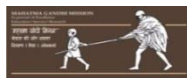
	sputum/BAL/tracheal aspirate and correlate with the clinical findings provided	
DOAP 4	MI 7.5 Identify the common etiologic agents of lower respiratory tract infections in a provided Gram Stained & Acid fast stained smear of sputum/BAL/tracheal aspirate and correlate with the clinical findings provided	Pseudomonas & Bordetella
SEM 1	MI 7.2 Explain the etiopathogenesis, laboratory diagnosis and prevention of Infections of the lower respiratory tract caused by bacterial, mycobacterial, viral, fungal and parasitic agents.	Legionella
SEM 2	MI 7.2 Explain the etiopathogenesis, laboratory diagnosis and prevention of Infections of the lower respiratory tract caused by bacterial, mycobacterial, viral, fungal and parasitic agents.	Adenovirus
SEM 3	MI 7.3 Enlist & identify the etiological agents of lower respiratory infection in Specific situations like age, immunestatus, community-acquired pneumonia, hospital-acquired pneumonia etc	Acinetobacter , Burkholderia

CENTRAL NERVOUS SYSTEM INFECTIONS [LECTURES 5 , AIT: 1, SGT 1, SEM 1, DOAP : 02]		
SUGGESTED TEACHING LEARNING METHOD	COMPETENCY	NAME OF TOPIC



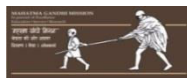
MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

AIT 1 (Nesting)	MI 6.1 Enumerate the microbial agents causing meningitis. Explain the pathogenesis, clinical course and laboratory diagnosis of meningitis Caused by bacterial, fungal, viral and parasitic agents.	Introduction of Central nervous system infections. Meningococcus and Meningitis with Case discussion] HI/VI: - Pathology / General Medicine & Pediatrics
L1	MI 6.1 Enumerate the microbial agents causing meningitis. Explain the pathogenesis, clinical course and laboratory diagnosis of meningitis Caused by bacterial, fungal, viral and parasitic agents.	H.influenzae
L2	MI 6.1 Enumerate the microbial agents causing meningitis. Explain the pathogenesis, clinical course and laboratory diagnosis of meningitis Caused by bacterial, fungal, viral and parasitic agents. MI 5.3	Cryptococcus and Candida
SGT1	MI 6.1 Enumerate the microbial agents causing meningitis. Explain the pathogenesis, clinical course and laboratory diagnosis of meningitis Caused by bacterial, fungal, viral and parasitic agents.	Free living amoeba
L3	MI 6.1 Enumerate the microbial agents causing meningitis. Explain the pathogenesis, clinical course and laboratory diagnosis of meningitis Caused by bacterial, fungal, viral and parasitic agents.	Toxoplasma
L4	MI 6.2 Enumerate the microbial agents causing encephalitis Explain the pathogenesis, clinical course and laboratory diagnosis of encephalitis caused by bacterial, fungal, viral and parasitic agents	Polio virus
L5	MI 6.2 Enumerate the microbial agents causing encephalitis Explain the pathogenesis, clinical course and laboratory diagnosis of encephalitis caused by bacterial, fungal, viral and parasitic agents	Rabies Virus [Case discussion]
DOAP 1	MI 6.3 Identify the microbial agents causing meningitis from a Gram stained given smear. Read & Interpret the microscopic findings and culture report of CSF to diagnose a case of bacterial, viral, fungal or parasitic Infection in CNS	Microbial agents causing meningitis



MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

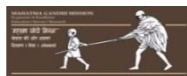
SEM 1	MI 6.2 Enumerate the microbial agents causing encephalitis Explain the pathogenesis, clinical course and laboratory diagnosis of encephalitis caused by bacterial, fungal, viral and parasitic agents	Slow Viral Diseases
DOAP 2	MI 6.1 Enumerate the microbial agents causing meningitis. Explain the pathogenesis, clinical course and laboratory diagnosis of meningitis Caused by bacterial, fungal, viral and parasitic agents. MI 5.3 Explain the etiopathogenesis, clinical course and the laboratory diagnosis of skin and soft tissue infections caused by bacterial, fungal, Viral and parasitic agents.	Cryptococcus and Candida
GENITOURINARY & SEXUALLY TRANSMITTED INFECTIONS [LECTURES 3, SGT 1, SEM 1, DOAP 02]		
SUGGESTED TEACHING LEARNING METHOD	COMPETENCY	NAME OF TOPIC
L1	MI 8.1 Describe the etiopathogenesis and discuss the laboratory diagnosis of common bacterial, viral, fungal and parasitic infections of the genitourinary system MI 8.2 Enlist common sexually transmitted infections (STI). Explain the pathogenesis, laboratory diagnosis and prevention of common bacterial and viral sexually transmitted infections.	Introduction to genitourinary tract infections, Gonococci and NGU
L2	MI 8.2 Enlist common sexually transmitted infections (STI). Explain the pathogenesis, laboratory diagnosis and prevention of common bacterial and viral sexually transmitted infections.	T pallidum
L3	MI 8.2, Enlist common sexually transmitted infections (STI). Explain the pathogenesis, laboratory diagnosis and prevention of common bacterial and viral sexually transmitted infections.	Sexually transmitted infections [STI] VI: Dermatology Dept



MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

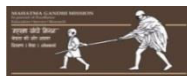
	MI 8.3 Explain the concept and utility of Syndromic management of STI.	
SGT 1	MI 8.4 Explain etiopathogenesis, clinical course, and the appropriate method for specimen collection, and discuss the laboratory diagnosis of different Clinical and epidemiological types of urinary tract infections.	Urinary tract infection [UTI]
DOAP 1	MI 8.1, Describe the etiopathogenesis and discuss the laboratory diagnosis of common bacterial, viral, fungal and parasitic infections of the genitourinary system MI 8.2 Enlist common sexually transmitted infections (STI). Explain the pathogenesis, laboratory diagnosis and prevention of common bacterial and viral sexually transmitted infections.	Gonococcus Gram Stain
DOAP2	MI 8.1, Describe the etiopathogenesis and discuss the laboratory diagnosis of common bacterial, viral, fungal and parasitic infections of the genitourinary system .	Spirochaetes
SEM 1	MI 8.2 Enlist common sexually transmitted infections (STI). Explain the pathogenesis, laboratory diagnosis and prevention of common bacterial and viral sexually transmitted infections	STIs

GASTROINTESTINAL & HEPATOBILIARY SYSTEM [LECTURES 8, AIT: 2, SGT 0 , SEM 2 , DOAP 06 ,SKILL SESSION1]		
SUGGESTED TEACHING	COMPETENCY	NAME OF TOPIC



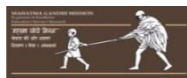
MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

LEARNING METHOD		
AIT 1 (Nesting)	<p>MI 4.1 Define and differentiate between diarrhea, dysentery and food poisoning. Enumerate the microbial agents causing them.</p> <p>MI 4.2, Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of bacterial, viral, parasitic and fungal agents causing diarrhoea.</p> <p>MI 4.3 Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of bacterial, viral, parasitic and fungal agents causing dysentery</p> <p>MI 4.5 Enumerate the bacterial, viral, parasitic and fungal agents of food poisoning and discuss their pathogenesis, clinical course and laboratory diagnosis.</p>	<p>Define and differentiate between diarrhea, dysentery and food poisoning Enumerate the microbial agents causing them. Food Poisoning in detail [Case Discussion] VI: - General Medicine</p>
L1	<p>MI 4.2 Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of bacterial, viral, parasitic and fungal agents causing diarrhoea.</p>	E coli , Proteus, Klebsiella
L2	<p>MI 4.3 Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of bacterial, viral, parasitic and fungal agents causing dysentery</p>	Shigella[Case Discussion]
DOAP 1	<p>MI 4.2 Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of bacterial, viral, parasitic and</p>	Enterobacteriaceae : E coli , Proteus, Klebsiella & shigella



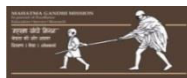
MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

	fungus agents causing diarrhoea.	
L3	MI 4.2 Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of bacterial, viral, parasitic and fungal agents causing diarrhoea.	Vibrio
DOAP 2	MI 4.2 Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of bacterial, viral, parasitic and fungal agents causing diarrhoea.	Vibrio & Stool examination Hanging drop preparation [Skill session]
L4	MI 4.2 Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of bacterial, viral, parasitic and fungal agents causing diarrhoea. MI 4.6 Describe the infective aetiology, pathogenesis and clinical course of Acid peptic disease (APD) and Discuss the laboratory diagnosis and Management of the causative agent of APD.	H.pylori[Case Discussion], Campylobacter and Cl.difficile
L5	MI 4.3 Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of bacterial, viral, parasitic and fungal agents causing dysentery	E. histolytica (Case Discussion)
L6	MI 4.2, Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of bacterial, viral, parasitic and fungal agents causing diarrhoea.	Cestodes
DOAP 3	MI 4.4 Identify the common etiologic agents of diarrhea and dysentery by stool microscopic examination.	Cestodes & Stool examination
DOAP 4	MI 4.4 Identify the common etiologic agents of diarrhea and dysentery by	Intestinal protozoa including intestinal flagellates



MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

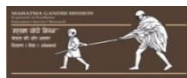
	stool microscopic examination.	
L7	MI 4.2 Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of bacterial, viral, parasitic and fungal agents causing diarrhoea.	Ascaris Vermicularis, Strongyloides
DOAP 5	MI 4.2 Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of bacterial, viral, parasitic and fungal agents causing diarrhoea.	Intestinal nematodes & Stool examination
AIT 2 (Nesting)	MI 4.7, Describe the epidemiology, etiopathogenesis, clinical features and complications of viral hepatitis. MI 4.8 Discuss the modalities in laboratory diagnosis, with special emphasis on viral markers and preventive strategies for viral hepatitis caused by Hepatitis viruses.	Hepatitis HI/VI: - Pathology / General Medicine
L8	MI 4.7, Describe the epidemiology, etiopathogenesis, clinical features and complications of viral hepatitis. MI 4.8 Discuss the modalities in laboratory diagnosis, with special emphasis on viral markers and preventive strategies for viral hepatitis caused by Hepatitis viruses.	Hepatitis [Case Discussion]
DOAP 6	MI 4.9 Suggest the most appropriate laboratory test based on history and clinical presentation in a suspected case of viral hepatitis and interpret the type and progress of viral hepatitis based on the laboratory report Of viral markers in a case of infection by hepatitis virus.	Hepatitis
SEM 1	MI 4.2 Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of bacterial, viral, parasitic and	Viral gastroenteritis



MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

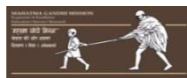
	fungus agents causing diarrhoea.	
SEM 2	<p>MI 4.2, Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of bacterial, viral, parasitic and fungal agents causing diarrhoea.</p> <p>MI 9.2 Describe the etiology, pathogenesis and laboratory diagnosis of opportunistic infections (OI) along with factors predisposing to the development of OI by bacterial, viral, fungal and parasitic agents.</p> <p>MI 9.3 Choose the most suitable microbiological investigation in a given clinical situation and interpret the results of the laboratory tests for the diagnosis of infectious disease.</p>	Giardia, Isospora, Cryptospora, Cyclospora

MUSCULOSKELETAL & SKIN AND SOFT TISSUE INFECTIONS [LECTURES 8, AIT: 0, SGT 3, SEM 1, DOAP 5, SKILL SESSION 1]		
SUGGESTED TEACHING LEARNING METHOD	COMPETENCY	NAME OF TOPIC
L1	MI 5.1 Enumerate the microbial agents causing anaerobic infections. Describe the pathogenesis, clinical course and the laboratory diagnosis of Anaerobic infections.	Cl. perfringens [Case discussion]



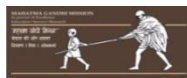
MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

L2	MI 5.1 Enumerate the microbial agents causing anaerobic infections. Describe the pathogenesis, clinical course and the laboratory diagnosis of Anaerobic infections	Cl.tetani and Cl.botulinum
DOAP 1	MI 5.1 Enumerate the microbial agents causing anaerobic infections. Describe the pathogenesis, clinical course and the laboratory diagnosis of Anaerobic infections	Clostridia
L3	MI 5.2 Explain the etiopathogenesis, clinical course & laboratory diagnosis of bone & joint infections caused by bacterial, fungal, viral and parasitic agents.	Staphylococcus [Case discussion]
SGT 1	MI 5.1 Enumerate the microbial agents causing anaerobic infections. Describe the pathogenesis, clinical course and the laboratory diagnosis of Anaerobic infections	Non sporing anaerobes
DOAP 2	MI 5.2 Explain the etiopathogenesis, clinical course & laboratory diagnosis of bone & joint infections caused by bacterial, fungal, viral and parasitic agents.	Staphylococcus (Demonstration of collection of swab from both nostrils Skill session)
L4	MI 5.3 Explain the etiopathogenesis, clinical course and the laboratory diagnosis of skin and soft tissue infections caused by bacterial, fungal, Viral and parasitic agents.	Dermatophytes
L5	MI 5.3 Explain the etiopathogenesis, clinical course and the laboratory diagnosis of skin and soft tissue infections caused by bacterial, fungal, Viral and parasitic agents.	Actinomycetes AND Nocardia
L6	MI 5.3	Miscellaneous Viral & Parasitic Skin &



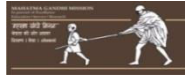
MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

	Explain the etiopathogenesis, clinical course and the laboratory diagnosis of skin and soft tissue infections caused by bacterial, fungal, Viral and parasitic agents.	Soft Tissue Infections: Pox virus, Molluscum contagiosum , Parvo virus, D. medinensis, Trichinella and larva migrans
L7	MI 5.4 Differentiate between infective and non-infective lesions in the skin. Enlist microbes causing systemic disease with involvement of skin. MI 5.5 Describe the etiopathogenesis, clinical course, complications and laboratory diagnosis of mycobacterial infections involving skin & soft Tissue with special emphasis on sample collection from/of skin	M leprosy
DOAP 3	MI 5.3, Explain the etiopathogenesis, clinical course and the laboratory diagnosis of skin and soft tissue infections caused by bacterial, fungal, Viral and parasitic agents. MI 5.4 Differentiate between infective and non-infective lesions in the skin. Enlist microbes causing systemic disease with involvement of skin. MI 5.5 Describe the etiopathogenesis, clinical course, complications and laboratory diagnosis of mycobacterial infections involving skin & soft Tissue with special emphasis on sample collection from/of skin	Actinomycetes , Nocardia
DOAP 4	MI 5.3, Explain the etiopathogenesis, clinical course and the laboratory diagnosis of skin and soft tissue infections caused by bacterial, fungal, Viral and parasitic agents. MI 5.4 Differentiate between infective and non-infective lesions in the skin. Enlist microbes causing systemic disease with involvement of skin. MI 5.5 Describe the etiopathogenesis, clinical course, complications and laboratory diagnosis of mycobacterial infections involving skin & soft	M leprae & ZN staining



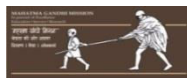
MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

	Tissue with special emphasis on sample collection from/of skin	
DOAP 5	MI 5.3 Explain the etiopathogenesis, clinical course and the laboratory diagnosis of skin and soft tissue infections caused by bacterial, fungal, Viral and parasitic agents.	Dermatophytes & Subcutaneous Mycosis
L8	MI 5.4, Differentiate between infective and non-infective lesions in the skin. Enlist microbes causing systemic disease with involvement of skin. MI 6.2 Enumerate the microbial agents causing encephalitis Explain the pathogenesis, clinical course and laboratory diagnosis of encephalitis caused by bacterial, fungal, viral and parasitic agents MI 8.2 Enlist common sexually transmitted infections (STI). Explain the pathogenesis, laboratory diagnosis and prevention of common bacterial and viral sexually transmitted infections. MI 9.2 Describe the etiopathogenesis and laboratory diagnosis of opportunistic infections (OI) along with factors predisposing to the development of OI by bacterial, viral, fungal and parasitic agents.	Herpes viruses
SGT2	MI 5.3 Explain the etiopathogenesis, clinical course and the laboratory diagnosis of skin and soft tissue infections caused by bacterial, fungal, Viral and parasitic agents.	Mycetoma and Subcutaneous Mycosis with Case discussion] VI: General surgery & Dermatology
SGT3	MI 5.3 Explain the etiopathogenesis, clinical course and the laboratory diagnosis of skin and soft tissue infections caused by bacterial, fungal, Viral and parasitic agents.	Bacillus anthracis VI: -/ General surgery & Dermatology
SEM 1	MI 5.3 Explain the etiopathogenesis, clinical course and the laboratory diagnosis of skin and soft tissue infections caused by bacterial, fungal, Viral and parasitic agents.	Pox Virus



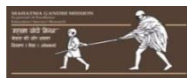
MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

ZOONOTIC DISEASES & MISCELLANEOUS TOPICS [LECTURES:3, AIT:1, SGT: 2, SEM 4,DOAP : 3]		
SUGGESTED TEACHING LEARNING	COMPETENCY	NAME OF TOPIC



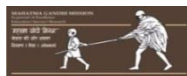
MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

METHOD		
L1	MI 9.1 Define and classify Zoonotic infections. Explain etio-pathogenesis, vectors, clinical course, transmission, risk factors, laboratory diagnosis, and preventive & control strategies of different Zoonotic infections Caused by bacterial, viral, fungal and parasitic agents.	Define Zoonoses & Classify Zoonotic diseases and Yersinia
SGT 1	MI 9.2 Describe the etiopathogenesis and laboratory diagnosis of opportunistic infections (OI) along with factors predisposing to the development of OI by bacterial, viral, fungal and parasitic agents. MI 9.3 Choose the most suitable microbiological investigation in a given clinical situation and Interpret the results of the laboratory tests for the diagnosis of the infectious disease	Opportunistic fungal infections
AIT 1 (Nesting)	MI 9.5 Describe the concept of emerging & re-emerging Infectious diseases. Explain the factors responsible for emergence and re-emergence of These disease and strategies for their prevention and control. MI 7.2 Explain the etiopathogenesis, laboratory diagnosis and prevention of Infections of the lower respiratory tract caused by bacterial mycobacterial, viral, fungal and parasitic agents.	Emerging & Reemerging infections and Covid 19 VI: - General Medicine & Community medicine
DOAP 1 Pan endemic Module 2 hr	MI 7.2. Explain the etiopathogenesis, laboratory diagnosis and prevention of Infections of the lower respiratory tract caused by bacterial mycobacterial, viral, fungal and parasitic agents. MI 1.6 Demonstrate the appropriate method of collection and transport of samples for the detection of microbial agents including instructions to be given to patients before sample collection.	Specimen, selection, collection, transportation & storage requirement during a pandemic, Sensitivity, specificity, positive predictive value & negative predictive value of each of the diagnostic test
DOAP 2 Pan endemic	MI 7.2 Explain the etiopathogenesis, laboratory diagnosis and prevention of Infections of the lower respiratory tract caused by bacterial	Covid 19 Visit to laboratory



MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

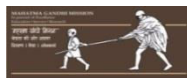
Module 2 hr	mycobacterial, viral, fungal and parasitic agents.	
L2	MI 9.4 Describe the etiopathogenesis of infective causes of malignancy and explain the mechanisms used by oncogenic viruses in the development Of virus-associated malignancies, along with their preventive measures.	Oncogenic Viruses
L3	MI 9.6 Describe the National Health Programs in the prevention of common infectious diseases and discuss the National reference centres for Disease diagnosis and control	National Health Programs in the prevention of common infectious disease and Universal Safety Principles [Bioethics]
SEM 1	MI 9.2 Describe the etiopathogenesis and laboratory diagnosis of opportunistic infections (OI) along with factors predisposing to the development of OI by bacterial, viral, fungal and parasitic agents.	Ocular infections
SEM2	MI 9.2 Describe the etiopathogenesis and laboratory diagnosis of opportunistic infections (OI) along with factors predisposing to the development of OI by bacterial, viral, fungal and parasitic agents.	Ear infection
SEM 3	MI 9.2 Describe the etiopathogenesis and laboratory diagnosis of opportunistic infections (OI) along with factors predisposing to the development of OI by bacterial, viral, fungal and parasitic agents.	Congenital infections
SEM 4	MI 7.2 Explain the etiopathogenesis, laboratory diagnosis and prevention of Infections of the lower respiratory tract caused by bacterial mycobacterial, viral, fungal and parasitic agents. MI 4.2 Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of bacterial, viral, parasitic and fungal agents causing diarrhoea.	All Flukes [Intestinal ,liver, lung and blood flukes]



MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

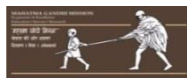
SGT 2	MI 9.1 Define and classify Zoonotic infections. Explain etio-pathogenesis, vectors, clinical course, transmission, risk factors, laboratory diagnosis, and preventive & control strategies of different Zoonotic infections Caused by bacterial, viral, fungal and parasitic agents.	Entomology
DOAP 3	MI 9.1 Define and classify Zoonotic infections. Explain etio-pathogenesis, vectors, clinical course, transmission, risk factors, laboratory diagnosis, and preventive & control strategies of different Zoonotic infections Caused by bacterial, viral, fungal and parasitic agents.	Entomology

HEALTHCARE ASSOCIATED INFECTIONS [LECTURES 2, AIT 0,SGT 0, SEM 2 ,DOAP : 4]		
SUGGESTED TEACHING LEARNING	COMPETENCY	NAME OF TOPIC



MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
Microbiology March 2025

METHOD		
DOAP1 Pan endemic Module 2 hr	MI 10.2 Describe the standard & transmission based precautions for infection control and the role of the hospital infection control committee (HICC) in the prevention of HAI.	Airborne and contact precautions including use of PPE Disinfection and antisepsis in patient care Roles and responsibilities of HIPC ,infection control team
DOAP2 Pan endemic Module	MI 10.2 Describe the standard & transmission based precautions for infection control and the role of the hospital infection control committee (HICC) in the prevention of HAI.	Identify the common etiologic agents of lower respiratory tract infections Visit to isolation ward /Video/Photo of isolation ward with discussion about the precaution. Debriefing and Feedback
L1	MI 10.1 Enumerate different causative agents and the types of Healthcare-Associated Infections (HAI). Define HAI and describe the chain of transmission and its role in preventing HAI. MI 10.2 Describe the standard & transmission based precautions for infection control and the role of the hospital infection control committee (HICC) in the prevention of HAI.	Basics of infection control ,HCAI Prevention , Transmission based precautions
L2 Pan endemic Module	MI 10.4 Describe the methods used and significance of assessing the microbial contamination of food, water and air (in hospital surveillance)	Microbiology of Food, water and Air
DOAP 3	MI 10.3 Demonstrate hand washing, donning-doffing of PPE and segregation of Biomedical waste	HCAI infection ,Donning & Doffing ,Hand Hygiene & PPE
DOAP 4 Pan endemic Module	MI 10.3 Demonstrate hand washing, donning-doffing of PPE and segregation of Biomedical waste	Biomedical waste Management

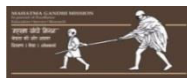


MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
BOS Microbiology March 2025
ANNEXURE 1

SEM 1	MI 10.2 Describe the standard & transmission based precautions for infection control and the role of the hospital infection control committee (HICC) in the prevention of HAI.	Standard precautions
SEM 2	MI 10.3 Demonstrate hand washing, donning-doffing of PPE and segregation of Biomedical waste	Biomedical waste Management

ANTIMICROBIAL RESISTANCE & ANTIMICROBIAL STEWARDSHIP PROGRAM LECTURES 0, INTEGRATION 0, SGT 0, SEM 1, DOAP : 0]		
SUGGESTED TEACHING LEARNING METHOD	COMPETENCY	NAME OF TOPIC
SEM 1	MI 11.3 Explain the concept and application of the antimicrobial stewardship program including rational antimicrobial prescription and your role in its implementation.	Antimicrobial Stewardship Program AMS

Abbreviation	Full form
L	Lecture
SGT	Small Group teaching



MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
BOS Microbiology March 2025
ANNEXURE 1

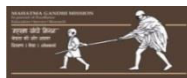
SEM	Seminar
AIT	Alignment Integration Teaching

Distribution of Microbiology subject Hours

Subjects	Large group teaching	SGT/ Practicals/ Tutorials/ Seminars	Clinical Postings*	SDL	Total
Microbiology	75	143	-	10	228

DISTRIBUTION OF 143 HOURS FOR SGT, DOAP, SEMINARS, INTEGRATIONS, ROLEPLAY, AETCOM

DOAP	84
SEMINARS	20
AIT (INTEGRATION)	01

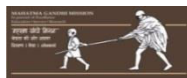


MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
BOS Microbiology March 2025
ANNEXURE 1

AIT (Nesting)	09
SGT	16
ROLEPLY	02
AETCOM	11
TOTAL	143

DISTRIBUTION OF TEACHING HOURS IN MICROBIOLOGY FOR II MBBS STUDENTS

TOPIC	DOAP NUMBER (DURATION IN HRS)	SGT DURATION IN HR	ROLE PLAY NUMBER (DURATION IN HRS)	SEMINAR (DURATION 1 HR)	LECTURES (DURATION 1 HR)	AIT Nesting (DURATION 1 HR)	AIT(INTEGRATION) (DURATION 1 HR)
GENERAL MICROBIOLOGY	8 (16)	5	1(2)	3	16	1	0
IMMUNOLOGY	1(2)	0		0	13	0	0
CVS AND BLOOD	4(8)	3		2	7	4	0
RESPIRATORY TRACT INFECTIONS	4(8)	1		3	10	0	1
CENTRAL NERVOUS SYSTEM INFECTIONS	2(4)	1		1	5	1	0
GENITOURINARY & SEXUALLY TRANSMITTED INFECTIONS	2(4)	2		1	3	0	0
GASTROINTESTINAL & HEPATOBILLIARY SYSTEM	6(12)	0		2	8	2	0
MUSCULOSKELETAL & SKIN AND	5(10)	3		1	8	0	0

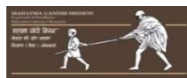


MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
BOS Microbiology March 2025
ANNEXURE 1

SOFT TISSUE INFECTIONS							
ZOONOTIC DISEASES & MISCELLANEOUS	3(6)	1		4	3	1	0
HEALTHCARE ASSOCIATED INFECTIONS	4(8)	0		2	2	0	0
ANTIMICROBIAL RESISTANCE & ANTIMICROBIAL STEWARDSHIP PROGRAM	0	0		1	0	0	0
REVISION	3(6)						0
TOTAL	42(84)	16	02	20	75	09	01

Self Directed Learning Topics:

SR NO	COMPETENCY	COMPETENCY
1	MI 2.5	ELISA test
2	M I 10.3	Hand Hygiene
3	MI 2.5 & MI 3.6	Widal test
4	MI 5.2&MI 10.3	MRSA Surveillance

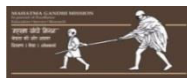


MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
BOS Microbiology March 2025
ANNEXURE 1

5	MI 3.11	Filaria
6	MI 4.2	Liver fluke
7	MI 5.3 & MI 9.2	Candida
8	MI 6.2	Rhabdovirus
9	MI 9.1	Plague
10	MI 10.2	Needle Stick Injury

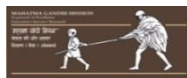
SGT TOPICS:

SR NO	COMPETANCY	TOPIC
1	MI 1.4	Culture Medias
2	MI 1.4	Biochemicals
3	MI 1.3	Minimization of drug resistance & antibiotic policy
4	MI 1.5	Collection & transport of samples



MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
BOS Microbiology March 2025
ANNEXURE 1

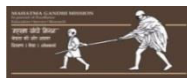
5	MI 1.7	Respect of patient samples
6	MI 3.5	Brucella
7	MI 3.5	Leptospira and Borrelia
8	MI 3.5	Rickettsia
9	MI 7.2& MI 7.3	Mycoplasma and Laboratory diagnosis of pneumonia [CAP & HAP]
10	MI 6.1	Free living amoeba
11	MI 8.4	Urinary tract infection [UTI]
12	MI 5.1	Non sporing anaerobes
13	MI 5.3	Bacillus anthracis
14	MI 5.3	Mycetoma & subcutaneous mycosis
15	MI 9.2 & MI 9.3	Opportunistic fungal infections
16	MI 9.1	Entomology



MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
BOS Microbiology March 2025
ANNEXURE 1

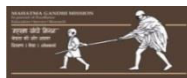
SEMINAR TOPICS:

SR NO	COMPETANCY	TOPIC
1	MI 1.6	General microbiology Bacteriophage
2	MI 1.2	General microbiology Cultivation of viruses
3	MI 1.11	General microbiology Normal Human Micro biota
4	MI 3.2, MI 3.3, MI 3.4	CVS & Blood Classification etio-pathogenesis, clinical features and discuss the diagnostic modalities of Infective endocarditis
5	MI 3.5 & MI 6.2	CVS & Blood Viral hemorrhagic fever
6	MI 4.2, MI 9.2, MI 9.3	Gastrointestinal & hepatobillary system Giardia, Isospora , Cryptospora , Cyclospora
7	MI 4.2	Gastrointestinal & hepatobillary system Viral gastroenteritis
8	MI 5.3	Musculoskeletal system , skin & soft tissue infections Pox Viruses



MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
BOS Microbiology March 2025
ANNEXURE 1

9	MI 6.2	Central nervous system infections Slow Viral Diseases
10	MI 7.2	Respiratory tract infections Legionella
11	MI 7.2	Respiratory tract infections Adenovirus
12	MI 7.3	Respiratory tract infections Acinetobacter , Burkholderia
13	MI 8.2	Genitourinary & sexually transmitted infections Vulvovaginitis
14	MI 9.2	Zoonotic diseases & miscellaneous topics Ocular infections
15	MI 9.2	Zoonotic diseases & miscellaneous topics Ear infection
16	MI 9.2	Zoonotic diseases & miscellaneous topics Congenital infections
17	MI 7.2 MI 4.2	Miscellaneous Topics All Flukes(Intestinal ,liver, lung and blood flukes)
18	MI 10.2	Zoonotic diseases & miscellaneous topics Standard precautions
19	MI 10.3	Biomedical waste management



MICROBIOLOGY DEPARTMENT
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
CBME CURRICULUM FOR II MBBS ADMISSION BATCH 2024,
BOS Microbiology March 2025
ANNEXURE 1

20	MI 11.3	Antimicrobial resistance & antimicrobial stewardship program Antimicrobial Stewardship Program

Resolution No. 4.21 of Academic Council (AC-51/2025):

Resolved to approve list of integrated topics from each subject (UG MBBS Pathology , Pharmacology **Microbiology** and FMT) Admission batch 2024. It was further resolved that these integrated topics need to be displayed on website and distributed to the students as they are part of theory and practical assessment [**ANNEXURE-43A, 43B, 43C, 43D & 43E**].

MICROBIOLOGY
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
INTEGRATION FOR II MBBS STUDENTS
ADMISSION BATCH 2024 (Phase 2 -2025)
Microbiology March 2025
Microbiology Topics for Alignment and Integration

A. Microbiology Integration topic:

Sr. No	COMPETANCY	TOPIC	Organising Department	Subtopics	Departments for Integration
1	MI 7.5	Tuberculosis (HI and VI)	Microbiology	Morphology, cultural characteristics and lab diagnosis of Pulmonary and EPTB Pathogenesis of Pulmonary and EPTB Management and drug resistance in TB and EPTB	Microbiology Pathology Respiratory Medicine/ General Medicine

B. MICROBIOLOGY NESTING/ SHARING TOPICS

Sr No	No of competency	Competency	Topic for Nesting	Sub –Topic needed	Departments for Sharing of PPTS
1	MI 1.13	Choose the most appropriate method of sterilization and disinfection to be used in specific situations in the laboratory, in clinical and surgical practice	Disinfection (Lab, OT, OPD) (Vertical)	Disinfection of LAB and OPD Disinfection of OT-	Microbiology General Surgery
2	MI 3.5	Define Healthcare Associated Infections (HAI) and enumerate the types. Discuss the factors that contribute to the development of HAI and the methods for prevention	PUO (Vertical)	Defination and etiology and lab diagnosis of PUO Management of PUO	Microbiology General Medicine
3	MI 3.1, MI 3.2,	Describe the etiologic agents in rheumatic fever and Bacterial endocarditis and their diagnosis	Causative agents of Rheumatic Fever and Bacterialendocar	Definition of Rheumatic fever and bacterial endocarditis, Etiology Lab diagnosis	Microbiology

MICROBIOLOGY
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
INTEGRATION FOR II MBBS STUDENTS
ADMISSION BATCH 2024 (Phase 2 -2025)
BOS Microbiology March 2025

ANNEXURE 2

	MI 3.3, MI 3.4		ditiisits diagnosis (Vertical and Horizontal)	Pathogenesis of Rheumatic fever and Bacterial endocarditis Management of Rheumatic Fever and Bacterial endocarditis	Pathology Gen Medicine
4	MI 3.11 & MI 3.12	Describe the etio- pathogenesis and discuss the clinical evolution and the laboratory diagnosis of kalaazar, malaria, filariasis and other common parasites prevalent in India	Malaria (Horizontal)	Morphology, etiology and Lab diagnosis Clinical Features and Pathogenesis of Malaria Anti malarials	Microbiology Pathology Pharmacology
5	MI 3.13	Describe the epidemiology, the etio- pathogenesis, evolution complications, opportunistic infections, diagnosis, prevention and the principles of management of HIV	HIV (Vertical and Horizontal)	Morphology, Antigenic structure, Opportunistic infections, Lab diagnosis of HIV Pathogenesis of HIV Management of HIV	Microbiology Pathology Gen Medicine
6	MI 4.1 MI 4.2 MI 4.3 & MI 4.5	Enumerate the causative agents of food poisoning and discuss the pathogenesis, clinical course and laboratory diagnosis	Food Poisoning (Vertical and Horizontal)	Definition, etiology and lab diagnosis Drugs used in treatment of food poisoning Clinical features, Management of a case of food poisoning	Microbiology Pharmacology General Med
7	MI 4.7 & MI 4.8	Describe the epidemiology, the etio- pathogenesis and discuss the viral markers in the evolution of Viral hepatitis. Discuss the modalities in the diagnosis and prevention of viral hepatitis	Hepatitis (Vertical and Horizontal)	Morphology, Antigenic structure and lab diagnosis Pathogenesis of Hepatitis B Clinical features and Management of Hepatitis B	Microbiology Pathology General Med
8	MI 6.1	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of meningitis	Meningococcus and Meningitis (Vertical and Horizontal)	Definition, Etiology and Lab diagnosis of Meningitis Management of meningitis Meningitis in paediatric age group- paediatrics Pathogenesis of meningitis- Pathology	Microbiology Gen Med Paediatrics Pathology

MICROBIOLOGY
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
INTEGRATION FOR II MBBS STUDENTS
ADMISSION BATCH 2024 (Phase 2 -2025)
BOS Microbiology March 2025

ANNEXURE 2

9	MI 9.5	Describe the etiologic agents of emerging Infectious diseases. Discuss the clinical course and diagnosis	Emerging and Re-emerging infections with special reference to COVID (Vertical)	Definition, list of emerging and reemerging diseases, Lab diagnosis and Infection control practices Management modalities in COVID of COVID Epidemiology	Microbiology Gen Medicine Community Medicine
---	--------	--	--	--	--

C. Phase 2 subjects ALIGNMENT:

	Pathology	Microbiology	Pharmacology
1 st month	Gen.Path	Gen.Micro,Communicationand Ethics	Gen.Pharm
2 nd month	Gen.Path	Gen.Micro,Communicationand Ethics	Gen.Pharm
3 rd month	Inflammation Immunology HIV	ImmunologyandImmunological Disorders	(ANS/PNS) NSAIDs
4 th month	Immunology	Immunology and Immunological Disorders	CVS Blood
	Hematology	CVS &Blood stream infections	
1stInternalExam			
5 th month	CVS	CVS&Blood stream infections	CVS Immunosuppressants
6 th month	Respiratory System	Respiratory System ,Tb	Chemo
7 th month	Respiratory system	GIT Hepatobiliary	RespiratorySystem TB GIT
	GIT Hepatobiliary		
2ndInternalExam			

MICROBIOLOGY
MGM MEDICAL COLLEGE, Kamothe, Sambhaji Nagar, Vashi, Nerul
INTEGRATION FOR II MBBS STUDENTS
ADMISSION BATCH 2024 (Phase 2 -2025)
BOS Microbiology March 2025

ANNEXURE 2

8 th month	Kidney Genito-urinary	Genito-urinary and STI GIT Hepatobiliary	Chemotherapy
9 th month	Kidney CNS	CNS	CNS
10 th month	Bone Breast Skin,eye,jointsEnd ocrine	Musculoskeletal system, Skin and Soft Tissue Infections Zoonotic & Miscellaneous Infections HAI and Antimicrobial Stewardship Hospital Infection Control	Drugs on skin, ocular Endocrine
3rd Internal Exam/Pre University			
11 th month	Phase 2 University Exam		

AETCOM Modules teaching and assessment

The tables below show the suggested AETCOM blueprinting for various university papers and for module leader/in-charge for coordinating Module teaching. Each module leader/in-charge should select a multi-subject team and then the module is taught by various members of the team. The module teaching learning activities should be planned and conducted by this team.

Assessment: All internal and University exams must have one question/application based question on AETCOM in each theory paper (5%) and it should be assessed in various components of practical/clinical exams.

AETCOM Phase I		
Subject	Paper	Module number
Anatomy	Paper 1	1.5
	Paper 2	1.4 foundations of communications
Physiology	Paper 1	1.2
	Paper 2	1.3
Biochemistry	Paper 1	1.1 <ul style="list-style-type: none"> Enumerate and describe professional qualities and roles of a physician Describe and discuss commitment to lifelong learning as an important part of physician growth
	Paper 2	1.1 <ul style="list-style-type: none"> Describe and discuss the role of a physician in health care system Identify and discuss physician's role and responsibility to society and the community that she/ he serves

AETCOM Phase II		
Subject	Paper	Module number
Microbiology	Paper 1	2.1
	Paper 2	2.8
Pharmacology	Paper 1	2.2, 2.3
	Paper 2	2.5
Pathology	Paper 1	2.4
	Paper 2	2.7

AETCOM Phase III part I		
Subject	Paper	Module number
Ophthalmology	Single paper	3.1
ENT	Single paper	3.3
Forensic Medicine & Toxicology	Single paper	3.4
Community Medicine	Paper 1	3.2
	Paper 2	3.5

AETCOM Phase III part 2		
Subject	Competency Number	Competency
Medicine and Allied Subjects, integration	Paper 1	4.1
	Paper 2	4.3
Surgery and Allied Subjects,	Paper 1	4.4
	Paper 2	4.5, 4.6
Obstetrics and Gynecology	Paper 1	4.2, 4.7
	Paper 2	4.8
Pediatrics	Single paper	4.9

BOS Microbiology March 2025
Mahatma Gandhi Mission Medical College (Kamothe, Sambhaji Nagar, Sanpada, Nerul)
Department of Microbiology
Revised Assessment Pattern (Admission Batch 2024)

Sr. No.	Exam	Theory	Practical
1.	1 st Internal assessment examination	100	100
2.	2 nd Internal assessment examination	100	100
2.	Preliminary examination	200	100
Total		400	300

- Preliminary examination pattern will be as per University examination
- Respective colleges/ Departments will conduct internal assessment examinations and maintain records of the same.

Resolution No. 4.18 of Academic Council (AC-51/2025):

Resolved to adopt the changes in University theory paper pattern as per new NMC guidelines for UG MBBS admission batch 2024 (inclusion of Clinical Scenario Based MCQs, questions on integrated syllabus, change of marks distributions) for Pathology, Microbiology, Pharmacology and FMT [ANNEXURE-40A, 40B, 40C, 40D, 40E & 40F].

Preliminary & University Exam Pattern

Applicable from Admission Batch 2024

Each subject– 2 papers (I / II) – 100 X 2 = **Total 200 Marks**

Portion:

Paper 1	General Microbiology, Immunology, CVS& Blood, GI &Hepatobiliary, CNS Infections, Aetcom module 2.1
Paper 2	Respiratory Tract Infections, Genitourinary Infections & STIs, Musculoskeletal skin and subcutaneous infections, Zoonotic & Miscellaneous, Health Care associated Infections, Aetcom module 2.8

Theory Paper Pattern and Marks Distribution: (3hrs)

Paper	Section	Type and Number of Questions	Marks Allotted	Total Marks
Paper 1	Section A	Q1.Clinical Scenario Based MCQs 10	10 x 2Mks each= 20Mks	20
	Section B	Q2.BAQs (5/6)	5 x3 Mks each = 15 Mks	15
Q3. SAQs (3/4) • One question from AETCOM to be asked		3 x 5 Mks each = 15 Mks	15	
Q4 Structured LAQs (1/2)		1 x 10Mks each=10Mks	10	
	Section C	Q5. BAQs (5/6)	5 x3 Mks each = 15 Mks	15
		Q6.SAQs (3/4)	3 x 5 Mks each = 15 Mks	15
		Q7. Structured LAQs (1/2)	1 x 10Mks each=10Mks	10
TOTAL				100

***Questions from Horizontal/ Vertical integration to be asked in the form of two SAQs or one LAQ in Section C**

***Questions of reasoning type should also be included**

Paper	Section	Type and Number of Questions	Marks Allotted	Total Marks
Paper 2	Section A	Q1.Clinical Scenario Based MCQs 10	10 x 2 Mks each= 20Mks	20
	Section B	Q2.BAQs (5/6)	5 x3 Mks each = 15 Mks	15
		Q3. SAQs (3/4) <ul style="list-style-type: none"> • One question from AETCOM to be asked 	3 x 5 Mks each = 15 Mks	15
		Q4 Structured LAQs (1/2)	1 x 10Mks each=10Mks	10
	Section C	Q5. BAQs (5/6)	5 x3 Mks each = 15 Mks	15
		Q6.SAQs (3/4)	3 x 5 Mks each = 15 Mks	15
		Q7. Structured LAQs (1/2)	1 x 10Mks each=10Mks	10
	TOTAL			100

***Questions from Horizontal/ Vertical integration to be asked in the form of two SAQs or one LAQ in Section C**

***Questions of reasoning type should also be included**

Practicals Pattern and Marks Distribution:

Grams Staining/ ZN Staining	10Mks
Stool examination	10 Mks
Spots (10)- Media, Biochemicals, Sterilization Disinfection, Vaccine, Sero, Experimental animal/ Bacteriology slide, Viro, Myco, Peripheral smear, Vector	10X 1Mk=10Mks
Clinical Case(2)	2X15mks=30Mks
OSPE (Any1) (Donning and Doffing of Gloves/ Hand washing/ Consent taking for HIV, HBsAG/ Post test counselling for HIV positive patients/ BMW)	10 Mks
Viva 1	15Mks
Viva 2	15Mks
TOTAL	100Mks

INTERNAL EXAMS

There will be 2 Internal Exams besides prelims

There will be only one theory paper for both Internal Exams.

Prelims will be exactly like University exam

1st Internal Exam: (Theory 100Mks, Practicals 100Mks)

2nd Internal Exam: (Theory 100 Mks, Practicals 100Mks)

Portion for Internal Exams:

1st Internal Exam:

General Microbiology, Immunology, CVS and Blood infections (Except Malaria and HIV). AETCOM 2.1

2nd Internal Exam:

HIV, Malaria, Gastrointestinal and Hepatobiliary infections, Respiratory tract Infections, AETCOM 2.8

Prelims:

Paper 1	General Microbiology, Immunology, CVS& Blood, GI &Hepatobiliary, CNS Infections, Aetcom module 2.1
Paper 2	Respiratory Tract Infections, Genitourinary Infections &STIs,, Musculoskeletal skin and subcutaneous infections, Zoonotic &Miscellaneous, Health Care associated Infections Aetcom module 2.8

1stand 2ndInternal Exams: (Time 3hrs)

Theory Paper Pattern and Marks Distribution:

Paper	Section	Type and Number of Questions	Marks allotted	Total Marks
1 theory Paper only	Section A	Q1.Clinical Scenario Based MCQs 10	10 x 2 Mks each= 20Mks	20
	Section B	Q2.BAQs (5/6)	5 x3 Mks each = 15 Mks	15

		Q3. SAQs (3/4) <ul style="list-style-type: none"> One question from AETCOM to be asked 	3 x 5 Mks each = 15 Mks	15
		Q4 Structured LAQs (1/2)	1 x 10Mks each=10Mks	10
	Section C	Q5. BAQs (5/6)	5 x3 Mks each = 15 Mks	15
		Q6.SAQs (3/4)	3 x 5 Mks each = 15 Mks	15
		Q7. Structured LAQs (1/2)	1 x 10Mks each=10Mks	10
TOTAL				100

***Questions from Horizontal/ Vertical integration to be asked in the form of two SAQs or one LAQ in Section C**

***Questions of reasoning type should also be included**

Practicals Pattern and Marks Distribution:

Grams Staining	10Mks
ZN Staining	10Mks
Spots (10)-Media, Biochemicals, Sterilization Disinfection, Vaccine, Sero, Exp animal, Viro, Myco, Parasito slide/PS, Bacteriology slide	10X1Mk=10Mks
Clinical Case (2)	2X15Mks= 30Mks
OSPE (Any1) (Donning and Doffing of Gloves/ Hand washing/ Consent taking for HIV, HBsAG/ Post test counselling for HIV positive patients/ BMW)	10Mks
Viva	30Mks
Total	100Mks

--	--

Criteria for passing in a subject: A candidate shall obtain a cumulative 50% marks in University conducted examination including theory and practical and not less than 40% separately in Theory and in Practical in order to be declared as passed in that subject. **In subjects that have two papers, the learner must secure a minimum 40% marks in aggregate (both theory papers together).**

Internal assessment calculation

Sr. No.	Criteria	Theory	Practical
1.	*All internal assessment examinations including preliminary examination	80	60
2.	Day to Day assessment		
	> Day to Day assessment (3 online Picture based MCQ tests in the academic year of 10 Mks each+ seminars of 10 Mks)	10+10=20 Mks	
	> Day to Day assessment (3 OSPE tests in the academic year of 20Mks each)		20
3.	Journal and AETCOM Logbook		10+10=20
Total		100	100

- 3 Picture based MCQs in the Academic Year of total 30 Mks will be converted to out of 10 Mks,
- 3 OSPE tests in the academic Year of total 60 Mks will be converted to out of 20 Mks
- **Internal assessment examinations marks conversion to internal assessment marks - Theory** – Total 400 marks of Internal exams including Prelims will be converted to out of 80Mks
- **Practical** – Total 300 marks of Internal exams including Prelims will be converted to out of 60Mks

Total Marks on Final Marksheet for the subject of Microbiology will be

Theory	200 Mks
Practical	100 Mks
IA	200Mks
TOTAL	500Mks

Resolution No. 6.11 of Academic Council (AC-52/2025):

Resolved to approve UG MBBS Microbiology OSPE practical exercises from admission batch 2024 onwards. OSPE practical exercises should be dynamic and expansion of OSPE topics should be there to prevent repetition.

[ANNEXURE-43].

Annexure-43 of AC-52/2025

Applicable from MBBS Admission Batch 2024 (Phase 2 Oct 2025)

**Checklist for Assessment of OSPE in 2nd MBBS Microbiology Exam.
(MGM Kamothe, Chhatrapati Sambhaji Nagar, Sanpada and Nerul)**

Post test counselling while giving a HIV positive report

Checklist for Student's performance		Total Score
Step 1	Asks the patient in which language he will like to have information and Explains about the disease.	2.0
Step2	Explains about the positive report and what it means in simple , clear way and em-pathetically	2.0
Step 3	Explains available follow up services including free treatment schemes by government and properly guides the patient to nearest ART centre	2.0
Step 4	Discusses modes of transmission and ways to prevent transmission to the partner and other family members and encourages partner and child testing. In case of Pregnant women discusses about PMTCT program to prevent transmission to the foetus.	2.0
Step 5	Ensures the patient that if treatment taken regularly and with good nutrition he/ she shall be able to live a normal life and continue doing his daily work.	2.0
Total score		10

Consent Taking for HIV / Hepatitis B testing

Checklist for Student's performance		Total Score
Step 1	Asks the patient in which language he will like to have information and Explains about the disease.	2.0
Step2	Explains about the test, why is it necessary to do, what sample shall be collected for the test and what shall be the cost of the test	2.0
Step 3	Explains about maintenance of confidentiality and that in case of positive result there will be requirement of contact tracing so his close family might be called.	2.0
Step 4	Informs that positive report will have to be informed to Department of health (Government authorities) and full contact details of the patient will have to be shared with them.	2.0
Step 5	Explains what will a positive and a negative test implicate and chances of window period in case of HIV negative result	2.0
Total score		10

Donning (wearing) & Doffing (removal) of Hand Gloves

Step	Checklist for Student's performance		Total Score
		Washes hands before the procedure	1.0
Donning	Glove:1	Wears by touching and pulling only the edge of the cuff	2.0
	Glove:2	Wears by pulling the external surface of second glove by the finger of gloved hand and avoids touching the forearm skin	2.0
Doffing	Glove:1	Removes first glove by using the other gloved hand, grasps the palm area of the first glove & peels it off.	2.0
	Glove:2	Holds the removed glove in the other gloved hand and slides fingers of the ungloved hand under the other glove at wrist and peels off second glove over first glove.	2.0
Disposal	Disposes the gloves appropriately in the right colour coded bag		1.0
Total score			10

HAND WASHING

Steps	Student's performance	Total Score
Pre hand washing steps	Removes all hand accessories finger ring wristwatch. etc. & Applies sufficient amount of soap/hand wash /hand rub	2.0
Steps of hand washing:	Rubs palm to palm and Rubs back of palm on both sides, Rubs back of palm on both sides, Follows rotational rubbing of thumb on both sides, Rubs back of fingers on palm on both sides ,Interlaces fingers in the web spaces, Rubs nails on palms on both sides (<i>Completes the above steps in 20-40 seconds time</i>)	4.0
Post- Hand washing steps and disposal:	Rinses hands with water and Dries hands with paper with single use towel. Closes the tap with same paper towel/elbow and Disposes the paper towel appropriately in appropriate colour coded bag	4.0
	TOTAL	10.0

Biomedical waste disposal

Checklist for Student's performance		Total Score
Step 1	Discarding appropriate item in Yellow Coloured bag/ Bin (Soiled Gauze, cotton, Body parts, Organs, tissues, Blood bags, cytotoxic medicines, Expired drugs, Used PPE, dressing material, Microbiological waste, Cloth contaminated with blood or body fluids)	2.0
Step2	Discarding appropriate item in Red Coloured bag/ Bin (IV Sets, catheters, gloves, urine bags, dialysis kit, IV Bottles)	2.0
Step 3	Discarding appropriate item in Blue Coloured bag/ Bin (Broken glass, ampoules, lab slides, Metal nails. Metallic body implants, scissors)	2.0
Step 4	Discarding appropriate item in White Coloured bag/ Bin (Needles, syringes with fixed needles, Blades, scalpels)	2.0
Step 5	Discarding appropriate item in Black Coloured bag/ Bin (Office stationary, Paper cups, Tissue paper used for domestic purpose, Kitchen waste)	2.0
Total score		10



MGM INSTITUTE OF HEALTH SCIENCES

(Deemed to be University u/s 3 of UGC Act, 1956)

Grade 'A' Accredited by NAAC

Sector-01, Kamothe, Navi Mumbai - 410209

Tel 022-27432471, 022-27432994, Fax 022-27431094

E-mail- registrar@mgmuhs.com Website : www.mgmuhs.com

