Topical plan
of discipline "Microbiology, virology and immunology" for students of the specialty I2 "Medicine"
for the 4 semester 2025-2026 academic year

№	Topic	Hours
1	Medical microbiology: subject, tasks, history of development. Morphology and structure of bacteria. Bacterial physiology.	2
2	Microbiological bases of antimicrobial therapy. Antiseptics and asepsis.	2
3	Immunity. Factors and mechanisms of innate protection of the body. Antigens.	2
4	Adaptive response. Immune reactions. Basics of immunodiagnostics, immunoprophylaxis and immunotherapy of infectious diseases.	2
5	General characteristics of pathogens of acute intestinal infections. Microbiology of Escherichiosis, Shigellosis, Salmonellosis.	2
6	Microbiology of coccal infections: staphylococcal, streptococcal, meningococcal, gonococcal.	2
7	Microbiology of respiratory bacterial infections: diphtheria, tuberculosis, pertussis.	2
	Total 14 hours	

THEMATICAL PLAN OF THE PRACTICAL LESSION
of discipline "Microbiology, virology and immunology" for students of the specialty "Medicine"
for the 4 semester 2021-2022 academic year

№	Topic	Hours
	Module I " Morphology, physiology and genetics of microorganisms "	
1	Rules of work in the bacteriological laboratory. Morphology of bacteria. Light microscopy using an immersion lens. Simple painting methods.	2
2	The structure of the bacterial cell. Complex painting methods. Features of the ultrastructure of spirochetes, rickettsiae, chlamydia, mycoplasmas. Modern methods of microscopic examination. Microscopic method for diagnosis of infectious diseases.	2
3	hysiology of microorganisms. Nutrition and respiration of microorganisms. Cultural media. Isolation of pure culture of aerobic bacteria (stage I).	2
4	Enzymes of bacteria. Isolation of a pure culture of aerobic bacteria (II-IV stages).	2
5	Anaerobes. Isolation of pure culture of anaerobic bacteria. Biological method of diagnosis of infectious diseases.	2
6	Bacteriophages, their biological significance. Use of bacteriophages in microbiology and medicine. Genetics of microorganisms. Plasmids, transposons, IS-sequences. Polymerase chain reaction.	2
7	Basics of asepsis and antiseptics. Sterilization. Disinfection. Biorisk management in the laboratory.	2
8	Antibiotics. Antimicrobial resistance. Methods for determining and assessing the sensitivity of microorganisms to antimicrobial drugs. Quality indicators of antimicrobial therapy. Antibiotic therapy and antibiotic prophylaxis.	2
9	Final control on the content module I "Morphology, physiology and genetics of microorganisms.	2
	Module II. The microflora of the human body. The infection doctrine. Immunology	
10	Normal microflora of the human body. Dysbacteriosis.	2
11	The doctrine of infection.	2
12	Immunity. Mechanisms and factors of innate immunity.	2
13	Antigens. The role of antigens in the infectious process and the development of the immune response. Practical use of antigens.	2
14	Adaptive humoral immune response. Immunoglobulins (antibodies): definition, classes, structure, functions, properties, practical use.	2
15	Serologic tests: the purpose and the principle of setting. Agglutination reaction, flocculation and precipitation, (varieties, goal setting), neutralization of toxins.	2
16	Serological tests: complement binding reaction (COMR), reactions using labeled antibodies and antigens - ELISA, IFT, RIA. Immunoblot.	2
17	Adaptive cellular immune response. Types of cellular immune response. Immunological tolerance.	2

18	Basics of immunopathology.	2
19	Anti-infective immunity. Principles of functioning of the immune system. Regulation of the immune response.	
20	Assessment of the immune status of the human body: purpose, principles, methods.	2
21	Specific prevention and treatment of infectious diseases. Therapeutic, prophylactic and diagnostic immunological preparations.	
22	Final control of the content module "Microflora of the human body. The doctrine of infection. Immunology."	2
	Module III. Special bacteriology	
23	Microbiology of escherichiosis.	2
24	Microbiology of shigellosis.	
25	Microbiology of typhoid fever, A and B paratyphoid.	2
26	Microbiology of cholera. NAG - vibrios.	2
27	Microbiology of pseudotuberculosis and intestinal yersiniosis.	2
28	Microbiology of campylobacteriosis and helicobacteriosis.	2
29	Microbiology of acute intestinal bacterial infections. Intestinal infections caused by opportunistic pathogens.	
30	Pathogens of food poisoning. Microbiology of botulism and staphylococcal food poisoning.	2
31	Microbiology of staphylococcal infections.	2
32	Microbiology of streptococcal infections.	2
33	Microbiology of meningococcal and gonococcal infections.	2
34	Microbiology of wound infection.	2
35	Microbiology of diphtheria and bordeteliosis.	2
36	Microbiology of tuberculosis, leprosy and mycobacteria..	2
37	Microbiology of plague and tularemia.	2
38	Microbiology of anthrax and brucellosis.	2
39	Microbiology of spirochetosis.	2
40	Microbiology of rickettsiosis.	
		Total 80 hours