



Course description:

This course introduces to the world of microbiology, the basis of higher life forms. learn the fundamental theory and laboratory skills needed to understand microbial isolation, growth, diversity, reproduction, physiology, metabolism and identification. Also study the distribution of microorganisms in nature, their relationship to each other and to other living things as well as their beneficial and detrimental effects. Gain of ethics and laboratory skills is an essential component of the course as well as understanding the theory behind each experiment.

Aims of the course:

1. Identify bacterial means of key characteristics of metabolism, morphology, and pathogenesis.
2. Select optimal methods for isolation and identification of common bacteria and viruses.
3. Apply appropriate laboratory techniques to the identification of pathogenic microorganism isolated from clinical specimen.
4. Demonstrate knowledge of the disease process associated specific etiology agents associating clinical finding with the agents of common disease.
5. Discuss the mechanism of action of various antibiotics and antimicrobial agents.
6. Perform and interpret antimicrobial susceptibility testing procedures.
7. Practices safe laboratory procedures for the handling of biohazards agents.
8. Practice quality control and quality assurance according to contemporary clinical laboratory standards.

Intended Learning Outcomes: (ILOs)

A. Knowledge and Understanding

A1. Concepts and Theories:

Upon successful completion of this course, students will become familiar with the some concepts and theories about pathogenic microorganism, mode transmission of diseases, and who treatment of diseases.

A2. Contemporary Trends, Problems and Research:

Guide students to contemporary issues related to the diseases, germs, and new research about that. To be abreast of the latest development related to the science of microbiology.

A3. Professional Responsibility:

Attendance in lab and lecture is necessary and expected. Individual assignments may be given out at various times in the course. As well as focus on professional responsibility that related on correct identification of microbe to reach correct treatment, and responsibility of safety in LAB and hospital if they will work in microbiology field.

B. Subject-specific skills

B1. Problem solving skills:

Stimulate students to discover and identifying problems and solving them, solving problems in teams.

B2. Modeling and Design:

Using charts and models that help in understanding of microbiology.

B3. Application of Methods and Tools:

1. Lecture; 2. Laboratory presentation and demonstration; 3. Laboratory practice; 4. Discussion.

C. Critical-Thinking Skills

C1. Analytic skills: Students will use critical thinking and problem solving skills in analyzing information.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. Communication: Students will communicate effectively in both speech and writing during lab.

D2. Teamwork and Leadership: Students will develop the interpersonal skills required for effective performance in group situations.

Course structures:

Week	Credit Hours	ILOs	Topics	Teaching Procedure	Assessment methods
1	2	A1	Introduction	Introduction in microbiology; major concept	
2	2	A1,B1,C, &D1	Microbial structure	Describe structure of microbes	
3	2	A2,B2,C, &D1	Microbial growth and metabolism	Study factor influence in growth of microbe and metabolism	
4	2	A3,B2,C, &D1	Bacterial pathogenesis and microbial genetic	- Infection process. -pathogenicity and virulence factor. - Bacterial DNA. - Genotyping variation.	
5	2	A1,B2,C, &D1	Concept of infection control, Sterilizations and disinfections	-learn about infection control. Content of infection control team, and tasks of infection control committee. - Study different methods that used in sterilizations and disinfections.	
6	2	A,B2,C, &D	Gram positive cocci	- Study medically important in staphylococci genera; general characteristics, pathology, disease, and lab diagnosis. - Study medically important in streptococci genera; general	

				characteristics, pathology, disease, and lab diagnosis.	
7	1	A,B2,C, &D1	Gram positive bacilli	- Study different genera has gram positive bacilli structure; general characteristics, pathology, disease, and lab diagnosis.	
8	2	A,B,C, &D	Mycobacteria and medically gram negative cocci	Study Mycobacteria; general characteristics, pathology, treatment.	
9	2	A,B,C, &D	Gram negative rod	Study different genera has gram negative bacilli structure; general characteristics, pathology, disease, and lab diagnosis.	
10	2	A3,B3,C, &D	fungi	Study general characteristics of fungi, pathology, disease, and lab diagnosis.	
11	1	A,B,C, &D	virus	Study general characteristics of virus, structure, disease, and lab diagnosis.	
12	2	A,B,C, &D	Principle of antimicrobial agent	Study principle of antimicrobial chemotherapy, Degree of effectiveness, range of effectiveness, and mechanism of action.	
13	2	A,B,C, &D	Antimicrobial resistance	Study how microbe can resist of antimicrobial.	
14	2	A1	Host pathogen interaction	Study how the human body can defense himself against pathogen.	

References:

Main Textbook: Essentials microbiology for nurses. I.kannan

Assessment Methods:

Methods	Grade	Date
First exam	20%	
Second exam	20%	
Attendance and activity	10%	
Final exam	50%	
Total	100%	