

Course Title	MICROBIOLOGY
Course Code	PT302
Course Credit	Lecture: 4
	Practical/Clinical Training: 0
	Total: 4

Course Objective

On completion of unit students should be able to

1. Understand the principles of immunity and immunobiology.
2. Classify various micro-organisms and its morphology.
3. Apply knowledge of microbiology in professional physiotherapy practice.

Detailed Syllabus

Sr. No.	Name of chapter & details	Hours Allotted
Section – I		
1	INTRODUCTION OF MICROBIOLOGY IN PHYSIOTHERAPY. Need of Microbiology in Physiotherapy	1
	GENERAL MICROBIOLOGY:	
	Definitions: infections, parasite, host, vector, fomite, contagious disease, infectious disease, epidemic, endemic, pandemic, Zoonosis, Epizootic, Attack rate.	1
	Normal flora of the human body	1
	Routes of infection and spread; endogenous and exogenous infections; source at reservoir of infections.	1
2	CLASSIFICATION OF MICRO-ORGANISM AND MORPHOLOGY OF BACTERIA:	
	Morphology limited to recognizing bacteria in clinical samples Shape, motility and arrangement. Structures which are virulence, associated	1
	Essentials of bacterial growth requirements	1
	Culture methods, Culture media	1
	Sterilization and disinfection	1
	Drug resistance and drug sensitivity test	1
	Universal safety precautions and waste disposal.	1
3	BASIC PRINCIPLES OF IMMUNITY and IMMUNOBIOLOGY :	

	Lymphoid organs and tissues.	1
	Antigen, Antibodies, antigen and antibody reactions with relevance to pathogenesis and serological diagnosis.	2
	Humoral immunity and its role in immunity	1
	Cell mediated immunity and its role in immunity	2
	Immunology of hypersensitivity. Measuring immune functions.	2
4	BACTERIOLOGY:	
	Morphology, classification according to pathogenicity, mode of transmission, methods of prevention, collection and transport of samples for laboratory diagnosis	
	Staphylococci, Streptococci and Pneumococci.	2
	Mycobacteria: Tuberculosis, M. leprae, atypical mycobacteria, Enterobacteriaceae.	2
	Vibrios : V. cholera and other medically important vibrios	1
	Campylobacters and Helicobacters	1
	Pseudomonas, Bacillus anthracis	1
	Spring and non-spring anaerobes: Clostridia, Bacteroides and Fusobacteria.	1
5	VIROLOGY:	
	General properties: Basic structure and broad classification of viruses. Pathogenesis and pathology of viral infections. Immunity and prophylaxis of viral diseases. Principles of laboratory diagnosis	
	HIV, Hepatitis	3
	Polio, Measles, Congenital viral infections	3
	Rubella, Herpes, Adenovirues.	2
Section II		
6	MYCOLOGY:	
	General properties of fungi: Classification based on disease, superficial, subcutaneous, deep mycosal opportunistic infections including Mycotoxins, systemic mycoses.	2
	General principles of fungal diagnosis, Rapid diagnosis	1
	Method of collection of samples	1
	Antifungal agents	2
	Mycetoma, Aspergillosis and Candidiasis.	2
7	PARASITES:	
	Malaria, Filaria, Toxoplasma	3
	Cystisarcosis and Echinococcus	3
8	APPLIED MICROBIOLOGY:	
	Streptococcal infections: Rheumatic fever and Rheumatic heart disease.	2
	Meningitis. Tuberculosis, Pyrexia of unknown origin.	1
	Leprosy, STD, HIV infection	1

	Poliomyelitis, Hepatitis	1
	Acute Respiratory Infections	1
	Central Nervous System infections	1
	Urinary tract infections and Pelvic inflammatory disease	1
	Wound infection, Malaria, Filariasis, Zoonotic diseases	
9	CLINICAL LEARNING:	
	Demonstration of Microscopes and its uses.	1
	Principles, uses and demonstration of common sterilization equipment	2
	Demonstration of common culture media, motility by hanging drops method, Gram Stain, ZN Stain, Serological test: ELISA, Fungus	2
10	Clinical Reasoning in Microbiology for Physical therapy	3

Instructional Method:

1. Teaching and training sessions will be carried out through active learning. Active participation and contribution in group discussion and seminars are mandatory for students
2. Lectures to be conducted with the help of black board and/or audio-visual aids that includes multi-media projector, OHP, etc.
3. Assignments based on course content will be given to the students at the end of each unit/topic and will be evaluated at regular interval

Text Books:

1. A Textbook of Microbiology – P.Chakraborty. New Central Book Agency (P) Limited

Reference Books:

1. Textbook of Microbiology: 9th edition. R.Ananthnarayan; C.K Jayram Paniker. Orient BlackSwan
2. Textbook of Microbiology : 4th edition. D.R.Arora. CBS Publishers & Distributors

