



BENGAL SCHOOL OF TECHNOLOGY

Estd. by Supreme Educational Development and Charitable Organization (SEDCO)

Recognized by UGC & included u/s 2(f) of UGC Act 1956

Approved by the Pharmacy Council of India, New Delhi

Affiliated to: Maulana Abul Kalam Azad University of Technology (MAKAUT) (Formerly known as West Bengal University of Technology) & West Bengal State Council of Technical and Vocational Education and Skill Development (WBSCT&VE&SD)

Accredited by NAAC, Accredited by NBA for B. Pharm

Sugandha, Delhi Road, Near Chinsurah Railway Station, Dist.: Hooghly-712 102, West Bengal

Lesson Plan

Class: 3rd Sem., 2nd Year

Date of Commencement of Session: 30th July, 2026

Subject Name: Pharmaceutical Microbiology

Faculty In-charge: Mr Prasiddha Pal

Schedule of allotted class work (w.e.f: 30th July, 2026)

Session: Odd (2026-2027)

Subject code: PT-319

Days	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
B. Pharm 3 rd Sem Sec A (Time/period)	11:40am-12:30 pm	10:40am- 11:35am				x
B. Pharm 3 rd Sem Sec B (Time/period)	09:40 am-10:40 am	12:40pm-01:40pm				x

Available Periods/week: Theory-4.

Extra Classes: No.

Available periods in the total semester (Theory): 28 Nos. (Till 30-11-2026).

Guest Lectures planned, if any, with justification: No.

Scope of the Subject (Pharmaceutical Microbiology – PT-319)

Pharmaceutical Microbiology is a fundamental discipline that provides comprehensive knowledge of microorganisms and their significance in pharmaceutical sciences. The subject encompasses the study of various categories of microorganisms, with particular emphasis on those involved in the production of alcohol, antibiotics, vaccines, vitamins, enzymes, and other pharmaceutical products. It also covers the identification, cultivation, preservation, and control of microorganisms, along with sterilization, disinfection, aseptic processing, microbiological quality assurance, sterility testing, and microbial standardization of pharmaceutical products. Furthermore, the course introduces cell culture technology and its diverse applications in pharmaceutical research and industrial production, thereby equipping students with the essential microbiological principles required for pharmaceutical manufacturing, quality control, research, and regulatory compliance.

Objectives of the Subject (Pharmaceutical Microbiology – PT-319)

Upon successful completion of this course, students will acquire a comprehensive understanding of the identification, cultivation, and preservation of microorganisms of pharmaceutical importance. They will develop knowledge of sterilization principles and their implementation in pharmaceutical processing and manufacturing industries, while gaining practical insight into sterility testing procedures for pharmaceutical products. The course further aims to enable students to perform microbiological standardization of pharmaceuticals and appreciate the importance of microbial quality assurance. Additionally, students will understand the principles, techniques, and industrial applications of cell culture technology, thereby strengthening their competency in microbiological practices essential for pharmaceutical production, quality assurance, research, and innovation.

Reading Materials

A. Textbooks

Sl. No.	Name of the Textbook (s)	Author	Edition	Publisher	Accession No.	Rack No
01	The textbook of 'Pharmaceutical Microbiology'	N. K. Jain	3 rd Edition	Vallabh Prakash	9987	R-10B
02	Microbiology an introduction	Tortora Funke Case	10 th Edition	Benjamin Cummings	3968	R-10F
03	Pharmaceutical Microbiology Principles and Application	Prof. Chandrakant Kokare	15 th Edition	NIRALI Prakashan	7199	R-10E

B. Journals / Website/Any other resources

Sl. No.	Name of the journal (s)/website/others	Source	Vol. no.	Month & Year
01	MORPHOLOGY AND CLASSIFICATION OF BACTERIA Available on Research Gate All content following this page was uploaded by Moshtaq Talip Al-Mohanna on 06 April 2017.	https://www.researchgate.net/publication/315803754	Book: October 2016	06 th April 2017

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Proposed Topic Distribution with Periods

Daily Teaching Schedule of Unit-II

Sl. No.	Date	Day	Unit	Topic to be Covered	Teaching Pedagogy / T.L.P.	Suggested Knowledge Resources
1	03/08/2026	Monday	Unit II	Morphological structure of Bacteria, Introduction to Gram Ve+ & Gram Ve- Bacteria	Offline (Smart Class & Blackboard)	A1, A2
2	04/8/2026	Tuesday	Unit II	Information about different types of Dyes used in staining	Offline (Smart Class & Blackboard)	A1, A3
3	10/8/2026	Monday	Unit II	Introduction to Staining techniques	Offline (Smart Class & Blackboard)	A2
4	11/8/2026	Tuesday	Unit II	Simple staining and negative staining	Offline (Smart Class & Blackboard)	A1, A3
5	17/08/2026	Monday	Unit II	Gram Staining techniques	Offline (Smart Class & Blackboard)	A1, A2
6	18/08-2026	Tuesday	Unit II	Information about acid-fast and non-acid-fast bacteria & Acid-fast staining technique	Offline (Smart Class & Blackboard)	A3, A1
7	24/08/2026	Monday	Unit II	IMViC Test Introduction, Indole Test	Offline (Smart Class & Blackboard)	A3
8	25/08/2026	Tuesday	Unit II	Methyl Red and Voges-Proskauer Test	Offline (Smart Class & Blackboard)	A1
9	31/08/2026	Monday	Unit II	Citrate Test	Offline (Smart Class & Blackboard)	A1, A2
10	1/9/2026	Tuesday	Unit II	Sterilization Techniques	Offline (Smart Class & Blackboard)	A1, A2
11	7/9/2026	Monday	Unit II	Study of principles, procedure, merits, demerits and applications of Thermal Sterilization	Offline (Smart Class & Blackboard)	A2
12	8/9/2026	Tuesday	Unit II	Study of principles, procedure, merits, demerits and applications of non-thermal Sterilization	Offline (Smart Class & Blackboard)	A1, A2
13	14/09/2026	Monday	Unit II	Evaluation of the efficiency of sterilization methods.	Offline (Smart Class & Blackboard)	A3
14	15/09/2026	Tuesday	Unit II	Unit II revision, discussion of previous university questions and tutorial	Offline (Smart Class & Blackboard)	NA

Daily Teaching Schedule of Unit-V

Sl. No.	Date	Day	Unit	Topic to be Covered	Teaching Pedagogy / T.L.P.	Suggested Knowledge Resources
15	21/09/2026	Monday	Unit V	Types of spoilage, factors affecting the microbial spoilage of pharmaceutical products	Offline (Smart Class & Blackboard)	A3
16	22/09/2026	Tuesday	Unit V	Sources and types of microbial contaminants	Offline (Smart Class & Blackboard)	A1
17	28/9/2026	Monday	Unit V	Assessment of microbial contamination and spoilage	Offline (Smart Class & Blackboard)	A1
18	29/9/2026	Tuesday	Unit V	Preservation of pharmaceutical products using antimicrobial agents	Offline (Smart Class & Blackboard)	A1, A2
19	5/10/2026	Monday	Unit V	Evaluation of microbial stability of formulations	Offline (Smart Class & Blackboard)	A2
20	6/10/2026	Tuesday	Unit V	Growth of animal cells in culture	Offline (Smart Class & Blackboard)	A1, A3
21	12/10/2026	Monday	Unit V	General procedure for cell culture	Offline (Smart Class & Blackboard)	A2
22	13/10/2026	Tuesday	Unit V	Primary, established and transformed cell culture	Offline (Smart Class & Blackboard)	A1, A2
23	27/10/2026	Tuesday	Unit V	Different types of Cultural techniques	Offline (Smart Class & Blackboard)	A2
24	02/11/2026	Monday	Unit V	Primary culture vs Secondary culture	Offline (Smart Class & Blackboard)	A1, A2
25	03/11/2026	Tuesday	Unit V	Application of cell cultures in the pharmaceutical industry	Offline (Smart Class & Blackboard)	A3
26	17/11/2026	Tuesday	Unit V	Application of cell cultures in pharmaceutical research.	Offline (Smart Class & Blackboard)	A1, A2
27	23/11/2026	Monday	Unit V	MCQs practice from Unit V	Offline (Smart Class & Blackboard)	NA
28	30/11/2026	Monday	Unit V	Unit V revision, doubt clearing and assessment preparation	Offline (Smart Class & Blackboard)	NA

Total number of classes planned for the semester: 28

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Daily Teaching Schedule for Practical (PT-399)

Practical Lesson Plan				
Sl. No.	Working Date	Day	Batch/Group	Title to be covered
1	30-07-2026	Thursday	A	Introduction to Microbiological Experiments
2	31-07-2026	Friday	B	Introduction to Microbiological Experiments
3	3/8/2026	Monday	C	Introduction to Microbiological Experiments
4	4/8/2026	Tuesday	D	Introduction to Microbiological Experiments
5	6/8/2026	Thursday	A	Media Preparation & Sterilization
6	7/8/2026	Friday	B	Media Preparation & Sterilization
7	10/8/2026	Monday	C	Media Preparation & Sterilization
8	13-08-2026	Thursday	A	Media Preparation & Sterilization
9	14-08-2026	Friday	B	Sub-culturing of Bacteria
10	17-08-2026	Monday	C	Sub-culturing of Bacteria
11	18-08-2026	Tuesday	D	Sub-culturing of Bacteria
12	20-08-2026	Thursday	A	Sub-culturing of Bacteria
13	21-08-2026	Friday	B	Gram Staining
14	24-08-2026	Monday	C	Gram Staining
15	25-08-2026	Tuesday	D	Gram Staining
16	27-08-2026	Thursday	A	Gram Staining
17	31-08-2026	Monday	C	Biochemical Test (IMViC)
18	1/9/2026	Tuesday	D	Biochemical Test (IMViC)
19	3/9/2026	Thursday	A	Biochemical Test (IMViC)
20	7/9/2026	Monday	C	Biochemical Test (IMViC)
21	8/9/2026	Tuesday	D	Enumeration of Colony-forming Units through the Serial Dilution Method
22	10/9/2026	Thursday	A	Enumeration of Colony-forming Units through the Serial Dilution Method
23	11/9/2026	Friday	B	Enumeration of Colony-forming Units through the Serial Dilution Method
24	14-09-2026	Monday	C	Enumeration of Colony-forming Units through the Serial Dilution Method
25	15-09-2026	Tuesday	D	Isolation of a pure culture of microorganisms
26	18-09-2026	Friday	B	Isolation of a pure culture of microorganisms
27	21-09-2026	Monday	C	Isolation of a pure culture of microorganisms
28	22-09-2026	Tuesday	-	PCA-1 (Practical Continuous Assessment Exam).
29	24-09-2026	Thursday	-	PCA-1 (Practical Continuous Assessment Exam).
30	25-09-2026	Friday	-	PCA-1 (Practical Continuous Assessment Exam).
31	28-09-2026	Monday	C	Isolation of a pure culture of microorganisms
32	29-09-2026	Tuesday	A	Antibiotic Assay & Graphical Interpretation
33	1/10/2026	Thursday	B	Antibiotic Assay & Graphical Interpretation
34	5/10/2026	Monday	C	Antibiotic Assay & Graphical Interpretation
35	6/10/2026	Tuesday	D	Antibiotic Assay & Graphical Interpretation
36	8/10/2026	Thursday	A	Motility determination by the hanging drop method
37	9/10/2026	Friday	B	Motility determination by the hanging drop method
38	12/10/2026	Monday	C	Motility determination by the hanging drop method
39	13-10-2026	Tuesday	D	Motility determination by the hanging drop method
40	27-10-2026	Tuesday	C	Sterility testing of pharmaceuticals
41	29-10-2026	Thursday	A	Sterility testing of pharmaceuticals
42	30-10-2026	Friday	B	Sterility testing of pharmaceuticals
43	2/11/2026	Monday	C	Sterility testing of pharmaceuticals
44	3/11/2026	Tuesday	D	Bacteriological analysis of water
45	5/11/2026	Thursday	A	Bacteriological analysis of water
46	6/11/2026	Friday	B	Bacteriological analysis of water
47	13-11-2026	Friday	C	Bacteriological analysis of water
48	17-11-2026	Tuesday	-	PCA-2 (Practical Continuous Assessment Exam).
49	19-11-2026	Thursday	-	PCA-2 (Practical Continuous Assessment Exam).
50	20-11-2026	Friday	-	PCA-2 (Practical Continuous Assessment Exam).
51	23-11-2026	Monday	C	Extra Coverage of Practical (Previous Absence & Out of the Box)
52	26-11-2026	Thursday	A	Extra Coverage of Practical (Previous Absence & Out of the Box)
53	27-11-2026	Friday	B	Extra Coverage of Practical (Previous Absence & Out of the Box)
54	30-11-2026	Monday	C	Extra Coverage of Practical (Previous Absence & Out of the Box)

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