

MICROBIOLOGY

LESSON PLAN

Branch: B.Tech in Biotechnology

Semester: 3rd

Subject: BTPC2002 – Microbiology

No. of Days/Week: 3

Semester Duration: July – December

No. of Weeks: 15

Name of the Teaching Faculty: Dr. SMARITA LENKA

Week	Class Day	Topics to be Covered
1st	1st	History & Scope of Microbiology
	2nd	Sterilization Techniques & Culture Media
	3rd	Pure & Enrichment Culture Techniques
2nd	1st	Microbial Staining Methods
	2nd	Maintenance, Preservation & Culture Collections
	3rd	Microbial Growth: Growth Curve
3rd	1st	Measurement of Microbial Growth
	2nd	Growth Yields, Synchronous Growth
	3rd	Continuous Culture & Environmental Factors
4th	1st	Cyanobacteria, Mycobacteria, Rickettsia
	2nd	Chlamydia, Mycoplasma, Actinomycetes
	3rd	Bacterial Cell Structure & Genetic Recombination
5th	1st	Metabolic Diversity – Photosynthesis Types
	2nd	Pigments – Chlorophylls, Carotenoids, Phycobilins
	3rd	Microbial Nutrition – Types
6th	1st	Chemoautotrophy, Chemoheterotrophy
	2nd	Chemolithotrophy, Syntrophy
	3rd	Nitrogen Fixation & Biofertilizers
7th	1st	Archaea – Halophiles, Methanogens, Thermophiles
	2nd	Eukarya – Algae, Fungi, Slime Molds, Protozoa
	3rd	Viruses – Structure, Classification
8th	1st	Replication of DNA & RNA Viruses
	2nd	Examples: Herpes, Pox, Adenovirus
	3rd	Retroviruses, Viroids & Prions
9th	1st	Normal Microflora of Skin, Mouth & Gut
	2nd	Pathogen Entry, Colonization & Infection
	3rd	Disease Reservoirs & Transmission Routes
10th	1st	Respiratory, STD, Zoonotic Infections
	2nd	Food & Waterborne Diseases
	3rd	Public Health & Water Quality
11th	1st	Chemotherapeutic Agents & Growth Factor Analogues

	2nd	Sulfa Drugs, Quinolones, Antibiotics
	3rd	Penicillins, Cephalosporins & Broad-spectrum Antibiotics
12th	1st	Antifungal Antibiotics
	2nd	Antibiotic Resistance & MDR
	3rd	Antiviral Chemotherapy
13th	1st	Application of Microbiology in Biotechnology
	2nd	Practical Aspects: Culturing, Identification
	3rd	MCQ Practice & Conceptual Review
14th	1st	PYQ Practice and CO Mapping
	2nd	Revision of Important Units
	3rd	Mock Class Test
15th	1st	Internal Assessment Test
	2nd	Feedback & Discussion
	3rd	Course Wrap-Up