



Module (Course Syllabus) Catalogue

College/ Institute	Koya Medical Technical Institute	
Department	Medical Laboratory Technology/Taqtaq/Evening and Morning	
Module Name	Medical Microbiology	
Module Code	MEM 305	
Degree	Technical Diploma * Bachelor High Diploma Master PhD	
Semester	3	
Qualification	Master	
Scientific Title	Assistant lecture	
ECTS (Credits)	6	
Module type	Prerequisite	Core * Assist.
Weekly hours		
Weekly hours (Theory)	(2)hr Class	(3)Total hrs Workload
Weekly hours (Practical)	(2)hr Class	(0.5)Total hrs Workload
Number of Weeks	12	
Lecturer (Theory)	Assist lecture: Dlshad Saadallah Othman	
E-Mail & Mobile NO.	Dlshad.othman@epu.edu.iq 07501203648	
Lecturer (Practical)	Assist lecture: Dlshad Saadallah Othman	
E-Mail & Mobile NO.	Dlshad.othman@epu.edu.iq	

Course Book

Course Description	<p>Course overview: Medical microbiology is both a branch of medicine and microbiology which deals with the study of microorganisms including bacteria, viruses, fungi and parasites which are of medical importance and can cause diseases in human beings. It includes the study of microbial pathogenesis and epidemiology and is related to the study of disease pathology and immunology. Microorganisms have a tremendous impact on all life and the physical and chemical makeup of our planet. They are responsible for cycling the chemical elements essential for life. This course will introduce students to the microbial species that cause human disease.</p>
Course objectives	<p>The aims of this course are to establish the student pharmacist's foundation in the principles of medical microbiology, immunology and virology that will build upon the knowledge and skills gained in the patient assessment course sequence. In order to successfully manage a patient with an infectious disease, the student pharmacist must first understand the role of the host's immunologic response and the burden of disease caused by clinically important pathogens. The content in this course will lay the foundation for the subsequent patient care series where the pharmacology and medicinal chemistry of anti-infective agents and pharmacotherapy of infectious diseases will be learned and applied to optimize the care of a patient.</p>

Student's obligation	The students should be attendance and participate in class activity. The lectures have showed by them through presentations and practical activity and required to do the all exams and quizzes. The ideas that develop the course are the students make circle in class to discuss the subjects of the day and use materials for practical skills.				
Required Learning Materials	Students are required to apply MOODLE program as the platform of electronic study. They need to use Laptop or mobile version. They need to use university G-suite account for accessing the course materials and assignments				
Evaluation	Task		Weight (Marks)	Due Week	Relevant Learning Outcome
	Paper Review				
	Assignments	Homework	5	4	Can foster independent learning and responsible character traits
		Class Activity	2%	7	Presence or absence in the classroom
		Report	5%	5	How to write in an appropriate style for an academic or scientific report and understand typical conventions of technical and lab reports
		Seminar	5%	10	The participants engage in the discussion of an academic subject for the aim of gaining a better insight into the

				subject
		Essay		
		Project		
	Quiz	8%		To contribute student motivation and engagement, and students perceive that quizzes support their learning
	Lab.			1- Demonstrate professional responsibility by exhibiting organizational skills, ethical behaviour. 2. Evaluate clinical laboratory data by interesting laboratory results and relating the data to various disease states. 3. Demonstrate technology skills by operating laboratory equipment for testing.
	Midterm Exam	25%		reflect on what you identify as important and to recognize how far they have come during the middle of the semester and semester as a whole. Consider asking questions that allow students to demonstrate a range of knowledge and critical thinking skills from basic knowledge and comprehension through application and analysis up to synthesis and evaluation.
Final Exam	40%			
Total	100			

<p>Specific learning outcome:</p>	<p>Different forms of teaching will be used to reach the objectives of the academic year:</p> <ol style="list-style-type: none"> 1. Ability to develop general knowledge 2. Knowledge and understanding of the subject area and understanding of the profession 3. Ability to identify, differentiate, pose and resolve problem 4. Demonstrate the ability to think critically and solve problems in a laboratory setting 5. Ability to apply knowledge in practice 6. Ability to search for process and analyse information from a variety of sources 7. Ability to act as ethical and responsible members of the health care team. 8. Ability to make reasoned decision. 	
<p>Course References:</p>	<ol style="list-style-type: none"> 1. Text book of medical Microbiology. 2. Microbiology (A laboratory manual)(Eleventh edition) 3. Many journals of Microbiology. (Internet) 4. The bacteria book(Steve mould) 	
<p>Course topics (Theory)</p>	<p>Week</p>	<p>Learning Outcome</p>
<p>1-Definition of Microbiology? History and contribution. Classification system.</p>	<p>1</p>	<p>Identifying information about the types of microorganisms, evolution and bacterial discoveries</p>

2-Typical Bacteria Cell Structure?	2	Definition of cell structure and importance with function.
3- Morphology of bacteria. - Microbial Reproduction and Growth	3	Information types of bacteria. Bacterial growth stages and cellular changes.
4- - Factors affecting bacterial growth	4	Chemical and physical factors act on cell growth.
5 -The Normal Flora.	5	Definition of natural neighbor normal flora.
6- Pathogenic bacteria.	6	The definition of pathogens, their properties and pathogenic efficacy
7- Host-Parasite Relationship. Virulence factors.	7	Types of relationships between creatures and knowledge of the virulence factors of pathological organisms

8 – Gram positive bacteria? <i>Staphylococcus species.</i>	8	General characteristic of Gram bacteria , important pathogenic species and their harms on human.
9- Gram positive bacteria? <i>Streptococcus species.</i>	9	General characteristic of Gram bacteria, important pathogenic species and their harms on human.
10- Mycobacterium (definition, characteristic, diseases, identification.....et).	10	General characteristic of Gram bacteria, important pathogenic species and their harms on human.
11- Genus Neisseria and its species (characteristic, morphology, diseases, identification et)	11	General characteristic of Gram bacteria, important pathogenic species and their harms on human.
12- Bacillus	12	General characteristic of Gram bacteria, important pathogenic species and their harms on human.
Mid Tem .Final Exam.		
Course topics (Practice)	Week	Learning Outcome
1. Sterilization and disinfection	1	Student be able to know the methods of sterilization and the differences between sterilization and disinfection

2. Microscope	2	Be able to know about parts of microscope and how to be used.
3. Media preparation	3	Be able to know about types of culture media and how can be prepared.
4. Isolating bacteria from different sources	4	Isolation of bacteria from soil, hair, sewage water and nail.
5. Isolation and streaking of bacteria	5	Types of bacterial streaking on culture media
6. Simple stain and introducing bacterial shapes	6	Using one type of stain and seen bacterial shapes under microscope.
7. Gram stain	7	Differences between gram positive and gram negative bacteria.
8. Acid- faststain	8	To be able how mycobacterium to be stain
9. Capsule stain	9	Staining of bacterial capsule and seen under microscope
10. Endospore stain	10	Staining of bacterial spore and seen under microscope
11. Antibiotic susceptibility test	11	Using multiple discs on the Muller Hinton agar and showing resistance, sensitivity of bacteria.
12. Biochemical tests	12	Catalase, oxidase and coagulase tests.

Questions Example Design	
Q1/Multiple choice	Is the time elapsed between exposure to pathogenic microbes and first appearance of clinical symptoms? a- Illness stage. b- Prodromal stage c-Incubation period d- Convalescence
Q2/ Definition	Define the followings: Microbiology, Bacteria, Pathology, Normal flora
Q3/A- True and false	Put letter F (false) or letter T (true) in front of the statement: 1. β -hemolysis means partial hemolysis ,green discoloration around the colonies 2. Neisseria is gram -positive cocci often arranged in pairs (diplococci) with adjacent sides flattened (like coffee- beans). 3. All staphylococci produce the enzyme catalase which is used in the laboratory for rapid identification. 4- Algae are non-cellular entities that are parasites of cells.
Q3/B- Enumerating	Factors affecting bacterial growth. 1- 2- 3- 4-
Q4/A- Explain shortly	What are the differences between Exotoxin viruses and Endotoxin?
Q4/B- Filling blanks	1- Inner layer of bacterial cell wall is multilayer structure composed of----- 2 ----- is a microscopic organism which may be single cell or multicellular organism
Q 5	Write symptoms of tuberculosis?

Extra notes:

External Evaluator

The outcome of course book evaluation is commonly more explicit and follows the principles and rules in general.

**Mr Shaaban Zirar
Omar Assist
Lecturer**