

MICROBIOLOGY

Placement : First Year

Theory -60 Hours (Theory 45+15 lab)

Course Description : This course is designed to enable students to acquire understanding of fundamentals of Microbiology and identification of various micro-organisms. It also provides opportunities for practicing infection control measure in hospital and community setting.

Specific objectives: At the end of the course student will be able to:

1. Explain concepts and principles of microbiology and their importance in nursing.
2. Understand the commensal, opportunistic and pathogenic organisms of human body and describe host parasite relationship.
3. State the sources and modes of transmission of pathogenic and opportunistic organisms including vectors and their role in transmission of diseases.
4. Be conversant with proper methods of collection, storage and transport of clinical material for microbiological investigations.
5. Understand the principles of immunology and its application in the diagnosis and prevention of infectious diseases.

Unit	Time (Hrs)	Learning Objectives	Content	Teaching Learning Activities	Assessment
I	T=5	<ul style="list-style-type: none"> • Explain concepts and principles of microbiology and their importance in nursing 	Introduction : <ul style="list-style-type: none"> • Importance and relevance to nursing • Historical perspective • Concepts and terminology • Principles of microbiology 	<ul style="list-style-type: none"> • Lecture • Discussion 	<ul style="list-style-type: none"> • Short answers • Objective type
II	15 Hrs T=10 P=5	<ul style="list-style-type: none"> • Describe structure, classification morphology and growth of bacteria • Identify Micro-organisms 	General characteristics of Microbes <ul style="list-style-type: none"> • Structure and classification of Microbes. • Morphological types • Size and form of bacteria • Motility • Colonization • Growth and nutrition of microbes <ul style="list-style-type: none"> * Temperature * Moisture * Blood and body fluids • Laboratory methods for Identification of Micro-organisms • Staining techniques, 	<ul style="list-style-type: none"> • Lecture • Discussion • Demonstration 	<ul style="list-style-type: none"> • Short answers • Objective type.

Unit	Time (Hrs)	Learning Objectives	Content	Teaching Learning Activities	Assessment
			Gram staining, Acid fast staining, Hanging drop Preparation • Culture; various medias		
III	12 Hrs T=10 P=2	<ul style="list-style-type: none"> • Describe the methods of infection control • Identify the role of nurse in hospital infection control programme 	<p>Infection control</p> <ul style="list-style-type: none"> • Infection : Sources, portals of entry and exit, transmission. • Asepsis • Disinfection; Types and methods • Sterilization ; Types and Methods • Chemotherapy and antibiotics • Standard safety measures • Biomedical waste management • Role of Nurse • Hospital acquired infection • Hospital infection control programme * Protocols, collection of samples, preparation of report and status of rate of infection in the unit / hospital, nurse's accountability, continuing education etc. 	<ul style="list-style-type: none"> • Lecture Discussion • Demonstration • Visits to CSSD • Clinical practices 	<ul style="list-style-type: none"> • Short answers • Objective type
IV	16 Hrs T=12 P=4	<ul style="list-style-type: none"> • Describe the different disease producing organisms 	<p>Pathogenic organisms</p> <ul style="list-style-type: none"> • Micro-organisms <ul style="list-style-type: none"> ○ Cocci – gram positive and gram negative ○ bacilli-gram positive gram negative ○ Spirochaete ○ Mycoplasmas ○ Rickettsiae ○ Chlamydiae • Viruses • Fungi-Superficial and Deep mycoses • Parasites • Rodents & vectors Characteristics, Source, portal of entry, transmission of infection Identification of disease producing micro-organisms Collection, handling and transportation of various specimens. 	<ul style="list-style-type: none"> • Lecture Discussion • Demonstration • Clinical practice 	<ul style="list-style-type: none"> • Short answers • Objective type.

Unit	Time (Hrs)	Learning Objectives	Content	Teaching Learning Activities	Assessment
V	12 Hrs T=8 P=4	Explain the concept of immunity, hyper sensitivity and immunization	Immunity <ul style="list-style-type: none"> • Immunity – Types, classification • Antigen and antibody reaction • Hypersensitivity – skin test • Serological tests • Immunoprophylaxis <ul style="list-style-type: none"> ○ Vaccines & sera – Types & Classification, storage and handling, cold chain ○ Immunization for various diseases Immunization Schedule	<ul style="list-style-type: none"> • Lecture Discussion • Demonstration • Clinical practices 	<ul style="list-style-type: none"> • Short answers • Objective type.

Bibliography :

1. Alice Corrairie Smith, “Microbiology and pathology” 9th ed., Mosby Co.
2. Bernard D. Davis, Rentap Dalbecco Herman N. Eisen & Harold S. Ginsberg, “Microbiology”, 3rd ed, A Harper International edition.
3. Hug L. L Moffet, (1981) “Clinical microbiology”, 2nd ed., J. B. Lippincott Co.
4. Macbie and Mecartney, (1980), “Medical microbiology” 13th ed., Printed.
5. P. Ananthanarayan and C. K. Jayarm Panikar, “Textbook of microbiology”, 8th ed., Orient Longman Company Ltd.
6. Chakravarti Text book of Microbiology.
7. T. Panjraton Text Book of Microbiology in nursing, New central Bool agency Culcutta 2002.

Evaluation Scheme

Subject Microbiology	Assessment			
	Hours	Internal	External	Total
Theory	3	25	75	100

Details as follows:

Internal Assessment: 25 Marks
(Out of 25 Marks to be send to the University)

Details as follows:

Theory: 15 Marks

Mid-Term: 50 Marks

Prelim: 75 Marks

Total: 125 Marks

(125 Marks from mid-term & prelim (Theory) to be converted into 15 Marks)

Assignment: 10 Marks

External Assessment: 75 Marks (University Examination)