Course description

General information about the course	
1. Major of study: medicine	**2. Study level**: unified MSc
	3. Form of study: intramural
4. Year: IV	**5. Semester**: VII
6. Course name: Microbiology & Virology I + II	
7. Course status: required	

8. Course contents and assigned learning outcomes

Preclinical Sciences: Microbiology & Virology

Laboratory diagnosis of infectious diseases – technique of obtaining the specimens, transport to the laboratory. Methods of cultivation and identification of bacteria. Sterilisation and disinfection: definitions, controls. Systemic bacteriology: Gram-positive cocci. Systemic bacteriology: Gram-negative cocci. Characteristic of capnophilic bacteria. Cerebrospinal fluid examination. Systemic bacteriology: Gram-positive rods. *Mycobacteria*. Characteristics and classification Gram-negative rods *Enterobacterales* family and non-fermented. Laboratory diagnosis. Mechanisms of antibiotic resistance (AmpC, ESBL, MBL, KPC, NDM, OXA-48). *Enterobacterales* I: general features. *Escherichia coli* – characteristic, antigenic structure, methods of identification. *Klebsiella* spp*., Proteus* spp*., Yersinia* spp*.* and others. Urinary tract infections (UTI): pathogenesis, and general diagnostic approaches. Systemic bacteriology: anaerobic bacteria. Medically important Clostridia – prevention and treatment of diseases caused by: *Clostridium tetani, Clostridium botulinum, Clostridium perfringens* and *Clostridioides difficile*. Sexually transmitted diseases. Enteric infections and food poisoning. Laboratory diagnosis and etiological agents of respiratory tract infections. Fastidious bacteria. Parasitology: Definition of parasitology. The definition of parasitism. Classification of parasites. Selected parasite infections of the gastrointestinal tract, genitourinary tract, blood and tissues. Hospital infections: laboratory methods required for confirmation of hospital infection. Yeasts and Molds important in medicine. Viral diseases, diagnostic approaches. Zoonoses and microbiological diagnosis.

Learning outcomes / reference to learning outcomes indicated in the standards

For knowledge – student knows and understands: C.W11-C.W20, C.W40

For skills student can do: C.U6 - C.U12, C.U15

For social competencies student is ready to: II 3C, II 3

9. Number of hours for the course	70
10. Number of ECTS points for the course	6

11. Methods of verification and evaluation of learning outcomes

Learning outcomes	Methods of verification	Methods of evaluation*
Knowledge *Student knows and understands:* 1. knows bacterial mechanisms of acquired antibiotic resistance [C.W11] 2. classifies microorganisms, as pathogenic and belonging to physiological microflora [C.W.12] 3. knows the epidemiology of viral, bacterial, fungal		* **Very good (5,0)** – the assumed learning outcomes have been achieved and significantly exceed the required level **Better than good (4,5)** – the assumed learning outcomes have been achieved and slightly exceed the required level **Good (4,0)** – the assumed learning outcomes have been achieved at the required level

and parasitic infections, taking into account the geographical range of their occurrence [C.W.13] 4. knows the impact of abiotic and biotic (viruses, bacteria) environmental factors on the human body and the human population, and the ways of entering the human body; [C.W14] 5. knows the consequences of exposure of the human body to various biological factors and the principles of prevention [C.W15] 6. knows invasive forms or developmental stages of selected parasitic fungi, protozoa, helminthes, taking into account the geographical range of their occurrence; [C.W16] 7. knows the principle of the parasite-host interactions and knows the basic disease symptoms caused by parasites [C.W17] 8. knows symptoms of iatrogenic diseases, their transmission pathways and pathogens causing changes in individual organs [C.W18] 9. knows the basics of microbiologic and parasitologic diagnostics [C.W19] 10. knows basics of disinfection, sterilization and aseptic procedures [C.W20] 11. knows the problem of drug (antibiotic) resistance, including multi-drug resistance of bacteria [C.W40]	Grade credit – MCQ (3 middle exams during semester)	**Better than satisfactory (3,5)** – the assumed learning outcomes have been achieved at the average required level **Satisfactory (3,0)** – the assumed learning outcomes have been achieved at the minimum required level **Unsatisfactory (2,0)** – the assumed learning outcomes have not been achieved

Skills 1**.** is able to assess environmental hazards and uses the basic methods to detect the presence of biological harmful factors in the biosphere [C.U6] 2. is able to recognize the most common human parasites, based on their structure, life cycles and symptoms of diseases [C.U7] 3. can use the antigen-antibody reaction in current modifications and techniques for the diagnosis of infectious diseases [C.U8] 2. is able to prepair microscopic slides and recognizes pathogens under the microscop [C.U9] 3. is able to do interpretation the results of microbiological tests [**C.U10**] 4. is able to associate images of tissue and organ damage with clinical manifestations of the disease, medical history and laboratory results [C.U11] 5. can analyze reactive, defensive and adaptive phenomena as well as regulation disorders caused by an etiological factor [C.U12] 6. can design patterns of rational empirical and targeted chemotherapy for infection [C.U15]	**Observation and *Practical Exam (on the end of lab. classes)**	**Passing/or not**
Competencies 1. student understands and recognizes the need to respect medical confidentiality, patient rights and is aware of its	Observation	*** Observation**

own limitations and the need for continuous training		