


FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
Department of Biochemistry
Course Curriculum

PART- A: Introduction			
Program: Bachelor in Science <i>(Diploma / Degree/Honors)</i>		Semester - IV	Session: 2024-2025
1	Course Code	BCSE-02 T	
2	Course Title	Biology of Infectious Diseases	
3	Course Type	Discipline Specific Elective (Theory)	
4	Pre-requisite (if, any)	As Per Program	
5	Course Learning Outcomes (CLO)	<p><i>On successful completion of the course, the student shall be able to:</i></p> <ul style="list-style-type: none"> ➤ Understand various classes of microbial infectious agents, their mode of action, biology of the diseases, transmission of diseases, the concepts of treatment, and drug resistance for various antimicrobial agents. ➤ Demonstrate molecular basis of diagnosis and treatment of diseases as well as strategies for development of vaccines against these diseases. ➤ Explain the details of important infectious diseases such as tuberculosis, AIDS, malaria, filariasis, etc. ➤ Understand the significance of hygiene, sanitation, vaccination in prevention of infectious diseases. 	
6	Credit Value	3 Credits	<i>Credit = 15 Hours - learning & Observation</i>
7	Total Marks	Max. Marks: 100	Min 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	Infectious diseases: Classification, Nosocomial infections; Past and present emerging and re-emerging infectious diseases and pathogens. Source, reservoir and transmission of pathogens. Safety measures when working with pathogens, biosafety levels, infection and evasion. Fungal diseases: Etiology, characteristics and diagnosis of Candidiasis, Sporotrichosis, Aspergillosis and Ring worm.		09
II	Bacterial diseases: classification of bacterial pathogens, virulence factors and host pathogen interaction. Bacterial toxins, enterotoxins and their mode of action, diarrhea, cholera; Tuberculosis, infection and pathogenicity, diagnostics, therapeutics and vaccines, drug resistance. Other bacterial diseases such as - Typhoid, Tetanus, Anthrax and Pneumonia; their virulence factors and host pathogen interactions.		14
III	Viral diseases: Structure and classification of viruses, viral virulence factors, host pathogen interactions; AIDS: history, causative agent, pathogenesis, diagnostics, drugs; Other viral diseases such as Hepatitis, Influenza, Rabies, Dengue and Polio; Chicken Pox, Herpes Virus.		12
IV	Parasitic diseases: Classes of parasites and diseases caused by them, Malaria: causative agents, vectors, etiology, diagnostics, drugs, vaccine development. Role of drugs, vaccines and sanitation in prevention and treatment of infectious diseases.		10
Keywords	Infection, Disease, Prevention, Precaution		

Name and Signature of Convener & Members of CBoS:

PART-C: Learning Resources								
Text Books, Reference Books and Others								
Text Books Recommended –								
<ul style="list-style-type: none"> ➤ Jawetz, Melnick and Adelbergs Medical Microbiology 27th ed., McGraw Hill Education ➤ Klien's Microbiology (2008) 7th ed., Prescott, Harley, Wiley, J.M., Sherwood, L.M., Woolverton, C.J. McGraw Hill International Edition (New York) ➤ Sherris Medical Microbiology: An introduction to infectious diseases (2010) 4. Kenneth J. Ryan, C., George Ray, Publisher: McGraw-Hill. E-learning Resources 								
Online Resources–								
e-Resources / e-books and e-learning portals								
<ul style="list-style-type: none"> ➤ https://www.britannica.com/science/metabolism ➤ https://www.sciencedirect.com/science/article/pii/S0009912013001677 ➤ https://pubmed.ncbi.nlm.nih.gov/23720291/ ➤ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3243375/ 								
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)	<table border="1"> <tr> <td>Internal Test / Quiz-(2):</td> <td>20 +20</td> </tr> <tr> <td>Assignment / Seminar -</td> <td>10</td> </tr> <tr> <td>Total Marks -</td> <td>30</td> </tr> </table>	Internal Test / Quiz-(2):	20 +20	Assignment / Seminar -	10	Total Marks -	30	Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against 30 Marks
Internal Test / Quiz-(2):	20 +20							
Assignment / Seminar -	10							
Total Marks -	30							
End Semester Exam (ESE):	Two section – A & B Section A: Q1. Objective – 10 x1= 10 Mark; Q2. Short answer type- 5x4 =20 Marks Section B: Descriptive answer type qts., 1out of 2 from each unit-4x10=40 Marks							


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1	Course Code	BCSE- 02 P	
2	Course Title	Biology of Infectious Diseases	
3	Course Type	Discipline Specific Elective- Practical	
4	Pre-requisite (if, any)	As Per the Program	
5	Course Learning Outcomes (CLO)	<ul style="list-style-type: none"> ➤ Students will acquire the knowledge to isolate bacteria from water/sewage samples, to stain bacteria, fungi, acid fast bacilli and to perform important diagnostic tests for infectious diseases such as WIDAL test. ➤ Students will be exposed to permanent slides of pathogens in order to get hands-on training to know nature of various pathogens causing diseases. 	
6	Credit Value	1 Credits	<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 learning-Training/performance Periods: 30 Periods (30 Hours)			
Module	Topics (Course contents)		No. of Period
Lab./Field Training/ Experiment Contents of Course	<ul style="list-style-type: none"> ➤ Grams staining for bacteria ➤ Isolation and culture of bacteria from water/sewage samples. ➤ Demonstration of various media for bacterial culture ➤ Isolation and enumeration of bacteriophages (PFU) from water/sewage samples ➤ WIDAL test ➤ Acid fast staining ➤ Permanent slides of pathogens: Mycobacterium tuberculosis, Leishmania, Plasmodium falciparum ➤ Fungal staining 		30
Keywords	Diagnostic tests, Infection identification, Methods		

Name and Signature of Convener & Members of CBOS:




PART-C: Learning Resources**Text Books, Reference Books and Others****Text Books Recommended –**

- Klien's Microbiology (2008) 7th ed., Prescott, Harley, Wiley, J.M., Sherwood, L.M., Woolverton, C.J. McGraw Hill International Edition (New York)
- Jawetz, Melnick&Adelbergs Medical Microbiology 27th ed., McGraw Hill Education

Online Resources–**e-Resources / e-books and e-learning portals**

- <https://link.springer.com/article/10.1007/s00217-008-0998-4>
- https://www.cdc.gov/nchs/data/nhanes/nhanes_03_04/113_c_met.pdf

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	Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against 15 Marks
	Assignment/Seminar +Attendance - 05 Total Marks - 15	
End Semester Exam (ESE):	Laboratory / Field Skill Performance: On spot Assessment Performed the Task based on lab. work - 20 Marks Spotting based on tools & technology (written) – 10 Marks Viva-voce (based on principle/technology) - 05 Marks	Managed by Course teacher as per lab. status

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