

MICROBIOLOGY

Placement: First Year

Time Allotted: Theory- 60 hrs.
Practical - 30 hrs.

COURSE DESCRIPTION

This course reorients the students to the fundamentals of Microbiology and its various sub-divisions. It provides opportunities to gain skill in handling and use of microscope for identifying various micro-organisms. It also provides opportunities for safe handling of materials containing harmful bacteria and methods of destroying microorganisms.

OBJECTIVES

At the end of the course, the student will:

1. Identify common disease producing micro-organisms.
2. Explain the basic principles of microbiology and their significance in health and disease.
3. Demonstrate skill in handling specimens.
4. Explain various methods of dis-infection and sterilization.
5. Identify the role of the nurse in hospital infection control system.

COURSE CONTENTS

UNIT I

Structure and Classification of Microbes.
Morphological types
Size and form of bacteria. .
Motility
Classification of Micro-organisms.

Practical : Use and care of microscope.
Common examination: Blood smear, Moulds, Yeasts.

UNIT II

Identification of Micro-organisms.
Discussion of laboratory methods.
Diagnosis of bacterial diseases.

Practical : Staining techniques-gram staining, acid fast staining.
Hanging drop preparation.

UNIT III

Growth and Nutrition of Microbes

Temperature.
Moisture
Blood

Practical : Preparation of Media and culture techniques.
Collection, handling and transportation specimens of various

UNIT IV

Destruction of Micro-organisms.
Sterilization and disinfection
Chemotherapy and antibiotics
Effects of heat and cold
Hospital Infection control procedure and role of nurses.

Practical: Sterilization methods - Physical, Chemical and Mechanical

UNIT V

Disease producing micro-organisms.
Gram positive bacilli
Tuberculosis and Leprosy
Anaerobes
Cocci
Spirochaete.
Rickettsiae

Practical: Identification and study of the following bacteria: Streptococci, pneumococci and Staphylococci, Corynebacteria, Spirochetes and gonococci. Enteric bacteria. Posting in infection control department.

UNIT VI

Pathogenic Fungi
Dermatophytes
Systemic Mycotic infection
Laboratory diagnosis of mycotic infection

UNIT VII

Immunity
Immunity and hypersensitivity - Skin test .
Antigen and antibody reaction
Immunization against disease.

Practical: Demonstration of serological methods.

UNIT VIII

Parasites and Vectors.
Characteristics and classification of parasites.
Protozoal infection including amoebiasis
Helminthes infection
Diagnosis of parasitic infection
Vectors and diseases transmitted by them.

Practical: Identification of Parasites and Vectors.

UNIT IX

Viruses.
Classification and general character of viruses
Diseases caused by viruses in man and animal and their control.

UNIT X

Micro-organisms transmitted through food.
Food poisoning. Food- borne infections.

UNIT XI

Biomedical Waste Management
- Microbiology and bio technology waste. Animal waste
(Please see Annexure -I)

PRACTICUM

Each Student will practice in the laboratory as indicated in each unit of the courses outline. While giving nursing care in the wards they will practice collection and processing of specimens, prevention and control of hospital infections, sterilization, immunization, chemotherapy and maintenance of personal and environmental hygiene. Observation visit to incinerator, posting in CSSD and infection control department. Biomedical Waste Management.