Module (Course Syllabus) Catalogue

2023-2024

College/ Institute	Shaqlawa Technical College	
Department	Medical Laboratory Technology -MLT (Morning)	
Module Name	Diagnostic Bacteriology	
Module Code	DIB705	
Degree	Technical Diploma [X] Bachler [x] High Diploma [ ] Master [ ] PhD [ ]	
Semester	4	
Qualification	Technical Diploma Student	
Scientific Title	NA	
ECTS (Credits)	5	
Module type	Prerequisite [ ] Core [x] Assist. [ ]	
Weekly hours	4	
Weekly hours (Theory)	(2)hr Class	(125)Total hrs Workload
Weekly hours (Practical)	(2)hr Class	(125)Total hrs Workload
Number of Weeks	14	
Lecturer (Theory)	Dr. Muayad A. Mahmud	
E-Mail & Mobile NO.	muayad.mahmud@epu.edu.iq 07504773872	
Lecturer (Practical)	Dr. Muayad A. Mahmud	
E-Mail & Mobile NO.	muayad.mahmud@epu.edu.iq	

Websites	

Course Book

Course Description	Diagnostic Bacteriology (DIB705 – 5 credits) This course (lecture at the class/practical at designated hospitals) will be taught as a hybrid/blended course. It is based in the principles and practices utilized in the isolation and identification of human pathogenic microorganisms and the relationship of these organisms to disease.
Course objectives	The student will: 1. Develop a working knowledge of techniques and procedures commonly used in the clinical microbiology laboratory. 2. Use appropriate safety protocol and laboratory techniques for processing specimens. 3. Acquire knowledge of culture techniques appropriate for the primary culture sites. 4. Recognize the expected “normal” flora for each culture site. 5. Understand the importance of Clinical Microbiology laboratory organism isolation and identification in diagnosing and monitoring diseases/conditions. 6. Associate selected infectious diseases with appropriate culture requirements and causative agents. 7. Understand the recommended process for identifying unknown pathogens.

<table>
<tr><td>Student's obligation</td><td colspan="5">*Exam policy:
Student Should take 2 exams during the course There will be no make-up exams for absences students without medical report. Other activities such as Seminars, Reports, Lab activities and Home works are compulsory

*Classroom polices:
1- Attendance: students are strongly encouraged to attend class on a regular basis, as participation is important to your understanding of the material. This is your opportunity to ask questions. You are responsible for obtaining any information you miss due to absence
2- Lateness: Lateness to class is disruptive
3- Electronic devices: All cell phones are to be turned off at the beginning of class.
4-Talking: During class please refrain from side conversations. These can be disruptive to students and professors.</td></tr>
<tr><td>Required Learning Materials</td><td colspan="5">Face-to-Face (Lectures and PowerPoint presentation), white-board and online meeting using Zoom us app.
Practical lessons by working in the Lab and performing experiments. Lecture handouts will be available on Moodle plat form and online access will always be possible until final exam time.</td></tr>
<tr><td rowspan="11">Evaluation</td><td colspan="2">Task</td><td>Weight (Marks)</td><td>Due Week</td><td>Relevant Learning Outcome</td></tr>
<tr><td colspan="2">Paper Review</td><td></td><td></td><td></td></tr>
<tr><td rowspan="5">Assignments</td><td>Homework</td><td>5%</td><td></td><td></td></tr>
<tr><td>Class Activity</td><td>2%</td><td></td><td></td></tr>
<tr><td>Report</td><td rowspan="4">10%</td><td></td><td></td></tr>
<tr><td>Seminar</td><td></td><td></td></tr>
<tr><td>Essay</td><td></td><td></td></tr>
<tr><td>Project</td><td></td><td></td></tr>
<tr><td colspan="2">Quiz</td><td>8%</td><td></td><td></td></tr>
<tr><td colspan="2">Lab. Report and activity</td><td>10%</td><td></td><td></td></tr>
<tr><td colspan="2">Midterm Exam</td><td>25% (T:10, P:15)</td><td></td><td></td></tr>
<tr><td colspan="2">Final Exam</td><td>40% (T:20, P:20)</td><td></td><td></td></tr>
<tr><td colspan="2">Total</td><td>100</td><td></td><td></td></tr>
<tr><td>Specific learning outcome:</td><td colspan="5">Upon completion of the course, students should be able to:</td></tr>
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	1- To demonstrate the ubiquity and diversity of microorganisms in the human body and the environment. 2- To illustrate the characteristics features of microorganisms and the diseases they cause. 3- To explore mechanisms by which microorganisms cause disease. 4- To show how the human immune system counteracts infection by specific and non- specific mechanisms. 5- To explore the routes of transmission of infection in hospitals, communities and populations and the methods used to control the spread of infection. 6- To demonstrate the principles of vaccine preparation and the use of vaccines in immunization. 7- To show the reasons for, and the methods for sterilization of equipment and medical preparations from the microbiological point of view. 8- To show the antimicrobial activity of disinfectants in the context of the patient and the environment. 9- To illustrate the microbiological reasons for, and the importance of aseptic techniques in patient management. 10- To demonstrate the contribution of the microbiologist and the microbiology laboratory to the diagnosis of infection including specimen collection and the role of the nurse in carrying this out.
Course References:	**Text book for theory sessions:** Cowan, M. Kelly.Herzog, Jennifer, Microbiology fundamentals: a clinical approach New York, NY : McGraw-Hill (2015). **Text book for Practical sessions:** -Josephine A Morello_ Helen Eckel Mizer_ Marion E Wilson - Laboratory manual and workbook in microbiology _ applications to patient care-McGraw-Hill (2003) -Cappuccino James, Sherman Natalie - Microbiology. A Laboratory Manual-Pearson Education (2014)

Course topics (Theory)	Week	Learning Outcome
Introduction to Diagnostic Bacteriology	1	Introduction to medical microbiology Modern medical microbiology
Diagnostic Bacteriology	2	How Microorganisms Cause Disease, Scope of Microbiology, Importance of Microbiology

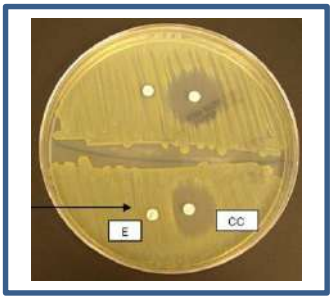
Laboratory Diagnosis of Urinary Tract Infection:	3	Terminology, mechanism of infection, etiology. Conventional and rapid diagnostic methods
Laboratory Diagnosis of Urinary Tract Infection:	4	Specimen collection, processing, and results interpretation
Laboratory Diagnosis of GI Tract	5	specimen collection, processing
Laboratory Diagnosis of GI Tract	6	Stool culture, and result interpretation
Laboratory Diagnosis of Lower Respiratory Tract Infection (RTI)	7	conventional and rapid diagnostic methods
Laboratory Diagnosis of Upper Respiratory Tract Infection (RTI)	8	Terminology, mechanism of infection, etiology
Laboratory Diagnosis of Oral, Throat and Stomach Infection	9	Terminology, mechanism of infection, etiology, conventional and rapid diagnostic methods
Anaerobic Culture	10	Terminology, mechanism of infection, etiology, conventional and rapid diagnostic methods
Laboratory Diagnosis of Pus	11	Terminology, mechanism of infection, etiology, conventional and rapid diagnostic methods
Laboratory Diagnosis of Eye Infection	12	Terminology, mechanism of infection, etiology, conventional and rapid diagnostic methods
Laboratory Diagnosis of Venereal Diseases	13	Terminology, mechanism of infection, etiology, conventional and rapid diagnostic methods
Performance of different Tests	14	Rapid Diagnostic Tests Molecular Tests
Practical Topics	**Week**	**Learning Outcome**
Introduction to Diagnostic Bacteriology	1	Introduction to medical microbiology Modern medical microbiology
Diagnostic Bacteriology	2	How Microorganisms Cause Disease, Scope of Microbiology, Importance of Microbiology
Laboratory Diagnosis of Urinary Tract Infection:	3	Terminology, mechanism of infection, etiology. Conventional and rapid diagnostic methods

Laboratory Diagnosis of Urinary Tract Infection:	4	Specimen collection, processing, and results interpretation
Laboratory Diagnosis of GI Tract	5	specimen collection, processing
Laboratory Diagnosis of GI Tract	6	Stool culture, and result interpretation
Laboratory Diagnosis of Lower Respiratory Tract Infection (RTI)	7	conventional and rapid diagnostic methods
Laboratory Diagnosis of Upper Respiratory Tract Infection (RTI)	8	Terminology, mechanism of infection, etiology
Laboratory Diagnosis of Oral, Throat and Stomach Infection	9	Terminology, mechanism of infection, etiology, conventional and rapid diagnostic methods
Anaerobic Culture	10	Terminology, mechanism of infection, etiology, conventional and rapid diagnostic methods
Laboratory Diagnosis of Pus	11	Terminology, mechanism of infection, etiology, conventional and rapid diagnostic methods
Laboratory Diagnosis of Eye Infection	12	Terminology, mechanism of infection, etiology, conventional and rapid diagnostic methods
Laboratory Diagnosis of Venereal Diseases	13	Terminology, mechanism of infection, etiology, conventional and rapid diagnostic methods
Performance of different Tests	14	Rapid Diagnostic Tests Molecular Tests

Question Sample:

MULTIPLE CHOICE QUESTIONS Note: More than one answer can be correct. Circle all correct answers.

1-The Staphylococcus aureus strain indicated by the arrow below was tested against erythromycin (E)
and clindamycin (CC). How should the results be reported?



a. Erythromycin – resistant, Clindamycin – susceptible
b. Erythromycin – resistant, Clindamycin – resistant
c. Erythromycin – susceptible, Clindamycin – susceptible

d. Erythromycin – susceptible, Clindamycin – susceptible

2-According to the Biosafety in Microbiological and Biomedical Laboratories (BMBL), culture isolate
manipulation may be performed outside a biological safety cabinet for which infectious agent?
a. Mycobacterium fortuitum
b. Neisseria meningitidis
c. Salmonella Typhi
d. Yersinia pestis

Q/ Explain questions

1. Differentiate between contamination, infection, and disease. What are the possible outcomes in each?
2. How are infectious diseases different from other diseases?

Q/ True or False type questions

1-The main components of cell wall of Gram positive bacteria include Peptidoglycan and Teichoic acid only
2-Mesosomes are Convoluted invagination of cytoplasmic membrane often at sites of septum formation
3-Generally, well defined nucleus and nuclear membrane, discrete chromosome and mitotic apparatus are present in bacteria

Extra notes:

External Evaluator