



Paitaxt Technical Institute-Private

Faculty of Health Science

Department of Pathological analytics

Subject: Microbiology

Course Book – Year 1

Academic Year: 2023/2024

Course Book

1. Course name	Microbiology Course Syllabus
2. Lecturer in charge	
3. Department/ College	Paitaxt Technical Institute-Private
4. Contact	
5. Time (in hours) per week	2 hours
6. Office hours	Availability of the lecturer to the student during the week
7. Course code	PAD
8. Teacher's academic profile	
9. Keywords	

The world around us is teeming with microbial life. Microbial cells associated with our bodies outnumber our own cells 10 to one! Given their numbers, microorganisms play vitally important roles not only in our own health, but also in the health of the planet. The intent of this subject is to provide you with basic skills and tools that will enable you to explore a vast microbial world. Its scope is incredibly broad in that it includes a multitude of bacteria, protozoans, yeasts, and molds. Both beneficial and harmful ones will be studied. Although an in-depth study of any single one of these groups could constitute a full course by itself, we will be able to barely get acquainted with them. To embark on this study, it will be necessary for you to learn how to handle cultures in such a way that they are not contaminated or inadvertently dispersed throughout the classroom. This involves learning aseptic techniques and practicing preventive safety measures. Topics to be covered will include basic safety rules of microbiological laboratories and lab instruments , sterilization, microscopes, cultural media, smear preparation and staining ,and many other related subjects.

11. Course objectives:

The goals of this course are to:

- Demonstrate an understanding of the components of human blood and characteristics, functions, and abnormalities and disease states of each.
- Demonstrate proficiency in the skills necessary to perform blood cell counts, and evaluation of blood elements within stated limits of accuracy.
- Demonstrate compliance with safety regulations for blood –borne pathogens.
- Determine suitability of hematology specimens and dispose of them in the appropriate biohazard containers.
- students perform laboratory procedures for enumeration and identification of blood components.

12. Student's obligation

In this section the lecturer shall write the role of students and their obligations throughout the academic year, for example:

- 1-The student attention in all theoretical and practical lectures in academic year.
- 2- Completion of all tests.
- 3- Attendance in exams
4. Write or prepare reports.
5. Group work
6. Make research paper by group

7. Applied the 21centure Academics teaching method on the students

13. Forms of teaching:

Data show, power point, white board, Poster, Role Model, Discussion, the teaching is given as lectures, data search, seminars and teacher-supervised as well as independent studies in light microscopy of normal and pathological cells. The student should document laboratory work in a personal workbook.

14. Assessment scheme:

Attendance and participation at all course sessions and completion of all assignments are required to receive credit for the course. Two practical examinations will carried out during the course beside the daily quiz and home works. Practical examination: % Quiz and lab. participation: % 2 Final Examination: %1- Practical examine 15%.

2- Theoretical examine 15%.

3- Attendance 10%

4- Activities 10%.

5- Final practical examine 30%.

6- final theoretical examine 20%

15. Student learning outcome:

1. Understand the principles of hematology, both blood physiology, functions, and disorders.
2. Interpret diagnostic test results and erroneous test results and able to fix them.
3. Defines hematology. And Lists the factors to be evaluated for accurate diagnosis and treatment. explain the composition of the blood. Categorize the cell and cell-free parts of the blood.
4. Defines the methods and principles determination of blood protein content. the difference between RBCs, serum and plasma
5. Defines the task of erythrocytes, role of leukocytes, explain the formation and maturation of blood cells.
6. Defines the process of maturation of erythrocytes and leukocytes, synthesis of hemoglobin
7. Explain to methods of the blood count:
 - Explains the way of taking blood samples and the use of anticoagulants.
 - Explains to the bonemarrow aspiration.
 - Explains to the erythrocyte and reticulocyte count.
 - Describe the determination of hemoglobin.
 - explain to the serological tests.
 - explain to the leukocyte abnormalities.
 - explain to explain the blood groups

16. The Topics:			Lecturer's
No.	Topic	Practices	Dr. Honer O. Ismail M. Saman Rahman
1	Introduction of Microbiology	Rules of conduct and general safety in microbiological laboratory, Types of Microscopes, use of microscope, tools and instruments used in the lab	
2	Structure and function of bacteria	Control of Microbial growth (sterilization).	
3	Growth and death of bacteria	Types of Culture media and their preparation	
4	Culturing of bacteria and media types	Smear preparation Bacterial staining (simple staining and negative staining).	
5	Med-Term Exam		
6	Bacterial Physiology (Bacterial metabolism).	Antibiotic sensitivity test	
7	Nutrient cycles and regulation	Acid fast staining	
8	Bacterial genetics	Cultural characteristics of bacteria	
9	Final Exam		
17. COURSE REQUIREMENTS			
1. Copy of the Lecture.			
2. Students required to make notes about what will be discussed in class.			
3. Students required reading the designated text book for this course			
18. Course Reading List and References:			
Essential Readings: (Journals, textbooks, website addresses etc.)			
Reference book:			
- Johnson, T.R. and C.L. Case (2007) Laboratory Experiments in Microbiology. - Atlas, Ronald M., Lawrence C. Parks and Alfred E. Brown (1995) Laboratory Manual of Experimental Microbiology. - Forbers, A. Betty, Daniel F. Sahm and Alice S. Weissfeld (2007) ed. Mosby Elsevier. Diagnostic Microbiology 12th Baily and Scotts - Nester, E.W., Anderson, D.G., et al (2001) Microbiology a human perspective, 3rd ed. the McGraw-Hill companies, inc; Chicago, USA. - Harley, J.P., Prescott, L.M (1996). Laboratory Exercises in Microbiology The MacGraw-Hill companies, USA. - Jawetz, M.; Adelberg, E. A.; Brooks, G. F.; Butel, J. S.; Melnick, J. and Ornston, L.N. Medical Microbiology, Appleton & Lane. (2010).			
((Note: All the above ebooks are provided to the student's representative))			

19. Attendance:

- ◆ Students are expected to attend all lectures and must attend all tests/examinations, quizzes, and practical exercises.
- ◆ There is no make-up work for students who miss classes without official permission.
- ◆ Students who have official permission must arrange with the instructor to make-up the missed class/test.
- ◆ Students are subject to the regulation and policies mentioned in the KUST Student Handbook.
- ◆ KUST guidelines for lateness are as follows: Three occasions of lateness count as one absence.
- ◆ You can be considered late after 10 minutes of the lecture time.

20. Examinations:**1. *Compositional:*****2. *True or false type of exams:*****3. *Multiple choices:*****21. Extra notes:**

Changing in the title of the subject or sequence of the lectures is possible according to update information available.