(Lab.Technology) Course Catalogue

2022-2023 (Evening)

College/ Institute	**Shaqlawa Technical Collage**	
Department	**Veterinary**	
Module Name	**Lab.Technology**	
Module Code	**LAT205**	
Semester	**2**	
Credit	**6**	
Module type	**Core**	
Weekly hours	**4**	
Weekly hours (Theory)	**(2)hr Class**	**(3)hr Workload**
Weekly hours (Practical)	**(2)hr Class**	**(1)hr Workload**
Lecturer (Theory)	**Hassan Abdulla Mohammed**	
E-Mail	**hassanabdulla@epu.edu.iq**	
Lecturer (Practical)	Ramazan qadir	
Email	ramazanqadir1@gmail.com	

Course Book

- **Course overview:**

This course aims to provide a comprehensive theoretical knowledge of microbiology diagnosis technique and physiology disorder, diagnosis of disease disorder of animal system and advanced practical training in this diverse field.

- **Course objective:**

- Demonstrate and understanding of basic laboratory technique on the microbiology examination of disease.
- Demonstrate an understanding of basic concepts of physiology disorder, diagnosis of disease disorder of animal system and advanced practical training in this diverse field.
- Have advanced skills on processing blood and physiological analysis and disease diagnosis.

- **Student's obligation**

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.

- **Forms of teaching**

lecture halls with data show equipment for lecture presentations, white board, overhead projector, posters

- **Assessment scheme**

6% Mid. Theory exam
10% Mid. practical exam
4% Quiz
40% Activity
25% final practical
15% final theory

- **Specific learning outcome:**

On successful completion of this program, graduates will be able to identify, evaluate and apply major theoretical traditions in microbiology and physiology studies, also understanding how the anima body work. And personal save.

- Demonstrate the ability to think critically and solve problems in a laboratory setting
- Ability to apply knowledge in practice
- Ability to search for process and analyse information from a variety of sources

Course Reading List and References:

1. Duncan & Prasse's veterinary laboratory medicine : clinical pathology/ [edited by] Kenneth S. Latimer. – 5th ed (2011).
2. Clinical Pathology and Laboratory Techniques for Veterinary Technicians / edited by Anne M. Barger and Amy L. MacNeill (2015).
3. Veterinary technician's handbook of laboratory procedures / Brianne Bellwood, Melissa Andrasik-Catton (2014).
4. Manual of Laboratory and Diagnostic Tests / edited by Frances T. Fischbach and Marshall B. Dunning III (2015).

- **Course topics (Theory)**	**Week**	**Learning Outcome**
Basic research laboratory, general laboratory safety, Sterilization methods& disinfection	1	Student be able to know the methods of sterilization and the differences between sterilization and disinfection
Laboratory Instrumentation	2	Be able to know the instruments used in lab
Hematology & hemostasis (Hematopoiesis, neoplasia & coagulation, blood collection, blood smears, blood indices)	3	Be able to know the blood component and blood disorders
Immunology, serology and molecular diagnostics (Immune response, immune disorders, tests of humoral & cell-mediated immunity, blood groups, molecular diagnostics)	4	Be able to know the immune types and immune disorders
Diagnostic microbiology (Bacterial cell morphology, bacterial agar inoculation and growth, primary identification, antibiotic sensitivity testing)	5	Be able to know every types of culture media and the types of culturing
Diagnostic microbiology Virology	6	Be able to know every types of culture media and the types of culturing
Diagnostic microbiology Fungus	7	Be able to know every types of culture media and the types of culturing
Laboratory measurements, weights and volumes (Proper means of measuring weights & volumes, standards)	8	Be able to know weights and volumes units
Laboratory Solutions (Calculating concentrations and dilutions, preparing solutions and media)	9	Be able to know solutions types
Urinalysis (Specimen collection, handling & storage, physical & chemical properties, microscopic examination)	10	Be able to know how to collecting storage urine

Internal parasites (Terminology & classifications, diagnosis of alimentary & blood parasitism)	11	Be able to know how to take samples of internal parasites
External parasites (Terminology & classification, skin scrapings, cellophane tape reparation, parasite identification)	12	Be able to know how to take external parasites
Clinical chemistry (Protein assays, hepatobiliary assays, kidney assays, pancreas assays, electrolyte assays)	13	Be able to know how to assay of proteins
Cytology (Sample collection, concentration techniques, smear preparations, fixing & staining techniques, cytology of specific sites)	14	Be able to know the sampling and preparing of cells
Practical Topics (If there is any)	**Week**	**Learning Outcome**
Veterinary Practice Laboratory	1	Student be able to know the laboratory safety and components
Laboratory Instrumentation (Principles and proper use of balance, pH meter, microscope, refractometer, chemistry analyzer, hematology analyzer, centrifuge, thermocycler)	2	Be able to know the uses and types of instruments in laboratory
(Hematopoiesis, neoplasia & coagulation, blood collection, blood smears, blood indices)	3	Be able to know the blood group, counts of cells and morphology
Tests of humoral & cell-mediated immunity, blood groups, molecular diagnostics	4	Be able to know about serological methods in diagnosing disease
bacterial agar inoculation and growth, primary identification, antibiotic sensitivity testing	5	Be able to know every types of culture media and the types of culturing
Viral growth, primary identification	6	Be able to know types of culture media
fungal growth, primary identification	7	Be able to know types of culture media
Proper means of measuring weights & volumes, standards	8	Be able to know how to measure weights and volumes
Calculating concentrations and dilutions, preparing solutions and media	9	Be able to know the preparation of solutions
Urine specimen collection, handling & storage, physical & chemical properties, microscopic examination	10	Be able to know how to analysis of urine

Internal parasites ; diagnosis of alimentary & blood parasitism	11	Be able to know how analysis the samples of internal parasites
External parasites; skin scrapings, cellophane tape reparation, parasite identification	12	Be able to know how analysis the samples of external parasites
Clinical chemistry Protein assays, hepatobiliary assays, kidney assays, pancreas assays, electrolyte assays	13	Be able to know the techniques of proteins assay
Cytology Sample collection, concentration techniques, smear preparations, fixing & staining techniques	14	Be able to know the sampling and preparing of cells

Examinations (question design):

1. Compositional

What are the steps for RBCs count

2.True or false type of exams:

1- anaerobic bacteria mean that the bacteria do not need oxygen for their growth

3. Multiple choices:

1- one milligram (mg) is equal to_____microgram (µg):

a- 10 b- 100 c- 1000

-

- **Extra notes:**

- **External Evaluator**

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