

# Faculty of Science

Bachelor of Microbiology (B.Sc.)

**SUBJECT: B.SC.**

B.Sc. VI Semester

Paper- DSE - 2

## Medical Microbiology

### Course Outcomes

CO. No.	Course Outcomes	Cognitive Level
CO 1	Understand how infection happens in body.	U
CO 2	Understand what are different pathogens and how are they controlled.	U, A
CO 3	Understand basics of immunity and how and why epidemics spread	U

### Credit and Marking Scheme

	Credits	Marks		Total Marks
		Internal	External	
Theory	3	40	60	100
Practical	1	40	60	100
Total	4	200		

### EVALUATION SCHEME

	MARKS	
	INTERNAL	EXTERNAL
THEORY	3 Exams Of 20 Marks (Best 2 Will Be Taken)	1 External Exam (At The End Of The Semester)
PRACTICAL	2 Internal Exams And Attendance (Total 40 Marks)	1 External Exam (At The End Of The Semester)

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**Session 2025-26**  
**Theory Paper**

Part A Introduction			
<b>Program: Degree</b>	<b>Class: B.Sc.</b>	<b>Year: VI Sem</b>	<b>Session: 2025-26</b>
<b>Subject: Industrial Microbiology</b>			
<b>1</b>	<b>Course Code</b>	<b>S3INMB2T</b>	
<b>2</b>	<b>Course Title</b>	<b>Medical Microbiology (Theory)</b>	
<b>3</b>	<b>Course Type (Core Course/ Discipline Specific Elective/ Elective/ Generic Elective /Vocational/ )</b>	<b>DSE 2</b>	
Unit	Topics	No. of Lectures (1 Hour Each)	
<b>1</b>	<b>1. The Infectious Diseases:</b> 1.1. Normal Flora of human body, disease causing Bacteria, Virus, Fungi, protozoa, 1.2. Pathogenicity- Mechanism of bacterial pathogenicity, colonization, Progress and transmission of diseases. 1.3-Portal of entry-tissue penetration, Virulence factors, types of toxins 1.4- Establishment of diseases. Characters of Infectious diseases. Opportunistic infections, nosocomial infections,	<b>12</b>	
<b>2</b>	<b>2. Epidemiology of Infectious diseases</b>  Terminologies- Endemic, Epidemic, Hyperendemic, Sporadic, pandemic, modes of transmission, carrier and types, Frequency of diseases —Morbidity rates, Herd immunity, Disease Cycles. Incubation period  Antibiotics— Mode of action development of resistance. Transmission of drug resistance. Antiviral and Antifungal drugs		

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3	<b>3. Infection &amp; Immunity:</b> 3.1. Natural Resistance or Natural Immunity. 3.2. Specific Resistance or Acquired Immunity. Immunoglobulins, types and function, in short. 3.3 Humoral Immunity for bacterial infections, Cell mediated Immunity for viral infections. 3.4 Clonal selection, memory cells, concept of immunization and vaccines. ★ <i>Autoimmune disease - buff</i>	12
4	<b>4. Diseases of Man-</b> pathogen, Infection sources, Reservoirs, and control Measures only (Not in detail) 4.1. Viral Diseases of Man. HIV, AIDS, Polio 4.2. Bacterial Diseases of Man. Tuberculosis, Cholera 4.3. Protozoan Diseases of Man. Malaria 4.4. Fungal Diseases of Man. Candidiasis	12
5	<b>5. SEROLOGICAL REACTIONS (SEROLOGY)-</b> 5.1 Blood test, Total Leucocyte count, Differential leucocyte count, 5.2. Precipitation Test, agglutination, WIDAL test. 5.3 Enzyme linked immunosorbent assay (ELISA) application in diagnosis 5.4 Radioimmunoassay RIA. application in diagnosis	12
<b>Keywords/Tags: Infectious diseases, Immunity, Diagnostics</b>		
<b>Part C-Learning Resources</b>		
	<b>Text Books, Reference Books, Other resources</b> <b>Suggested Readings</b> 1. Ananthanarayan, R. and Jayaram Panicker, C.K. Text book of Microbiology-5th Edition. 1996. Orient Longhorn Ltd, Chennai. 2. Bertram G. Katzung. Basic and Clinical pharmacology-11th edition. 1992. Prentiss-Hall International. 3. Chakroborthy. Text book of Microbiology. 1995. New Central Book Agency Pvt. Ltd. 4. Hugo, W.B. and A.D. Russel. Pharmaceutical Microbiology-4th edition. 1987. Blackwell Scientific Publication. 5. Gladwin, M & Trader. Clinical Microbiology made ridiculously simple. 1995. Med Mastern Inc., Miami. 6. Larry Mckane and judy kandel. Microbiology- Essential and application -2nd Edition. Mc Graw Hill Inc. 7. Park, L.G. and Park. K. Text Book of Preventive and Social Medicine-12th Ed. 1989. M/S Banarsidos Bhenot, Jabalpur. 8. Dr. R.C. Dubey and Dr. D.K. Maheshwari. A Text Book of Microbiology. (Revised Edition) 9. M.P. Hindi Granth academy Publications.	

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2. Suggestive digital platforms/ web links [www.eshiksha.mp.gov.in](http://www.eshiksha.mp.gov.in)

**Suggested equivalent online courses:**

<https://www.digimatin/nptel/coursesimedical/microbiology/MBI1.html>

**Part D-Assessment and Evaluation**

**Suggested Continuous Evaluation Methods:**

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 Marks University Exam (UE) 60 marks

**Internal Assessment:**

Continuous  
Comprehensive  
Evaluation (CCE)

Class Test -2  
Assignment/Presentation -1  
(3 CCE will be taken)

(Best 2 CCE will be considered) 40

**External**

**Assessment:**

University Exam

Section Time: 03.00

Hours

**Section(A): Objective**

**Questions**

**Section (B): Short Question**

**Section (C): Long Questions**

60

Any remarks/ suggestions:

*Sanjay Singh*  
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