Republic of Iraq
Ministry of Higher Education & Scientific Research Supervision and Scientific Evaluation Directorate Quality Assurance and Academic Accreditation International Accreditation Dept.

Academic Program Specification Form for The Academic

University: Alnahrain university
College: collage of pharmacy
Number Of Departments In The College: Date of Form Completion:

Dean 's Name
د. حبيبة يحيى صالح
Date : / /

Signature

Dean 's Assistant For Scientific Affairs
Date : / /
Signature

The College Quality Assurance And University Performance Manager
م.م. نزار طه
Date : 20/7/2023
Signatur

Quality Assurance And University Performance Manager Date : / /
Signature

TEMPLATE FOR PROGRAMME SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

PROGRAMME SPECIFICATION

This Program Specification provides a concise summary of the main features of the program and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the program.

1. Teaching Institution	Ministry of Higher Education & Scientific Research / AL-Nahrain University
2. University Department/Centre	College of Pharmacy
3. Program Title	Department of Clinical Laboratory Science
4. Title of Final Award	Bachelor of Pharmacy
5. Modes of Attendance offered	Presence / Courses /In Class
6. Accreditation	/
7. Other external influences	Practical Training Course in Hospital and Private Pharmacies
8. Date of production/revision of this specification	10/2022

9. Aims of the Program

- Provide quality education in Human Biology, Human Anatomy, Biochemistry, Mathematics and Biostatistics, Immunology and Blood Diseases, Bacteriology, Parasitology and Virology.
- Continuously improving the learning standards.
- Achieve national and international accreditation
- Promote scientific research.
- Serve the community by raising awareness about major health issues related to the role of laboratory in detection, prevention and monitoring of diseases.
- To regularly improve the standards of learning, teaching skills and assessment methods to meet the needs of the job market.
- To provide guidance to undergraduate students in their research projects.

Human Biology:

- To study the composition of human body, types of cell structures, types of tissues, bone, skeleton, joints and muscle as well as nutrition.
- Human biology also explains in details different body systems.
- At the end of the course, the student should be able to describe the composition of human body, body systems function, Immunity, Blood and Disease.
- Human genetics such as the Mendelian inheritance, division of chromosomes, and terms such as allele, locus, homo and heterozygous.

Human Anatomy :

- To study the histological and anatomical structure of human body.
- It is meant primarily to give the student a foundation for advanced study in health care, physiology, pathology, and other fields related to health and fitness.
- At the end of the course, the student should be familiar with gross anatomical and the histological description of human body.

Mathematics and Biostatistics

- To provide students with the ability to deal with the concepts of Mathematics and Statistics, emphasize the knowledge and skills required to efficiently discharge the duties and responsibilities of the pharmacist.
- The course deals with the concepts of basic Mathematics and the application of Biostatistics in medical field.
- Upon the completion of the course, students will be able to understand the applications of statistics in medical field.

Histology:

- To study the histological and anatomical structure of human body.
- It is meant primarily to give the student a foundation for advanced study in health care, physiology, pathology, and other fields related to health and fitness.
- At the end of the course, the student should be familiar with gross anatomical and the histological description of human body.

Medical Microbiology I

- To provide students with basic understanding of morphology, anatomy Physiology and genetics of bacteria.
- The methods of handling, visualizing.
- Characterizing and identifying of bacterial diseases.

Biochemistry I:

- To integrate key concepts describing the traditional core topics of Biochemistry.
- Structure and metabolism.
- At the end of the semester, students should be able to understand the chemical structure.
- Function of all biomolecules present in the living organisms.

Pathophysiology :

- Describe the basic concepts of pathophysiology at the cellular level related to injury.
- The self-defense mechanism, mutation, and cellular proliferation.
- Outline basic pathological factors that influence the disease process.
- Describe the impact and abnormal functions upon the organ (s) associated with the disease process of targeted body systems.
- Describe clinical manifestations associated with the diseased organ(s).

Medical Physics :

- To provide students with the ability to deal with the concepts of physics, emphasize the knowledge and skills required to efficiently discharge the duties and responsibilities of the pharmacist. The course deals with the concept of basic physics and its application to medical field.
- Upon the completion of the course, the students will be able to understand the physical terminology and abbreviations used to describe the lecture, and their application to medical field.

Clinical Chemistry

- To exhibit knowledge of human body chemistry levels under healthy and abnormal conditions.
- At the end of the semester the students should be familiar with the basic and advanced information in clinical laboratory chemistry.
- How it relates to patient health and care.

Public Health :

- 1-To help students understand the principles of public health.
- 2-The art of preventing disease.
- 3-promoting health and prolonging life through organized efforts made by the society.

Medical Microbiology II:

- To provide students with knowledge about pathogenesis, morphology.
- Laboratory diagnosis, identification, pathology, clinical features of medically important parasitic.
- Viral diseases and the basic concepts of immunity procedures against these diseases

Clinical Laboratory Training:

- 1-To provide general information about the biochemical basis of diseases and the principles of laboratory diagnosis.
- 2-It supplies specific guidance on the clinical value of chemical investigations, indicating their range of application and limitations as well as relating results of laboratory tests to the process of clinical diagnosis and management as these might be applied to individual patients

Biochemistry II:

- To provide a condensed curriculum of strong basic biochemistry and molecular biology.
- At the end of the semester, students should be able to understand all metabolic processes occurring in the living cell.

10. Learning Outcomes, Teaching, Learning and Assessment Methods

A. Cognitive goals

A1 Understand the basics of human biology
A2. Understand the basics of human anatomy
A3. Understand the basics of Mathematics and Biostatistics
A4. Understand the basics of histology
A5. Understand the basics of medical microbiology (bacteriology, parasitology and virology)
A6. Understand the basics of biochemistry
A7. Understand the basics of pathophysiology
A8. Understand the basics of medical physics
A9. Understand the basics of clinical chemistry
A10. Understand the basics of public health
A11. Understand the basics of clinical laboratory training

B. The skills goals special to the program

B1. Applied the mathematic and biostatistics knowledge in medical and pharmaceutical field
B2. Disease diagnoses
B3. Isolation, characterization and Diagnoses of different microorganisms
B4. Isolation and characterization of different biomolecules

Teaching and Learning Methods

1- Lectures (questions and discussion)
2- Laboratory skills
3- White board
4- Interactive electronic board
5- Seminars
6- Homework
7- Unknown experiments

Assessment methods

1- Theoretical examination
2- Practical examination
3- Hospital training exam

C. Affective and value gols

C1. Translation
C2. Analysis
C3. Evaluation
C4.Explanation

Teaching and Learning Methods

- Lectures (questions and discussion)
- Laboratory skills
- White board
- Interactive electronic board
- Seminars
- Homework
- Unknown experiments
- Case study

Assessment methods

- Theoretical exam
- Practical exam
- Hospital training exam

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. The skill of working in pharmacy
D2. The skill of scientific research
D3.The skill of working in hospital
D4. Decision making skill

Teaching and Learning Methods

1- Lectures (questions and discussion)
2- Laboratory skills
3- White board
4- Interactive electronic board
5- Seminars
6- Homework
7- Unknown experiments

	Assessment Methods • Theoretical exam • Practical exam • Hospital training exam • Oral discussion • Case study				
	11. Program Structure				12. Awards and Credits
Level/Year	Course Code	Course Title	Credit rating		
			theory	practical	
First stage/first semester	10305101	Human biology	2	2	Bachelor Degree Requires (x) credits
First stage/first semester	10305105	Mathematic and Biostatistics	3		
First stage/first semester	10305106	Computer science		2	
First stage/first semester	10305107	English	1		
First stage/ second semester	10305110	Medical physics	2	2	
First stage/ second semester	10305112	Histology	2	2	
First stage/ second semester	10305108	Human Anatomy	1	2	
First stage/ second semester	10305113	Human Rights	1		
First stage/ second semester	10305114	Computer Science		2	
First stage/ second semester	10305115	English	1		
First stage/ first semester	10305217	Medical Microbiology I	3	2	
Second stage/ first semester	10305221	Computer Science		2	
Second stage/ first semester	10305220	Democracy	1		
second stage / Second semester	10305224	Medical Microbiology II	3	2	

Second stage/ second semester	10305228	Computer Science		2
Second stage/ Second semester	10305230	Arabic	2	
Third stage/ First semester	10305335	Biochemistry I	3	2
Third stage/ First semester	10305336	Pathophysiology	3	2
Third stage/ Second semester	10305340	Biochemistry II	3	2
Third stage/ Second semester	10305343	English	2	
Fourth stage/First semester	10305448	Public Health	2	
Fourth stage/ Second semester	10305449	English	2	
Fifth stage/ First semester	10305559	Clinical chemistry	3	2
Fifth stage/ second semester	10305567	Clinical Laboratory Training	4	

13. Personal Development Planning
Implementing a professional training for further education and expertise
14. Admission criteria.
Central Admission Committee in the higher education & Scientific Research Ministry according to students marks
15. Key sources of information about the programme
• The Pharmacy Dean’s Committee • College of pharmacy syllabus

	please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed																		
	Programme Learning Outcomes																		
Year / Level	Course Code	Course Title	Core (C) Title or Option (O)	Knowledge and understanding				Subject-specific skills				Thinking Skills				General and Transferable Skills (or) Other skills relevant to employability and personal development			
				A1	**A2**	**A3**	**A4**	**B1**	**B2**	**B3**	**B4**	**C1**	**C2**	**C3**	**C4**	**D1**	**D2**	**D3**	**D4**
First year/first semester	10305101	Human biology	(c)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	10305106	Computer science	(c)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	10305105	Mathematic &biostatistics	(c)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	10305107	English	(c)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
First year / second semester	10305108	Anatomy	(c)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	10305114	Computer science	(c)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	10305110	Medical physics	(c)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	10305112	Histology	(c)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	10305113	Human Rights	(c)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	10305115	English	(c)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Second year/ first semester	10305217	Medical Microbiology I	(c)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	10305221	Computer science	(c)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	10305220	Democracy	(c)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Second year/ second semester	10305224	Medical Microbiology II	(c)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	10305228	Computer science	(c)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	10305230	Arabic	(c)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Third year/first semester	10305335	Biochemistry I	(c)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	10305336	Pathophysiology	(c)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Third year/second semester	10305340	Biochemistry II	(c)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	10305343	English	(c)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Fourth year/First semester	10305448	Public Health	(c)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Fourth year/ second semester	10305449	English	(c)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Fifth year/ first semester	10305559	Clinical chemistry	(c)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Fifth year/ second semester	10305567	Clinical Laboratory training	(c)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	College of Pharmacy
2. University Department/Centre	Clinical Laboratory Science
3. Course title/code	Human Biology
4. Modes of Attendance offered	Course
5. Semester/Year	First Semester/First Year
6. Number of hours tuition (total)	4
7. Date of production/revision of this specification	11/2022
8. Aims of the Course	
▸ To study the composition of human body, types of cell structures, types of tissues, bone, skeleton, joints and muscle as well as nutrition.	
▸ Human biology also explains in details different body systems.	
▸ At the end of the course, the student should be able to describe the composition of human body, body systems function, Immunity, Blood and Disease.	
▸ Human genetics such as the Mendelian inheritance, division of chromosomes, and terms such as allele, locus, homo and heterozygous.	

9· Learning Outcomes, Teaching ,Learning and Assessment Methode

A- Cognitive goals

A1. Understand the basics of human body composition
A2. Understand the basics of cell structure and types
A3. Understand the basics of body systems
A4. Understand the basics of human genetics

B. The skills goals special to the course.
B1. Describe human body composition
B2. Describe all types of body cell and body system
B3. Describe human chromosomes
B4. Describe body systems function, Immunity, Blood and Disease

Teaching and Learning Methods

1-Lectures (questions and discussion)
2- Laboratory skills
3- White board
4- Interactive electronic board
5- Seminars
6- Homework

Assessment methods

- Theoretical exam
- Practical exam
- Hospital training exam

C. Affective and value goals
C1. Translation
C2. Analysis
C3. Evaluation
C4.Explanation

Teaching and Learning Methods

1-Lectures (questions and discussion)
2-Laboratory skills
3-White board
4- Interactive electronic board
5-Seminars
6-Homework

Assessment methods

- Theoretical exam
- Practical exam
- Hospital training exam

D- General and rehabilitative transferred skills(other skills relevant to employability and personal development)

D1. The skill of working in pharmacy
D2. The skill of scientific research
D3.The skill of working in hospital
D4.The skill of making decisions

10.Human Biology Course Structure					
week	Hours	ILOs	Topic Title	Teaching Method	Assessment Method
1	2		Introduction and basic principles of human biology -Cell: Structure, properties and classification	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
2	2		Tissues: Structures; properties; classification and function	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
3	2		Nutrition	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
4	2		Digestive System (Mouth, Esophagus, Stomach)	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
5	2		Digest System (intestine)	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
6	2		Circulatory System; Blood	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
7	/		Mid-Term Theory Exam	/	Written exam
8	2		Inflammation	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
9	2		Immunity and the blood	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
10	2		Immunity to disease	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz

11	2		Excretory System	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
12	2		Human Chromosomes -Chromosomes Variations	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
13	2		Human genetics	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
14	2		Semi–Lethal genes	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
15	2		Reproduction system, male and female	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
16	2		Skin	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
17	2		Respiration	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz

11. Infrastructure	
1. Books Required reading:	Reference book: Johnks and Lnglis (eds.), Text Book of Human Biology, 3rd Ed.
2. Main references (sources)	Reference book: Johnks and Lnglis (eds.), Text Book of Human Biology, 3rd Ed.
A- Recommended books and references (scientific journals, reports…).	Reference book: Johnks and Lnglis (eds.), Text Book of Human Biology, 3rd Ed.
B-Electronic references, Internet sites…	Scientific movies
12. The development of the curriculum plan	
• Implementing a professional training for further education and expertise • Add new syllabus about biosafety rules	

TEMPLATE FOR MATHEMATICS & BIOSTATISTIC COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	College of Pharmacy
2. University Department/Centre	Clinical Laboratory Science
3. Course title/code	Mathematics and Biostatistics
4. Modes of Attendance offered	In class room / course
5. Semester/Year	First semester/First Year
6. Number of hours tuition (total)	3
7. Date of production/revision of this specification	11/2022
8. Aims of the Course	
▸ To provide students with the ability to deal with the concepts of Mathematics and Statistics, emphasize the knowledge and skills required to efficiently discharge the duties and responsibilities of the pharmacist.	
▸ The course deals with the concepts of basic Mathematics and the application of Biostatistics in medical field.	
▸ Upon the completion of the course, students will be able to understand the applications of statistics in medical field.	

9· Learning Outcomes, Teaching ,Learning and Assessment Methode

A- Cognitive goals

A1. Understand the basic of Mathematics
A2. Understand the basic of Biostatistics
A3. Understand the application of Mathematic in medical field
A4. Understand the application of Biostatistics in medical field.

B. The skills goals special to the course.

B1. The skill of using Mathematics in medical field
B2. The skill of using Biostatistics in medical field

Teaching and Learning Methods

8- Lectures (questions and discussion)
9- Laboratory skills
10- White board
11- Interactive electronic board
12- Seminars
13- Homework
14- Unknown experiments

Assessment methods

- Theoretical exam
- Practical exam
- Hospital training exam
- Oral discussion
- Case study

C. Affective and value goals

C1. Translation
C2. Analysis
C3. Evaluation
C4.Explanation

Teaching and Learning Methods

- Lectures (questions and discussion)
- Laboratory skills
- White board
- Interactive electronic board
- Seminars
- Homework

- Unknown experiments
- Case study

Assessment methods

- Theoretical exam
- Practical exam
- Hospital training exam
- Oral discussion
- Case study

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. The skill of working in pharmacy
D2. The skill of scientific research
D3.The skill of working in hospital
D4. Decision making skill

10. Mathematic and Biostatistics Course Structure					
Week	Hours	ILOs	Topic Title	Teaching Method	Assessment Method
1	3		Mathematics: General concepts; coordinate and graph in plane; inequality; absolute value or magnitude; function and their graphs; displacement function; slope and equation for lines.	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
2	3		Limits and continuity: Limits; theorem of limits; limit involving infinity; continuity; continuity conditions	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
3	3		Derivatives: Line tangent and derivatives; differentiation rules; derivative of trigonometric function; practice exercises	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
4	3		Integration: Indefinite integrals; rules for indefinite integrals; integration formulas for basic trigonometric function; definite integrals; properties of definite integrals; practice exercises	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
5	3		Review		
6			Mid-term Theory Exam		
7	3		Biostatistics: General concepts of statistics; statistical methods; statistical theory; applied statistics; statistical operations	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
8	3		Probability concepts: Properties of probability; Set theory and set notation (basic notation); counting techniques permutations andcombinations; calculating the probability of an events; probability distribution of discrete variable; binomial distribution, Poisson distribution; continues probability	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz

9	3		The concept of central tendency: Mean of sample and mean of population; median; mode; measure of central tendency; review , questions and exercises	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
10	3		Deviation and variation: Deviation; dispersion and variability; standard deviation and variance; coefficient of variations; standard error; correlation analysis; (regression model and sample regression equation); application of statistic in medical field; review questions and exercises	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
11	3		Review		
12			Final Exam		

11. Infrastructure	
1. Books Required reading:	1. Finny RI, Thomas GB (Eds.); Calculus and Analytical Geometry. 2. Daniel WW (ED.), Foundation for Analysis in the Health Science, 4th ed.
2. Main references (sources)	1. Finny RI, Thomas GB (Eds.); Calculus and Analytical Geometry. 2. Daniel WW (ED.), Foundation for Analysis in the Health Science, 4th ed.
A- Recommended books and references (scientific journals, reports…).	1. Finny RI, Thomas GB (Eds.); Calculus and Analytical Geometry. 2. Daniel WW (ED.), Foundation for Analysis in the Health Science, 4th ed.
B-Electronic references, Internet sites…	Scientific movies
12. The development of the curriculum plan	

TEMPLATE FOR ANATOMY COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	College of pharmacy
2. University Department/Centre	Clinical Laboratory Science
3. Course title/code	Human Anatomy
4. Modes of Attendance offered	In Class / courses
5. Semester/Year	Second Semester/First Year
6. Number of hours tuition (total)	3
7. Date of production/revision of this specification	3/2023
8. Aims of the Course	
▸ To study the histological and anatomical structure of human body.	
▸ It is meant primarily to give the student a foundation for advanced study in health care, physiology, pathology, and other fields related to health and fitness	
▸ At the end of the course, the student should be familiar with gross anatomical and the histological description of human body.	

9· Learning Outcomes, Teaching ,Learning and Assessment Methode

A- Cognitive goals

A1. Understand the basic of human histology

A2. Understand the basic of human anatomy

A3.understand the basic of health care, physiology, pathology, and other fields related to health and fitness

A4.understand the basic of anatomical and the histological description of human body.

B. The skills goals special to the course.

B1. The skill of histological description of human body
B2. The skill of anatomical description of human body
B3. The skill of human physiology description
B4- the skill of human pathology description

Teaching and Learning Methods

8- Lectures (questions and discussion)
9- Laboratory skills
10- White board
11- Interactive electronic board
12- Seminars
13- Homework
14- Unknown experiments

Assessment methods

4- Theoretical examination
5- Practical examination
6- Hospital training exam

C. Affective and value goals
C1. Translation
C2. Analysis
C3. Evaluation
C4.Explanation

Teaching and Learning Methods

- Lectures (questions and discussion)
- Laboratory skills
- White board
- Interactive electronic board
- Seminars
- Homework
- Unknown experiments
- Case study

Assessment methods

1- Theoretical examination
2- Practical examination
3- Hospital training exam
4- Oral discussion
5- Case study

D. General and rehabilitative transferred skills(other skills relevant to employability and personal development)

D1. The skill of working in pharmacy
D2. The skill of scientific research
D3.The skill of working in hospital
D4. Decision making skills

10. Anatomy Course Structure

week	hours	ILOs	Topic Title	Teaching Method	Assessment Method
1	1		Respiratory system: lung, conducting portion (nose, nasopharynx, trachea, bronchus, bronchioles)	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
2	1		Urinary system: Structure of the kidney and nephron. Histology of the Nephron, Structure of the ureter, bladder & urethra.	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
3	1		Circulatory system: Structure of the cardiovascular system (Heart, Arteries, veins and capillaries) Structure of the lymphatic system.	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
4	1		Lymphoid tissue: Structure of the thymus gland, spleen, lymph nodes lymphoid nodule (MALT) and tonsils	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz

5	1		Digestive system: General structure of the digestive tract (GIT); oral cavity, mouth, esophagus, stomach; small intestine, large intestine, rectum, anus. Glands associated with the digestive tract (salivary gland, pancreas, liver and gall bladder.	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
6			Mid-Term Theory Exam		
7	1		Male reproductive system: General structure of the testes. Excretory genital ducts; accessory genital glands; seminal vesicles, prostate, Cowper's glands	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
8	1		Female reproductive system: General structure of the ovary, oviduct, uterus and vagina	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
9	1		Endocrine system: General structure of the pituitary gland. General structure of the adrenal, thyroid, parathyroid, islet of Langerhans and pineal glands	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
10	1		Nervous system: Central nervous system (CNS); Peripheral nervous system	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
11	1		The skin: Structure of thick skin and thin skin.	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
12	1		Bone Tissues: histology of osseous tissue, tissues and organs of the skeletal system	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
13	1		Muscle Tissue: classification of muscle tissue, structure and functions of muscle tissue, associated structures.	- Lectures (questions and discussion) 2- Interactive electronic board	Quiz

11. Infrastructure	
1. Books Required reading:	Anatomy and Physiology: Student Study Guide. 4th. Ed. By Seeley, Stephens & Tale.
2. Main references (sources)	Anatomy and Physiology: Student Study Guide. 4th. Ed. By Seeley, Stephens & Tale.
A- Recommended books and references (scientific journals, reports…).	Anatomy and Physiology: Student Study Guide. 4th. Ed. By Seeley, Stephens & Tale.
B-Electronic references, Internet sites…	Scientific movies
12. The development of the curriculum plan	

TEMPLATE FOR HISTOLOGY COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	College of Pharmacy
2. University Department/Centre	Clinical Laboratory Science
3. Course title/code	Histology
4. Modes of Attendance offered	In classroom / Course
5. Semester/Year	Second Semester/ First Year
6. Number of hours tuition (total)	4
7. Date of production/revision of this specification	3/2023
8. Aims of the Course	
1-To study the histological and anatomical structure of human body.	
2- It is meant primarily to give the student a foundation for advanced study in health care, physiology, pathology, and other fields related to health and fitness.	
3- At the end of the course, the student should be familiar with gross anatomical and the histological description of human body.	

9· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Cognitive goals

A1.Understand the basic of histological structure of human body
A2. Understand the basic of health care, physiology, pathology, and other fields related to health and fitness
A3. Understand the basic of anatomical structure of human body

B. The skills goals special to the course.

B1. The skill of anatomical description of human body
B2. The skill of histological description of human body
B3. The skill of health care

Teaching and Learning Methods

15- Lectures (questions and discussion)
16- Laboratory skills
17- White board
18- Interactive electronic board
19- Seminars
20- Homework
21- Unknown experiments

Assessment methods

7- Theoretical examination
8- Practical examination
9- Hospital training exam

C. Affective and value goals

C1. Translation
C2. Analysis
C3. Evaluation
C4.Explanation

Teaching and Learning Methods

1- Lectures (questions and discussion)
2- Laboratory skills
3- White board
4- Interactive electronic board
5- Seminars
6- Homework
7- Unknown experiments

Assessment methods

1-Theoretical examination
2-Practical examination
3-Hospital training exam

D. General and rehabilitative transferred skills(other skills relevant to employability and personal development)

D1. The skill of working in pharmacy
D2. The skill of scientific research
D3.The skill of working in hospital
D4. Decision making skill

10. Histology Course Structure					
week	hours	ILO	Topic Title	Teaching Method	assessment method
1	2		Respiratory system: lung, conducting portion (nose, nasopharynx, Trachea, bronchus, bronchioles).	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
2	2		Urinary system: Structure of the kidney and nephron. Histology of the nephron, Structure of the ureter, bladder & urethra.	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
3	2		Circulatory system: Structure of the cardiovascular system (Heart, arteries, veins and capillaries). Structure of the lymphatic system.	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
4	2		Lymphoid tissue: Structure of the thymus gland, spleen, lymph nodes lymphoid nodule (MALT) and tonsils.	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
5			Mid-Term Theory Exam		
6	2		Male reproductive system: General structure of the testes. Excretory genital ducts; accessory genital glands seminal vesicles, prostate, Cowper's glands	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
7	2		Female reproductive system: General structure of the ovary, oviduct, Uterus and vagina.	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
8	2		Endocrine system: General structure of the pituitary gland. General structure of the adrenal, thyroid, parathyroid, islet of Langerhans and pineal glands	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz

9	2		Nervous system: Central nervous system (CNS); Peripheral nervous system	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
10	2		The skin: Structure of thick skin and thin skin	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
11	2		Bone Tissues: histology of osseous tissue, tissues and organs of the Skeletal system.	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
12	2		Muscle Tissue: classification of muscle tissue, structure and functions of muscle tissue, associated structures.	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
13	2		Digestive system: General structure of the digestive tract (GIT); oral cavity, mouth, esophagus, stomach; small intestine, large intestine, Rectum, anus. Glands associated with the digestive tract (salivary gland, pancreas, liver and gall bladder.	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz

11. Infrastructure	
1. Books Required reading:	Anatomy and Physiology: Student Study Guide. 4th. Ed. By Seeley, Stephens & Tale.
2. Main references (sources)	Anatomy and Physiology: Student Study Guide. 4th. Ed. By Seeley, Stephens & Tale.
A- Recommended books and references (scientific journals, reports…).	Anatomy and Physiology: Student Study Guide. 4th. Ed. By Seeley, Stephens & Tale.

B-Electronic references, Internet sites…	Scientific Movies
12. The development of the curriculum plan	

TEMPLATE FOR MEDICAL PHYSICS COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	College of Pharmacy
2. University Department/Centre	Clinical Laboratory Science
3. Course title/code	Medical physics
4. Modes of Attendance offered	In Classroom
5. Semester/Year	Second Semester/ First Year
6. Number of hours tuition (total)	4
7. Date of production/revision of this specification	3/2023
8. Aims of the Course	
1- To provide students with the ability to deal with the concepts of physics, emphasize the knowledge and skills required to efficiently discharge the duties and responsibilities of the pharmacist. The course deals with the concept of basic physics and its application to medical field.	
2- Upon the completion of the course, the students will be able to understand the physical terminology and abbreviations used to describe the lecture, and their application to medical field.	

9· Learning Outcomes, Teaching ,Learning and Assessment Methode

A- Cognitive goals.

A1. Understand the basic of physics
A2. Understand the physic application in medical field
A3. Emphasize the knowledge required to efficiently discharge the duties and responsibilities of the pharmacist.

B. The skills goals special to the course.

B1. Emphasize the skill required to efficiently discharge the duties and responsibilities of the pharmacist.
B2. The skill of understanding the physical terminology and abbreviations used to describe the lecture, and their application to medical field.

Teaching and Learning Methods

- Lectures (questions and discussion)
- Laboratory skills
- White board
- Interactive electronic board
- Seminars
- Homework
- Unknown experiments
- Case study

Assessment methods

- Theoretical exam
- Practical exam
- Hospital training exam

C. Affective and value goals

C1. Translation
C2. Analysis
C3. Evaluation
C4. Explanation

Teaching and Learning Methods

- Lectures (questions and discussion)
- Laboratory skills
- White board
- Interactive electronic board
- Seminars
- Homework
- Unknown experiments
- Case study

Assessment methods

- Theoretical exam
- Practical exam
- Hospital training exam

D. General and rehabilitative transferred skills(other skills relevant to employability and personal development)

D1. The skill of working in pharmacy
D2. The skill of scientific research
D3.The skill of working in hospital
D4. Decision making skill

10. Course Structure					
week	hours	ILOs	Unit/Module or Topic Title	teaching method	Assessment method
1	2		Pressure: pressure scales, types of pressure in the human body, blood pressure	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
2	2		Thermodynamic: common terms of thermodynamics, the laws of thermodynamics, gases: the gas laws, the equation of state, kinetic theory of gases, real gases	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
3	2		Heat capacity and specific heat, the relation between internal energy with heat capacity, definitions of thermo dynamical process.	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
4	2		temperature and heat: scales of temperature, types of thermometers, methods of heat transfer, heat gain and loss in human body, heat therapy	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
5	2		Energy, work and power of the body, conservation of energy, energy change in the body	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
6	2		the blood flow: poiseuille's law, ohm's law applied to blood flow, the continuity equation and Bernoulli's principles, Types of blood flow, pascal's law	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
7	2		Surface tension: measurement of surface tension, factors effecting surface tension, Ostwald's viscometer.	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
8	2		Waves: sound in medicine, general properties of sound, and the stethoscope, Ultrasound in medicine: generation of ultrasound waves, application of ultrasound	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz

9			Mid-term Theory Exam		
10	2		Electromagnetic waves: radio wave, microwave, infra-red, visible light (application in medicine), ultraviolet, x-ray, gamma ray	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
11	2		Radiation therapy, CT scan, MRI scan, PET scan, SPECT scan	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
12	2		Laser: laser types in medical, laser interaction with tissue, medical applications	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
13	2		Physical optics, the optical fiber, image formation	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz

11. Infrastructure	
1. Books Required reading:	Physics for Biology and Medical Students, 2nd ed.
2. Main references (sources)	Physics for Biology and Medical Students, 2nd ed.
A- Recommended books and references (scientific journals, reports…).	Physics for Biology and Medical Students, 2nd ed.
B-Electronic references, Internet sites…	Scientific movies
12. The development of the curriculum plan	

TEMPLATE FOR MEDICAL MICROBIOLOGY I COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	College of Pharmacy
2. University Department/Centre	Clinical Laboratory Science
3. Course title/code	Medical Microbiology I
4. Modes of Attendance offered	In classroom / course
5. Semester/Year	First Semester/Second Year
6. Number of hours tuition (total)	5
7. Date of production/revision of this specification	10/2022
8. Aims of the Course	
1-To provide students with basic understanding of morphology, anatomy physiology and genetics of bacteria.	
2-The methods of handling, visualizing	
3-Characterizing and identifying of bacterial diseases	

9· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Cognitive goals

A1. Understand the basic of bacterial morphology and physiology
A2. Understand the basic of bacterial genetics
A3.Understand the basic of bacterial diseases

B. The skills goals special to the course.

B1. The skill of bacterial handling

B2. The skill of bacterial visualizing

B3. The skill of bacterial characterization

B4. The skill of bacterial diseases identification

Teaching and Learning Methods

- Lectures (questions and discussion)
- Laboratory skills
- White board
- Interactive electronic board
- Seminars
- Homework
- Unknown experiments
- Case study

Assessment methods

- Theoretical exam
- Practical exam
- Hospital training exam

C. Affective and value goals

C1. Translation
C2. Analysis
C3. Evaluation
C4.Explanation

Teaching and Learning Methods

- Lectures (questions and discussion)
- Laboratory skills
- White board
- Interactive electronic board
- Seminars
- Homework
- Unknown experiments

- Case study

Assessment methods

- Theoretical exam
- Practical exam
- Hospital training exam

D. General and rehabilitative transferred skills(other skills relevant to employability and personal development)

D1. The skill of working in pharmacy
D2. The skill of scientific research
D3.The skill of working in hospital
D4. Decision making skill

10. Medical Microbiology I Course Structure					
week	hours	ILOs	Unit/Module or Topic Title	Teaching Method	assessment method
1	2		Importance of microbiology, History of microbiology	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
2	2		Anatomy of bacteria: Surface appendage, Capsule, Cell wall of G +ve&G –ve bacteria Cytoplasmic membrane	- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
3	2		-Bacterial physiology: Physical and chemical growth determinate - Sporulation and germination.	- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
4	2		-Sterilization (chemical + physical Methods). - Chemotherapy.	- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
5	2		Morphology of Bacteria, Staining and Classification	- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
6	2		Genetics: Definition, genetic, element, mutation (spontaneous, gene transfer, transformation, conjugation, and gene transduction).	- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
7	2		Recombinant DNA biotechnology	- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
8	2		Mid-term Theory Exam		
9	2		-Staphylococci species - Aerobic Spore-forming bacteria Bacillus species	- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
10	2		- Clostridium perfringens - Corynebacterium diphtheria	- Lectures (questions and discussion) 2- Interactive electronic board	Quiz

11	2		- Propionibacterium acnes, Listeria - Mycobacterium tuberculosis; M. leprae	- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
12	2		Chlamyadiae; Actinomycetes Identification & classification of G -ve bacteria	- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
13	2		Identification & classification of G -ve bacteria	- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
14	2		Enterobacteriaceae	- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
15	2		Shigella spp; Salmonella spp; Proteus spp , Pseudomonas spp	- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
16	2		-Vibrio Cholerae; Brucella spp; Haemophilus spp; Campylobacter spp - Helicobacter spp	- Lectures (questions and discussion) 2- Interactive electronic board	Quiz

11. Infrastructure	
1. Books Required reading:	Medical Microbiology, seventeenth edition E. Jawetz, J. L. Melnick, E.A. Adel 1987 & 2. Principles of Microbiology by Roland M
2. Main references (sources)	Medical Microbiology, seventeenth edition E. Jawetz, J. L. Melnick, E.A. Adel 1987 & 2. Principles of Microbiology by Roland M
A- Recommended books and references (scientific journals, reports…).	Medical Microbiology, seventeenth edition E. Jawetz, J. L. Melnick, E.A. Adel 1987 & 2. Principles of Microbiology by Roland M
B-Electronic references, Internet sites…	Scientific Movies
12. The development of the curriculum plan	

TEMPLATE FOR MEDICAL MICROBIOLOGY II COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the program specification.

1. Teaching Institution	College of Pharmacy
2. University Department/Centre	Clinical Laboratory Science
3. Course title/code	Medical Microbiology II
4. Modes of Attendance offered	In Classroom
5. Semester/Year	Second Semester/ Second Year
6. Number of hours tuition (total)	5
7. Date of production/revision of this specification	3/2023
8. Aims of the Course	
1-To provide students with knowledge about pathogenesis, morphology.	
2- Laboratory diagnosis, identification, pathology, clinical features of medically important parasites	
3- Viral diseases and the basic concepts of immunity procedures against these diseases.	

9· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Cognitive goals

A1.Understand the basic of Viral diseases
A2. Understand the basic of Human Immunity
A3. Understand the medical important parasites
A4.Understand the basic of Pathogenesis

B-The skills goals special to the program

B1. Laboratory diagnosis skill
B2. Laboratory identification skill
B3. Viral isolation and characterization skill
B4. Parasites isolation and characterization skill

Teaching and Learning Methods

22- Lectures (questions and discussion)
23- Laboratory skills
24- White board
25- Interactive electronic board
26- Seminars
27- Homework
28- Unknown experiments

Assessment methods

10- Theoretical examination
11- Practical examination
12- Hospital training exam

C. Affective and value goals

C1. Translation
C2. Analysis
C3. Evaluation
C4.Explanation

Teaching and Learning Methods

- Lectures (questions and discussion)
- Laboratory skills
- White board
- Interactive electronic board
- Seminars
- Homework
- Unknown experiments
- Case study

Assessment methods

1-Theoretical examination
2-Practical examination
3-Hospital training exam

D. General and rehabilitative transferred skills(other skills relevant to employability and personal development)

D1. The skill of working in pharmacy
D2. The skill of scientific research
D3.The skill of working in hospital
D4. Decision making skill

10. Course Structure					
week	hours	ILOs	Unit/Module or Topic Title	teaching method	assessment method
1	3		Virology: Introduction, Comparison between viruses and bacteria and other microbes	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
2	3		Classification of viruses; Replication	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
3	3		Chemotherapy	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
4	3		Herpes viridae; Orthomyxo viruses	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
5	3		Paramyxo viruses; Retro viruses	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
6	3		Hepato viruses; Oncogenic viruse	1- Lectures (questions and discussion) 2- Interactive electronic board	
7	3		Review	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
8	3		Mid-Term Exam		
9	3		Introduction of Parasitology	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
10	3		Intestinal protozoa (Amoeba, Chilomastix)	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
11	3		Intestinal protozoa (Giardia, Chilomastix)	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz

12	3		Haemoflagellates: Leshmania spp.; Trypanosome spp.	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
13	3		Helminthes: Classification, Flukes: Hepatic flukes, Blood flukes (Schistosomaspp).	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
14	3		Tap worms: Taenia spp., Echinococcus (Hydatid cyst). Nematods: Ascaris, Entrobius.	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
15	3		Review	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz

11. Infrastructure	
1. Books Required reading:	Animal Agents and Vectors of Human Disease. 5th.Ed. P.C. Beaver.
2. Main references (sources)	Animal Agents and Vectors of Human Disease. 5th.Ed. P.C. Beaver.
A- Recommended books and references (scientific journals, reports…).	Animal Agents and Vectors of Human Disease. 5th.Ed. P.C. Beaver.
B-Electronic references, Internet sites…	Scientific movies
12. The development of the curriculum plan	

TEMPLATE FOR PATHOPHYSIOLOGY COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the program specification.

1. Teaching Institution	College of Pharmacy
2. University Department/Centre	Clinical Laboratory Science
3. Course title/code	Pathophysiology
4. Modes of Attendance offered	In Classroom
5. Semester/Year	First Semester/ Third Year
6. Number of hours tuition (total)	5
7. Date of production/revision of this specification	10/2022
8. Aims of the Course	
1-Describe the basic concepts of pathophysiology at the cellular level related to injury	
2-The self-defense mechanism, mutation, and cellular proliferation.	
3-Outline basic pathological factors that influence the disease process	
4-Describe the impact and abnormal functions upon the organ (s) associated with the disease process of targeted body systems.	
5-Describe clinical manifestations associated with the diseased organ(s)	

9· Learning Outcomes, Teaching ,Learning and Assessment Methode

A- Cognitive goals

A1. Understand basic concepts of pathophysiology
A2.Understand the self-defense mechanism, mutation, and cellular proliferation
A3. Understand the Outline basic pathological factors that influence the disease process

B. The skills goals special to the course.

B1. The skill of Describe the impact and abnormal functions upon the organ (s) associated with the disease process of targeted body systems.
B2. The skill of Describe clinical manifestations associated with the diseased organ(s)

Teaching and Learning Methods

29- Lectures (questions and discussion)
30- Laboratory skills
31- White board
32- Interactive electronic board
33- Seminars
34- Homework
35- Unknown experiments

Assessment methods

13- Theoretical examination
14- Practical examination
15- Hospital training exam

C. Affective and value

C1. Translation
C2. Analysis
C3. Evaluation
C4.Explanation

Teaching and Learning Methods

1- Lectures (questions and discussion)
2- Laboratory skills
3- White board
4- Interactive electronic board

5- Seminars
6- Homework
7- Unknown experiments

Assessment methods

1- Theoretical examination
2- Practical examination
3- Hospital training exam

D. General and rehabilitative transferred skills(other skills relevant to employability and personal development)

D1. The skill of working in pharmacy
D2. The skill of scientific research
D3. The skill of working in hospital
D4. The skill of making decision

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3		-Introduction. -Cell injury and tissue response; Degeneration; Necrosis	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
2	3		Atrophy; Hypertrophy; Metaplasia and Calcification; Inflammation and Repair	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
3	3		Disorders of electrolytes and water and acid–base balances	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
4	3		Disorders of cardiovascular system	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
5	3		Disorders of respiratory system	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
6	3		Disorders of the renal system.	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
7	3		Mid-term Theory Exam	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
8	3		Disorders of GI and hepatobiliary systems	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
9	3		Disorders of thyroid function	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
10	3		Disorders of adrenal function	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
11	3		Diabetes mellitus and metabolic syndrome; Dyslipoproteinemia	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
12	3		Neoplasia	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz

13	3		Metabolic and rheumatic disorders of skeletal system	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
14	3		Alteration in immune response	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz

11. Infrastructure	
1. Books Required reading:	Essentials in Pathophysiology by: Carol Mattson Porth, Latest Edition.
2. Main references (sources)	Essentials in Pathophysiology by: Carol Mattson Porth , Latest Edition.
A- Recommended books and references (scientific journals, reports…).	Essentials in Pathophysiology by: Carol Mattson Porth , Latest Edition.
B-Electronic references, Internet sites…	Scientific movies
12. The development of the curriculum plan	
• Implementing a professional training for further education and expertise • Add new syllabus about pathophysiology	

TEMPLATE FOR BIOCHEMISTRY I COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	College of Pharmacy
2. University Department/Centre	Clinical Laboratory Science
3. Course title/code	Biochemistry I
4. Modes of Attendance offered	In classroom/ Course
5. Semester/Year	First Semester/Third Year
6. Number of hours tuition (total)	5
7. Date of production/revision of this specification	10/2022
8. Aims of the Course	
1-To integrate key concepts describing the traditional core topics of Biochemistry	
2-Body Structure and metabolism.	
3-At the end of the semester, students should be able to understand the chemical structure.	
4-Function of all biomolecules present in the living organisms.	

9· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Cognitive goals

A1. Understand the basic of Biochemistry
A2. Understand the basic of body structure and metabolism
A3. Understand the function of biomolecules present in the living organism

B. The skills goals special to the course.

B1. The skill of biomolecules identification
B2. The skill of biomolecule characterization
B3.the skill of describing the traditional core topics of Biochemistry

Teaching and Learning Methods

36- Lectures (questions and discussion)
37- Laboratory skills
38- White board
39- Interactive electronic board
40- Seminars
41- Homework
42- Unknown experiments

Assessment methods

16- Theoretical examination
17- Practical examination
18- Hospital training exam

C. Affective and value goals

C1. Translation
C2. Analysis
C3. Evaluation
C4.Explanation

Teaching and Learning Methods

1- Lectures (questions and discussion)
2- Laboratory skills
3- White board
4- Interactive electronic board
5- Seminars
6- Homework
7- Unknown experiments

Assessment methods

1- Theoretical examination
2- Practical examination
3- Hospital training exam

D. General and rehabilitative transferred skills(other skills relevant to employability and personal development)

D1. The skill of working in pharmacy
D2. The skill of scientific research
D3.The skill of working in hospital
D4. Decision making skill

10. Course Structure

week	hours	ILOs	Unit/Module or Topic Title	Teaching Method	assessment method
1	3		Introduction to the macromolecules biochemistry, Amino acids: Structures of A.A; Classification, properties, isomerism.	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
2	3		Amino acids: Chemical reactions, Zwitter ions, titration curve calculating isoelectric point values	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
3	3		Peptides: Peptide bond, resonance forms, isomers, physical properties and chemical reactions Proteins: Structure and conformations of proteins.	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
4	3		Denaturation of proteins and protein sequencing	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
5	3		Carbohydrates: Chemistry and classification	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
6	3		Lipids: Introduction, classification of lipids	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
7			Mid-term Theory Exam		
8	3		Enzymes: Structures and mechanism	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz

9	3		Kinetics: General principles -Enzyme inhibition	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
10	3		-Control of activity and uses of in activators	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
11	3		-Nucleic Acid - Biological functions of DNA	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
12	3		-Biochemistry of extracellular and intracellular communication - Artificial membranes model	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
13	3		Biochemistry of the endocrine system	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
14	3		Special topics: Nutrition, digestion, and absorption	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz

11. Infrastructure	
1. Books Required reading:	Harper's Illustrated Biochemistry, Twenty-Sixth Edition
2. Main references (sources)	Harper's Illustrated Biochemistry, Twenty-Sixth Edition
A- Recommended books and references (scientific journals, reports…).	Harper's Illustrated Biochemistry, Twenty-Sixth Edition
B-Electronic references, Internet sites…	Scientific movies
12. The development of the curriculum plan	

TEMPLATE FOR BIOCHEMISTRY II COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	AL-Nahrain University
2. University Department/Centre	College of Pharmacy/ Clinical Laboratory Science
3. Course title/code	Biochemistry II
4. Modes of Attendance offered	Courses / Presence In Class
5. Semester/Year	Second Semester /Third Year
6. Number of hours tuition (total)	5
7. Date of production/revision of this specification	3/2023
8. Aims of the Course	
1- To provide a condensed curriculum of strong basic biochemistry and molecular biology.	
2- At the end of the semester, students should be able to understand all metabolic processes occurring in the living cell.	

9· Learning Outcomes, Teaching ,Learning and Assessment Methode

A- Cognitive goals

A1. Understand the basics of biochemistry and molecular biology
A2. Understand the basics of all metabolic processes occurring in the living cell

B. The skills goals special to the course.

B1. Bio and clinical chemistry and Tests
B2. students should be able to understand all metabolic processes
B3.

Teaching and Learning Methods

43- Lectures (questions and discussion)
44- Laboratory skills
45- White board
46- Interactive electronic board
47- Seminars
48- Homework
49- Unknown experiments

Assessment methods

1- Theoretical examination
2- Practical examination
3- Hospital training exam

C. Affective and value goals

C1. Translation
C2. Analysis
C3. Evaluation
C4.Explanation

Teaching and Learning Methods

8- Lectures (questions and discussion)
9- Laboratory skills
10- White board
11- Interactive electronic board
12- Seminars
13- Homework
14- Unknown experiments

Assessment methods

4- Theoretical examination
5- Practical examination
6- Hospital training exam

D. General and rehabilitative transferred skills(other skills relevant to employability and personal development)

D1. The skill of working in pharmacy
D2. The skill of scientific research
D3.The skill of working in hospital
D4. Decision making skill

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3		Bioenergetics	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
2	3		- Biologic oxidation. -The respiratory chain and oxidative phosphorylation	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
3	3		-Overview of metabolism -Citric acid Cycle	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
4	3		Glycolysis	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
5	3		Metabolism of glycogen	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
6	3		-Gluconeogenesis - Pentose phosphate pathway and other pathways of hexose metabolism	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
7	3		Mid-term Theory Exam	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz

8	3		-Biosynthesis of fatty acids -Oxidation of fatty acids	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
9	3		Metabolism of acylglycerol and sphingolipids	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
10	3		Lipid transport and storage	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
11	3		Cholesterol synthesis, transport, and excretion	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
12	3		Biosynthesis of the Nutritionally Nonessential Amino Acids	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
13	3		-Catabolism of Proteins & of Amino Acid Nitrogen - Catabolism of the Carbon Skeletons of Amino Acids	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
14	3		Conversion of Amino Acids to Specialized Products	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
15	3		Porphyrins& Bile Pigments	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz

11. Infrastructure	
1. Books Required reading:	Harper’s Illustrated Biochemistry, Twenty-Sixth Edition
2. Main references (sources)	Harper’s Illustrated Biochemistry, Twenty-Sixth Edition
A- Recommended books and references (scientific journals, reports…).	Harper’s Illustrated Biochemistry, Twenty-Sixth Edition
B-Electronic references, Internet sites…	Scientific movies
12. The development of the curriculum plan	

TEMPLATE FOR PUBLIC HEALTH COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	College of Pharmacy
2. University Department/Centre	Clinical Laboratory Science
3. Course title/code	Public Health
4. Modes of Attendance offered	In Classroom
5. Semester/Year	First Semester/ Fourth Year
6. Number of hours tuition (total)	2
7. Date of production/revision of this specification	10/2022
8. Aims of the Course	
1-To help students understand the principles of public health	
2-The art of preventing disease	
3-promoting health and prolonging life through organized efforts made by the society	

9· Learning Outcomes, Teaching ,Learning and Assessment Methode

A- Cognitive goals

A1. Understand the principles of public health

A2.Understand the principles of preventing disease

B. The skills goals special to the course.

B1. The skill of promoting health and prolonging life through organized efforts made by the society

B2. The skill of preventing disease

Teaching and Learning Methods

50- Lectures (questions and discussion)
51- Laboratory skills
52- White board
53- Interactive electronic board
54- Seminars
55- Homework
56- Unknown experiments

Assessment methods

19- Theoretical examination
20- Practical examination
21- Hospital training exam

C. Affective and value goals

C1. Translation

C2. Analysis

C3. Evaluation

C4.Explanation

Teaching and Learning Methods

8- Lectures (questions and discussion)
9- Laboratory skills
10- White board
11- Interactive electronic board
12- Seminars
13- Homework
14- Unknown experiments

Assessment methods

1- Theoretical examination
2- Practical examination
3- Hospital training exam

D. General and rehabilitative transferred skills(other skills relevant to employability and personal development)

D1. The skill of working in pharmacy
D2. The skill of scientific research
D3. The skill of working in hospital
D4. The skill of making decision

10. Course Structure					
week	hours	ILOs	Unit/Module or Topic Title	teaching method	assessment method
1	2		-Concepts and principles of public health and preventive medicine. -Public health and statistics	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
2	2		-Epidemiology -Communicable diseases	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
3	2		-Infections through skin and mucous membranes. -Infections through the respiratory tract.	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
4	2		Arthropod-borne infections	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
5	2		Non-communicable disease: Health in transition	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
6	2		-Nutritional disorders -Family health	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
7	2		-Environmental health. -Innate and acquired Immunity; Immunization	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
8			Mid-term Theory Exam	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
9	2		Introduction: historic background of pharmacy practice	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
10	2		- Pharmacy practice and health care system I - Pharmacy practice and health care system II	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz

11	2		-Health promotion in community pharmacy -Introduction to pharmaceutical care	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
12	2		-Pharmaceutical care planning I -Pharmaceutical care planning II	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
13	2		-Community pharmacy management -Hospital pharmacy service	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
14	2		-Bio-safety in pharmacy practice I -Bio-safety in pharmacy practice II	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
15	2		-Formulary management and regulatory affairs I -Formulary management and regulatory affairs II	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
16	2		Rational use of drugs I and II	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz

11. Infrastructure	
1. Books Required reading:	Lucas AO, Gilles HM, (Eds), Short Textbook of Public Health Medicine for the Tropic, Latest Edition.
2. Main references (sources)	Lucas AO, Gilles HM, (Eds), Short Textbook of Public Health Medicine for the Tropic, Latest Edition.
A- Recommended books and references (scientific journals, reports…).	Lucas AO, Gilles HM, (Eds), Short Textbook of Public Health Medicine for the Tropic, Latest Edition.
B-Electronic references, Internet sites…	Scientific Movies
12. The development of the curriculum plan	

TEMPLATE FOR CLINICAL CHEMISTRY COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	College of Pharmacy
2. University Department/Centre	Clinical Laboratory Science
3. Course title/code	Clinical Chemistry
4. Modes of Attendance offered	In Classroom
5. Semester/Year	First Semester/ Fifth Year
6. Number of hours tuition (total)	5
7. Date of production/revision of this specification	10/2022
8. Aims of the Course	
1-To exhibit knowledge of human body chemistry levels under healthy and abnormal conditions	
2- At the end of the semester the students should be familiar with the basic and advanced information in clinical laboratory chemistry	
3- How it relates to patient health and care	

9· Learning Outcomes, Teaching ,Learning and Assessment Methode

B- Cognitive goals

A1. Understand the principles of clinical chemistry

A2.Understand the principles of human body chemistry levels

B. The skills goals special to the course.

B1. The skill of students should be familiar with the basic and advanced information in clinical laboratory chemistry

B2. The skill of relates to patient health and care

Teaching and Learning Methods

57- Lectures (questions and discussion)
58- Laboratory skills
59- White board
60- Interactive electronic board
61- Seminars
62- Homework
63- Unknown experiments

Assessment methods

22- Theoretical examination
23- Practical examination
24- Hospital training exam

C. Affective and value goals

C1. Translation

C2. Analysis

C3. Evaluation

C4.Explanation

Teaching and Learning Methods

15- Lectures (questions and discussion)
16- Laboratory skills
17- White board
18- Interactive electronic board
19- Seminars
20- Homework
21- Unknown experiments

Assessment methods

1- Theoretical examination
4- Practical examination
5- Hospital training exam

D. General and rehabilitative transferred skills(other skills relevant to employability and personal development)

D1. The skill of working in pharmacy
D2. The skill of scientific research
D3. The skill of working in hospital
D4. The skill of making decision

10. Course Structure					
week	hours	ILOs	Unit/Module or Topic Title	teaching method	assessment method
1	3		- Disorders of Carbohydrates metabolism, Hyperglycemia & Diabetes mellitus, Hypoglycemia - Disorders of lipid metabolism	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
2	3		Hypothalamus & pituitary endocrinology, disorders of anterior pituitary hormones, disorders of adrenal gland, hypopituitarism	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
3	3		Thyroid gland disorder	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
4	3		Disorders of calcium metabolism	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
5	3		Adrenal gland function	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
6	3		Adrenal gland disorders	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
7	3		Reproductive system, disorders of gonadal function in males & females, biochemical assessment during pregnancy	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
8	3		Review	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
9	3		Mid-term Theory Exam	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
10	3		Diagnostic enzymology	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz

11	3		Liver Function Tests	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
12	3		Kidney Function Tests	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
13	3		Acid- Base Disorders	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
14	3		Drug interaction with laboratory Tests	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
15	3		Tumor markers	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz
16	3		Review	1- Lectures (questions and discussion) 2- Interactive electronic board	Quiz

11. Infrastructure	
1. Books Required reading:	1- Clinical Chemistry & Metabolic Medicine, Crook, Latest Edition. 2- Clinical Chemistry, Kaplan, Latest Edition
2. Main references (sources)	1- Clinical Chemistry & Metabolic Medicine, Crook, Latest Edition. 2- Clinical Chemistry, Kaplan, Latest Edition
A- Recommended books and references (scientific journals, reports…).	1- Clinical Chemistry & Metabolic Medicine, Crook, Latest Edition. 2- Clinical Chemistry, Kaplan, Latest Edition
B-Electronic references, Internet sites…	Scientific Movies
12. The development of the curriculum plan	

TEMPLATE FOR CLINICAL LABORATORY TRAINING COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	College of Pharmacy
2. University Department/Centre	Clinical Laboratory Science
3. Course title/code	Clinical Laboratory Training
4. Modes of Attendance offered	In Hospital Laboratories
5. Semester/Year	Second Semester/ Fifth Year
6. Number of hours tuition (total)	4
7. Date of production/revision of this specification	3/2023
8. Aims of the Course	
1- To provide general information about the biochemical basis of diseases and the principles of laboratory diagnosis	
2- It supplies specific guidance on the clinical value of chemical investigations, indicating their range of application and limitations as well as relating results of laboratory tests	
3- process of clinical diagnosis and management as these might be applied to individual patients	

9· Learning Outcomes, Teaching ,Learning and Assessment Methode

C- Cognitive goals

A1. Understand the principles of biochemical basis of diseases and the principles of laboratory diagnosis

A2.Understand the principles of specific guidance on the clinical value of chemical investigations

B. The skills goals special to the course.

B1. The skill of the principles of laboratory diagnosis

B2. The skill of clinical diagnosis and management as these might be applied to individual patients

Teaching and Learning Methods

64- Lectures (questions and discussion)
65- Laboratory skills
66- White board
67- Interactive electronic board
68- Seminars
69- Homework
70- Unknown experiments

Assessment methods

25- Theoretical examination
26- Practical examination
27- Laboratory training exam in Hospital

C. Affective and value goals

C1. Translation

C2. Analysis

C3. Evaluation

C4.Explanation

Teaching and Learning Methods

22- Lectures (questions and discussion)
23- Laboratory skills
24- White board
25- Interactive electronic board
26- Seminars
27- Homework
28- Unknown experiments

Assessment methods

1-Theoretical examination
6- Practical examination
7- Laboratory training exam in Hospital

D. General and rehabilitative transferred skills(other skills relevant to employability and personal development)

D1. The skill of working in pharmacy
D2. The skill of scientific research
D3. The skill of working in hospital
D4. The skill of making decision

10. Course Structure					
week	hours	ILOs	Unit/Module or Topic Title	teaching method	assessment method
1	4		-Diagnostic test basics, collecting &transporting specimens, venipuncture, urine specimen, stool specimen -Biochemical tests: Fasting blood glucose, Post-prandial glucose, Oral glucose tolerance test	1- Lectures (questions and discussion) 2- Laboratory Training	Quiz
2	4		-Blood urea, Blood creatinine, Creatinine clearance, Uric acid -Cholesterol, Lipoproteins, triglycerides	1- Lectures (questions and discussion) 2- Laboratory Training	Quiz
3	4		- Blood proteins, Bilirubin - Calcium, Inorganic phosphate, Serum chloride	1- Lectures (questions and discussion) 2- Laboratory Training	Quiz
4	4		Alkaline phosphatase, Acid phosphatase, Alanine amiotransferase, Aspartate aminotransferase, Lactate dehydrogenase, Creatine phosphokinase	1- Lectures (questions and discussion) 2- Laboratory Training	Quiz
5	4		Serological tests: VDRL, ASO- Titer, Hepatitis tests	1- Lectures (questions and discussion) 2- Laboratory Training	Quiz
6	4		C-reactive protein test, Rheumatic factor test, Rosebengal test, Typhoid fever test(Widal test), Pregnancy Test	1- Lectures (questions and discussion) 2- Laboratory Training	Quiz
7	4		Hematological tests: RBC count, Hb, PCV, RBC indices, WBC ,count, Platelets count	1- Lectures (questions and discussion) 2- Laboratory Training	Quiz
8	4		Review	1- Lectures (questions and discussion) 2- Laboratory Training	Quiz
9	4		Blood typing, Coombs test, Bleeding time, ESR	1- Lectures (questions and discussion) 2- Laboratory Training	Quiz

10	4		Microbiological tests: culture and sensitivity tests, Staining methods	1- Lectures (questions and discussion) 2- Laboratory Training	Quiz
11	4		Culture media, Enriched culture media for general use	1- Lectures (questions and discussion) 2- Laboratory Training	Quiz
12	4		Tests for identification of bacteria, Disk diffusion tests of sensitivity to antibiotics, Choice of drugs for disk test, bacterial disease and their laboratory diagnosis	1- Lectures (questions and discussion) 2- Laboratory Training	Quiz
13	4		Spectrophotometer and Auto analyzer with quality control for Biochemistry and Hormones	1- Lectures (questions and discussion) 2- Laboratory Training	Quiz
14	4		Elisa technique for Serology, Immunity and Virology IgG and IgM	1- Lectures (questions and discussion) 2- Laboratory Training	Quiz
15	4		Hb. Electrophoresis in Blood (HbA1C) and immunoglobulin's electrophoresis in serum technique	1- Lectures (questions and discussion) 2- Laboratory Training	Quiz
16	4		Final Lab. Exam	1- Lectures (questions and discussion) 2- Laboratory Training	Quiz

11. Infrastructure	
1. Books Required reading:	Manual for Laboratory Training Adopted by the Department
2. Main references (sources)	Manual for Laboratory Training Adopted by the Department
A- Recommended books and references (scientific journals, reports…).	Manual for Laboratory Training Adopted by the Department
B-Electronic references, Internet sites…	Tour in Hospital Laboratories, Scientific Experiments,
12. The development of the curriculum plan	