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 & Virusology 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		

* The following evaluation system has been assumed:

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

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