

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF MICROBIOLOGY
COURSE CURRICULUM

PART – A: Introduction	
Program: Bachelor in Life Science (Honors/ Honors with Research)	Semester - VIII
	Session: 2024-25
1 Course Code	MBSE-09 T
2 Course Title	Clinical Microbiology
3 Course Type	Discipline Specific Elective (DSE)
4 Prerequisite (If Any)	As per Program
5 Course Learning Outcomes (CLO)	<p>At the end of this course, the students will be able to –</p> <ul style="list-style-type: none"> ➤ develop a clear vision about various aspects of infectious diseases ➤ explain the portal of entry of pathogens ➤ identify the method of collection of clinical samples and their processing ➤ distinguish different types of infectious diseases ➤ explain diagnostic procedures of infectious diseases
6 Credit Value	03 Credits Credit = 15 Hours - Learning & Observation
7 Total Marks	Max. Marks: 100 Minimum Passing marks: 40

PART – B: Content of the Course

Total No. of Teaching-Learning Periods (01 Hr. per period) - 45 Periods (45 Hours)

Unit	Topics (Course contents)	No. of Period
I	Basic concepts in Clinical Microbiology - Classification of disease – infectious, communicable, contagious, nosocomial, iatrogenic & zoonotic diseases. Chain of infection -Portal of entry and exit of pathogen. Collection of clinical samples and Laboratory diagnosis: precautions required for sample collection (oral cavity, throat, skin, blood, urine, faeces).	12
II	Viral Infections and Diseases - Study of disease; causative agent, infectious dose, portal of entry, virulence, epidemiology, laboratory diagnosis, prophylaxis and treatment of AIDS, Polio, Rabies, Hepatitis. Newly emerging diseases: Dengue and Ebola, COVID.	11
III	Bacterial Infections and Diseases - Study of disease; causative agent, infectious dose, portal of entry, virulence, epidemiology, laboratory diagnosis, prophylaxis and treatment of Tuberculosis, Typhoid, Cholera, Tetanus, Syphilis, Gastroenteritis caused by E. coli.	11
IV	Fungal and Protozoal Diseases - Study of disease; Causative agent, portal of entry, pathogenicity, laboratory diagnosis and treatment of Dermatophytosis, Malaria, Amoebic dysentery.	11
Key Words	Clinical Diseases, Virulence, Pathogens, Infection, Dermatophytosis	

Name and Signature of Convener and Members of CBoS

(Left to right, top to bottom):

 1. Signature: 10/6/24

 2. Signature: 10.6.24

 3. Signature: Rashmi 10.6.24

 4. Signature: 10.6.24

 5. Signature: 10/6/24

 6. Signature: 10/6/24

 7. Signature: 10/6/24

 8. Signature: Dr. K.K. Patel

 9. Signature: Dr. Nelson Kers

 10. Signature: 10/6/24

 11. Signature: 10/6/24

 12. Signature: 10/6/24

Part – C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

1. Textbook of Microbiology; Ed 8th, Anantnarayan P. and Paniker, C. K. J., (2009), Universities press, Hyderabad.
2. A text book of Microbiology; Chakraborty P (2013) New Central Book Agency, Delhi.
3. Medical Bacteriology and Microbiology; 16th Ed, Dey, N. C. and Dey, T. K., (1999) Allied Agency, Calcutta.

Reference Books:

1. Microorganisms in our world; Atlas, R. M. (1995), Mosby Year Book Inc.
2. Microbiology; 4th Ed., Davis, B. D., Dulbecco, R, Eisen, H. N., Ginsberg, R. S., (1990), Harper and Row Publishers, Singapore.
3. Microbiology; 2nd Ed., Prescott, L. M., Hartley, J. P. and Klein, D. A., (1993), W. M. C. Brown Publ, England.
4. Microbiology; 8th Ed., Tortora, G. J., Funke, B. R. and Case, C. L., (2004), Person Education (Low Price edition), Delhi

Online Resources:

- <https://www.routledge.com/Clinical-Microbiology/Struthers/p/book/9781498786898>
- https://sist.sathyabama.ac.in/sist_coursematerial/uploads/SMB3101.pdf
- <https://repository.poltekkes-kaltim.ac.id/1153/1/medical%20microbiology.pdf>
- <https://pubmed.ncbi.nlm.nih.gov/21413252/>
Medical Microbiology - PubMed (nih.gov)

Part – D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100 Marks

Continuous Internal Assessment (CIA): 30 Marks

End Semester Exam (ESE): 70 Marks

Continuous Internal Assessment (CIA): (By Course Teacher)	Internal Test / Quiz – (2): 20+20	Better marks out of the two Test/ Quiz + obtained marks in Assignment shall be considered against 30 Marks
	Assignment/ Seminar – 10	
	Total Marks – 30	

End Semester Exam (ESE):	Two Section – A & B Section A: Q1. Objective 10 X 1 = 10 Mark; Q2. Short answer type – 5X4= 20 Marks Section B: Descriptive answer type qts., 1 out of 2 from each unit – 4X10 = 40 Marks
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Name and Signature of Convener and Members of CBoS

Santhosh
Santhosh 10.6.24
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FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)

DEPARTMENT OF MICROBIOLOGY

COURSE CURRICULUM

PART – A: Introduction		
Program: Bachelor in Life Science (Honors/ Honors with Research)		Semester -VIII
		Session: 2024-25
1	Course Code	MBSE-09 P
2	Course Title	Lab. Course - MBSE-09
3	Course Type	Laboratory Course
4	Prerequisite (If Any)	As per Program
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to – <ul style="list-style-type: none"> ➤ find the methods of collection and transport of clinical samples ➤ explain the principles of clinical phenomena for diagnosis of diseases ➤ experiment with isolation and identification of disease-causing organisms ➤ relate antibiotic responses of pathogenic microorganisms
6	Credit Value	1 Credit <i>Credit = 30 Hours. Laboratory or Field learning/ Training</i>
7	Total Marks	Max. Marks: 50 Min. Passing marks: 20
PART: B CONTENT OF THE COURSE		
Total No. of Teaching-Learning Periods: 30Hours		
Module	Topics (Course contents)	No. of Period
Lab./ Field Training/ Experiment contents of Course	<ol style="list-style-type: none"> 1. Collection & transport of clinical specimens. 2. Serological tests-WIDAL, VDRL, ELISA 3. Demonstration Chick Embryo techniques-inoculation and harvesting. 4. Study of growth characters of isolated pathogens on following media: MacConkey agar, EMB agar, Mannitoal salt agar, Salmonella Shigella agar, Glucose azide medium, Cetrimide agar, TSI agar. 5. Physical, Chemical and Microscopic examination of Clinical samples –urine, pus. 6. Isolation, identification of following pathogens from clinical samples: <i>E. coli</i>, <i>Salmonella spp.</i>, <i>Pseudomonas spp.</i>, <i>Proteus spp.</i>, <i>Klebsiella spp.</i>, <i>Shigella spp.</i>, <i>Staphylococcus spp.</i>, <i>Streptococcus spp.</i> 7. Isolation and observation of fungal pathogens using Lactophenol cotton blue stain. 8. Direct examination of faces for ova and cysts. 9. Antibiotic sensitivity testing of the isolates 	30
Key words	Antibiotic sensitivity, lactophenol, Culture media, Isolation, Identification	
PART – C: Learning Resources		
Text Books, Reference Books and Others		
Text Books Recommended:		
<ol style="list-style-type: none"> 1. Laboratory Manual of Microbiology and Biotechnology; Aneja K. R 2. Practical Microbiology; R.C. Dubey and D. K. Maheshwari. 3. Laboratory Manual in Microbiology; P. Gunasekaran. 		
Online Resources:		
<ul style="list-style-type: none"> • https://books.google.co.in/books?id=Wh9OTbjcsfUC&printsec=frontcover&source=gbs • https://microbiologyociety.org/static/uploaded/23cbf9c5-f8c8-4f91-b092a4ad819e6357.pdf • https://books.google.co.in/books?id=RLpEDwAAQBAJ&pg=PA46&source=gbs_toc_r&cad=2#v=onepage&q&f=false 		
PART – D: Assessment and Evaluation		
Suggested Continuous Evaluation Methods:		
Maximum Marks: 50 Marks		
Continuous Internal Assessment (CIA): 15 Marks		
End Semester Exam (ESE): 35 Marks		
Continuous Internal Assessment (CIA): (By Course Teacher)	Internal Test/ Quiz – (2): 10 & 10 Assignment/ Seminar + Attendance: 05 Total Marks: 15	Better Marks out of the two Test/ Quiz + obtained marks in Assignment shall be considered against 15 Marks
End Semester Exam (ESE):	Laboratory/ Field Skill Performance: On spot Assessment A. A. Performed the Task based on lab. work – 20 Marks B. Spotting based on tools & technology (written) - 10 Marks C. Viva-voce (based on principle technology) – 05 Marks	Managed by course teacher as per lab. status

Name and Signature of Convener and Members of CBoS