

Course Title	Medical Microbiology				
Course Code	MD320				
Course Type	Compulsory				
Level	1 st Cycle (MD)				
Year / Semester	3 rd Year / 6 th Semester				
Teacher's Name	TBA				
ECTS	6	Lectures / week	3 hrs / 14 weeks	Laboratories / week	3 hrs / 14 weeks
The main Course Purposes and Objectives	<p>Purposes and objectives of this course is to familiarised students with:</p> <ul style="list-style-type: none"> • Microorganisms of clinical importance (bacteria, fungi, parasites, viruses), that cause disease to humans, explaining the mechanisms of bacterial pathogenesis and development of infectious disease , their main clinical manifestations and their epidemiology • Antimicrobials, their mode of action and the mechanisms of resistance and the importance of the surveillance of the antimicrobial resistance • The importance of Multi- Drug- Resistance (MDR) bacteria and the impact of resistance in public health with the risk of nosocomial and community-acquired infections caused them as well as the fundamental principles of infection control and prevention from common and MDR resistant microorganisms and antibiotic stewardship. • The course will also include laboratory exercises for the investigation and diagnosis of the most common human infections. <p>The ultimate goal of this course is to get students to understand how infectious diseases are caused by microbes and how to recognize, prevent and treat them, so as to prepare them for entry into the clinical curriculum and to provide students with an introduction to infectious diseases that will sustain them through their future medical career.</p>				
Learning Outcomes	<p>Upon successful completion of this course students should be able to:</p> <ul style="list-style-type: none"> • List the key microorganisms (microbes, viruses, fungi and parasites) which can cause disease in humans and define the main diseases they can cause. • Define the suspected causative agent (bacterial, viral, fungal, protozoan or parasitic) correlated to the infection. • List and understand the multi-drug resistant bacteria and their role in hospital and community-acquired infections. 				

	<p>Discuss the microbiological basis and clinical use of antimicrobials, their mechanism of action. Describe resistance mechanisms to the different classes of antimicrobials and apply this knowledge towards targeted and prudent use of antimicrobials.</p> <ul style="list-style-type: none"> • Describe the procedures for the prevention and control of infectious diseases. • Analyze a scientific article or a case report related to Medical Microbiology and present a critique to their peers. 		
Prerequisites	None	Co-requisites	None
Course Content	<ul style="list-style-type: none"> • Classification of microorganisms. • Infectious diseases and causative agents . • Normal microflora, virulence factors, pathogenesis and host-pathogen interaction. • Basic principles of ecology and epidemiology of Infectious diseases . • Control and prevention of transmission . • Hospital-acquired infections. Infection prevention and control. • Antimicrobial agents: classification, mode of action, uses and indications, resistance mechanisms. • Diagnostic microbiology: the importance of the microbiology laboratory and basic principles of laboratory investigation. <p>Virology General properties of viruses and their epidemiology. Virological replication. Host defense mechanisms. Laboratory investigation and diagnosis. Respiratory viruses. Herpes viruses. Gastrointestinal viruses. Hepatitis viruses. HIV. HPV. Enteroviruses. Arboviruses. Pediatric virology. Vaccination.</p> <p>Bacteriology Cell biology of bacteria. Genetics. Bacterial metabolism and replication. Gram-positive cocci and bacteria. Gram-negative cocci and bacteria. Anaerobes. Mycobacterial diseases. Zoonoses. Vector-borne bacteria. Intracellular bacteria.</p> <p>Mycology Systemic and cutaneous fungal infections. Laboratory diagnosis of fungal infections. (Microsporium, Trichophyton, Epidermophyton, Malassezia, Fusarium, Candida, Cryptococcus, Aspergillus, Zygomycetes, Fussarium ,Dimorphic fungi).</p> <p>Parasitology Protozoa and helminths (<i>E. histolytica</i>, <i>Naegleria</i>, <i>Acanthamoeba</i>. <i>Giardia lamblia</i>, <i>Trichomonas vaginalis</i>. <i>Leishmania</i> spp. <i>Trypanosoma</i> spp. <i>Toxoplasma gondii</i>. <i>Plasmodium</i> spp. <i>Cryptosporidium</i>. <i>Pneumocystis jirovecii</i>. <i>Strongyloides stercoralis</i>.</p>		

	<p><i>Enterobius vermicularis. Ascaris lumbricoides. Taenia spp. Echinococcus spp. Schistosoma spp</i>) causing gastrointestinal, respiratory, urogenital, bloodstream, central nervous system and cutaneous infections. Epidemiologic and ecological factors in the pathogenesis of disease.</p> <p>Laboratory exercises:</p> <p>Basic principles of investigation and diagnosis. Diagnostic methods for isolation and identification of microorganisms from various clinical specimens. Interpretation of diagnostic tests.</p>						
Teaching Methodology	Face-to-face						
Bibliography	<p>Medical Microbiology; Murray, P.; ISBN :978-0-323-29956 -5; Mosby;</p> <p>Medical Microbiology: A Guide to Microbial Infections: Pathogenesis, Immunity, Laboratory Diagnosis and Control; Greenwood, David; 978-0443102097; Churchill Livingstone;</p> <p>Microbiology and Immunology (Board Review Series) Louise Hawley et al Wolters Kluwer-Lippincott Williams and Wilkins</p> <p>USMLE Step 1, Immunology and Microbiology Lecture notes. Kim Moscatello et al .Kaplan Inc</p>						
Assessment	<table> <tr> <td>Examinations:</td> <td>70%</td> </tr> <tr> <td>Assignment/Lab</td> <td>20%</td> </tr> <tr> <td>Class Participation:</td> <td>10%</td> </tr> </table>	Examinations:	70%	Assignment/Lab	20%	Class Participation:	10%
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Language	English						