

DEPARTMENT OF MICROBIOLOGY
CURRICULUM OF STUDY IN MICROBIOLOGY

OBJECTIVES AND KNOWLEDGE

At the end of the course, the student shall be able to...

1. State the infective Micro organisms of the human body and describe the host parasite relationship.
2. List pathogenic micro-organisms (Bacteria, virus, parasite, fungi and describe the pathogenesis of the diseases produced by them).
3. State and indicate the modes of transmission of pathogenic and opportunistic organisms and their sources, including insect vectors responsible for transmission of infection.
4. Describe the mechanisms of immunity to infections.
5. Acquire knowledge of suitable antimicrobial agents for treatment of infections and scope of immuno therapy and different vaccines available for prevention of communicable diseases.
6. Apply methods of disinfection and sterilization to control and prevent hospital and community acquired infections.
7. Recommended laboratory investigations regarding bacteriological examination of food, water, milk and air.

SKILLS :

At the end of the course the student shall be able to...

- Plan and interpret laboratory investigations for the diagnosis of infectious diseases and to correlate the clinical manifestations with the etiological agent.
- Identify the common infectious agents with the help of laboratory procedures and use antimicrobial sensitivity tests to select suitable antimicrobial agents.
- Perform commonly employed bed side tests for detection of infectious agents such as blood film for malaria and filaria, gram staining and Acid Fast Bacilli (AFB) and stool samples for ova cysts etc.
- Use the correct method of collection storage and transport of clinical material for microbiological investigations.

INTEGRATION:

The student shall understand infectious diseases of national importance in relation to the clinical therapeutic and preventive aspects.

ANNEXURE-VI

DEPARTMENT OF MICROBIOLOGY
SEMESTER WISE TEACHING PROGRAMME

IIIrd SEMESTER

<u>Sr. No.</u>	<u>Topic</u>	<u>Theory</u>	<u>Practicals / Demonstration</u>
1.	General Bacteriology	11 hours	10 hours
2.	Immunology	15 hours	8 hours
3.	Parasitology (Protozoology, Nematodes, Platyhelminths)	12 hours	13 hours
	TOTAL	38 hours	31 hours

During III semester 4 hours devoted to tutorials.

ANNEXURE-VI

DEPARTMENT OF MICROBIOLOGY

SEMESTER WISE TEACHING PROGRAMME

IVth SEMESTER

<u>Sr. No.</u>	<u>Topic</u>	<u>Theory</u>	<u>Practicals / Demonstration</u>
1.	Systemic Bacteriology: Gram Positive Bacteria Gram Negative Bacteria & other micro-organisms	10	12
2.	Anaerobic Bacteriology	4	02
3.	Spirochetes	3	02
4.	Enterobacteriaceae	10	10
5.	Vibrio/Spirillum	4	01
6.	Miscellaneous Bacteria	4	01
7.	Rickettsiae, Chlamydia, Actinomycetes	5	02
	TOTAL	40	30

ANNEXURE-VI

DEPARTMENT OF MICROBIOLOGY
SEMESTER WISE TEACHING PROGRAMME

Vth SEMESTER

<u>Sr. No.</u>	<u>Topic</u>	<u>Theory</u>	<u>Practical's / Demonstration</u>
•	Virology	17	05
•	Mycology	04	04
•	Applied Clinical Microbiology	25	
	TOTAL	46	09

The academic programme also included 56 hours of teaching in the form of:

- **Integrated Teaching:** 20 Hours (Integrated teaching was done with the other Para-clinical and clinical departments depending upon the topic of discussion)
- **Tutorials:** 18 Hours (04 Hours during III semester & 14 Hours during V semester)
- **Seminars:** 18 Hours (9 seminars of 2 hours duration each; approx. 1 per month)

Total Number of Hours Devoted To Teaching

- Programme: 250 hours
 - Theory: 124 hours
 - Practicals & Demonstration : 70 hours

(The practical & demonstration are carried out to cover the above mentioned topics with special emphasis in common laboratory techniques)

- Integrated teaching, tutorials, seminars: 56 hrs

DEPARTMENT OF MICROBIOLOGY**TEACHING PROGRAMME**

<u>Sr. No.</u>	<u>Topic</u>	<u>No. of hours</u>	
		<u>Theory</u>	<u>Practical & Demonstration</u>
<u>GENERAL BACTERIOLOGY</u>			
•	Microbiology (A Brief History)	01	01
•	Morphology of Bacteria	01	01
•	Growth and Nutrition of Bacteria	01	01
•	Identification of Bacteria	02	02
•	Sterilization and Disinfection	02	02
•	Chemotherapy	02	02
•	Bacterial Genetics	02	-
•	Bacteria in Health and Disease	-	04
•	Immunity	01	01
•	Antigens	01	01
•	Anti Body	01	02
•	The Complement System	01	02
•	Antigen Antibody Reactions	02	04
•	Architecture of the Immune System	01	01
•	Immune Response	01	01
•	Immunodeficiency Diseases	01	-
•	Hypersensitivity	02	03
•	Auto Immunity	01	-
•	Histo Compatibility System	01	-

DEPARTMENT OF MICROBIOLOGY
TEACHING PROGRAMME

<u>Sr No.</u>	<u>Topic</u>	<u>No. of Hours</u>	
		<u>Theory</u>	<u>Practical & Demonstration</u>
<u>SYSTEMIC BACTERIOLOGY</u>			
•	Staphylococcus	02	02
•	Strepto Coccus	02	02
•	Steptococcus Pneumoniae (Pneumococcus)	01	01
•	Neisseria	02	01
•	Corynebacterium	01	02
•	Bacillus	01	01
•	Clostridium	02	03
•	Mycobacterium	01	02
•	Atypical (Environmental) Mycobacteria	01	01
•	Mycobacterium Leprae	01	01
•	Non Sporing Anaerobes	01	01
•	Spirochaetes	02	03
•	Enterobacteriaceae	01	02
•	Proteeae: Proteus, Morganella and Providencia	02	01
•	Shigella	01	01
•	Salmonella	02	03
•	Yersinia	01	01
•	Vibrionaceae	02	02
•	Campylobacter, Helicobacter, & Mobiluncus	02	01

ANNEXURE-VII**DEPARTMENT OF MICROBIOLOGY****TEACHING PROGRAMME**

<u>Sr No.</u>	<u>Topic</u>	<u>No. of Hours</u>	
		<u>Theory</u>	<u>Practical & Demonstration</u>
•	Pseudomonas and Burkholderia	01	02
•	Legionella	01	--
•	Haemophilus	01	01
•	Bordetella	01	01
•	Brucella	01	01
•	Mycoplasma and Ureaplasma	01	01
•	Rickettsiaceae and Bartonellaceae	02	02
•	Chlamydia	02	01
•	Actinomycetes	01	01
•	Miscellaneous Bacteria	01	--

DEPARTMENT OF MICROBIOLOGY**TEACHING PROGRAMME**

<u>Sr No.</u>	<u>Topic</u>	<u>No. of Hours</u>	
		<u>Theory</u>	<u>Practical & Demonstration</u>
<u>VIROLOGY</u>			
•	General Properties of Viruses	02	02
•	Virus Host Interactions	02	01
•	Bacteriophage	01	-
•	Poxviridae	01	01
•	Herpesviridae	01	-
•	Adenoviridae, Parvoviridae, and Papovaviridae	01	-
•	Hepadnaviridae and Deltavirus	01	02
•	Picornaviridae	01	01
•	Rhabdoviridae	01	01
•	Orthomyxoviridae	01	-
•	Paramyxoviridae	01	01
•	Caliciviridae, Astroviridae and Coronaviridae	01	-
•	Arboviruses – Togaviridae, Flaviviridae & Bunyaviridae	02	01
•	Filoviridae, Arenaviridae & Reoviridae	01	-
•	Retroviridae	02	01
•	Medical Mycology	04	05
<u>CLINICAL MICROBIOLOGY</u>			
•	Emerging & Reemerging Infections Diseases.	01	-

DEPARTMENT OF MICROBIOLOGY**TEACHING PROGRAMME**

<u>Sr No.</u>	<u>Topic</u>	<u>No. of Hours</u>	
		<u>Theory</u>	<u>Practical & Demonstration</u>
•	Normal Microbial Flora of the Human Body	01	02
•	Infective Syndromes	13	17
•	Hospital Associated Infections	02	02
•	Antimicrobial Sensitivity Testing	02	01
•	Prophylactic Immunization	01	-
<u>BACTERIOLOGY OF WATER, MILK AND AIR</u>			
•	Bacteriology of Water, Milk and Air	02	02
•	Experimental Animals	01	01
<u>PARASITOLOGY</u>			
•	Protozoology Definitions and General Characteristics; Amoebae	02	03
•	Flagellates, Ciliata	01	01
•	Sporozoa, Toxoplasma & Others	01	02
•	Nematodes : Intestinal Tissue	02	03
•	Cestodes: Taenia, Hymenolepis, Echinococcus & Others	03	04
•	Trematodes : Flukes, Schistosomes & Others	01	02
•	Trematodes : Flukes, Schistosomes & Others	01	02