Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Accreditation Department

Academic Program and Course Description Guide

2024

Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

Concepts and terminology:

Academic Program Description: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

Academic Program Description Form

University: Southem Technical University
College :Technical Institute/Amara
Department :Medical Laboratory

Assist. Prof. Dr. Nidhal Abdullah
Head of Department
Date : 20/6 /2023
Signature

Lecturer. Suhad Jassim Khalifa
Dean's Assistant For
Date :20 / 6 / 2023
Signature

The fiil is checked by
Quality Assurance And University Performance Manager
Directore of the Quality Assurance And University Performance Manager
Naglaa Kadhem Abdel Hassan
Date : / / 14 / 3 / 2024
Signature

Approval of the Dean

1. Program vision

The Medical Laboratories Department represents an effective means of meeting the community's need for specialized cadres to support various health, research and educational institutions, in addition to investing the energies of teachers and students in primary and graduate theoretical and applied scientific research and studies.

2.Program message

The Medical Laboratory Technology Department was established in accordance with the community's need for specialized service cadres with scientific specifications and modern technical standards, and to prepare these cadres to work in various health and research institutions, as well as to support the private sector. Note that the department has a clear future mission with high ambition that seeks to provide the best services and develop the teaching staff and students in the fields of scientific and cognitive research.

3.Program objectives

The department aims to graduate technical personnel capable of working in medical laboratories, conducting routine laboratory analyses, general chemical examinations, examining liquids, and operating and maintaining laboratory equipment.

4. Programmatic accreditation

Analyst work in (laboratories, hospitals, and health centers)

5. Other external influences

No found

6.Program structure

Program structure	**NO of Subjects**	Credit hours		**Total units**	**comments***
		Theoretical	practic		

			al		
First stage	15	26	37	63	
Second stage	16	26	48	74	
others					
* Notes may include whether the course is core or elective					

7. Program description				
Year/level	**Course or course code**	**Name of the course or course**	**Credit hours**	
			Theoretical	**practical**
The first / first semester		**Laboratory Techniques**	**2**	**4**
		Microbial preparation	**2**	**3**
		Laboratory Instrument	**2**	**2**
		Histology	**2**	**3**
		Analytical Chemistry	**2**	**4**
		Fundamentals of Nursing	**1**	**2**
		Computer application	**1**	**2**
		Human right and Democratic	**2**	**-**
First/second semester		**Quality control**	**2**	**4**
		Histological techniques	**2**	**3**
		Molecular biology	**2**	**2**
		Lab,Safty	**1**	**2**
		Blood transfusion	**1**	**2**
		Biochemistry	**2**	**4**

		English language	**2**	**0**
The second / first semester		**Microbiology**	**2**	**4**
		Haematology 1	**2**	**4**
		Clincal chemistry1	**2**	**4**
		Immunology	**2**	**4**
		Protozoa	**2**	**4**
		Virology	**1**	**2**
		Medical Ethics	**2**	**0**
Scond /second semester		**Bacterial Pathogenicity**	**2**	**4**
		Haematology2	**2**	**4**
		Clincal chemistry2	**2**	**4**
		Clinical Immunology	**2**	**4**
		Helminthes	**2**	**4**
		Medical Mycology	**1**	**2**
		Graduation project	**0**	**2**
		The crimes of the Baath regime in Iraq	**2**	**0**

8. Expected learning outcomes of the program	
Knowledge	
1. Learn how to collect information about the patient 2. Identify the pathogens and their relationship with each other **3.** Identify side effects according to the patient's laboratory results	
Skills	
1. Teaching and training students on how to collect laboratory samples. 2. Teaching and training the student on how to prepare the patient for each examination and according to the medical condition. 3. Teaching and training the student how to memorize forms, whether blood, urine, or anything else. 4. Teaching and training the student how to conduct examinations	
Value	
Developing students' abilities to share ideas	
Expressing one's thoughts and feelings regarding life matters, including scientific subjects	

9.Teaching and learning strategies
Traditional lectures, dialogue, discussion, showing scientific films and videos related to methods of collecting samples from patients and then conducting tests, scientific visits for information.

10.Evaluation methods
Weekly, monthly, daily exams and the end of the year exam.

11. education institution						
Faculty members						
Scientific rank	Specialization		Special requirements/skills ((if any		Preparing the teaching staff	
	general	special			Staff	lecturer
Assist .prof.	Biology	Biology/ physiology			Staff	
lecturer	Biology	Biology			Staff	
lecturer	Agricultural sciences/in sects	Biology/ parasites			Staff	
lecturer	chemistry	chemistry			Staff	
Assit.lecturer	Biology	Biology			Staff	
lecturer	Clincal chemistry	Clinical chemistry			Staff	
lecturer	Sports science	Sports science			Staff	
Assit lecturer	special law	special law			Staff	

Professional development
Orienting new faculty members

Professional development for faculty members

12. Acceptance criterion
1. Rate 2. Scientific branch 3. Personal interview for the student 4. Determine the ratio of males to females 5. Taking into account the specialization lessons within the general average 6. Determining the number of students planned to be accepted after reviewing the relevant authorities in the specialty (for example, forming a committee between the institute and the health departments in the governorate).

13. The most important sources of information about the program
1-Head of dept. 2- Lecturers of dept

14. Program development plan

2. Course structure					
Evaluation method	**Teaching method**	**Name of the unit/course or subject**	**Required learning outcomes**	**hours**	**the week**
practical test	**a lecture**	Definition of some scientific terms related to tissue and cell science	Know some terms related to histology	5	the first
	discussion		Know some cell science terminology		
	feedback		Know some terms related to the technique of preparing tissue slides		
	Show poster				
	Show videos and movies				
practical test	**a lecture**	Sample collection	Identi fy ypess of ti tssue samples	5	the second
	discussion		Know the difference between living and dead tissue		
	feedback				
	Show poster				
	Show videos and movies				
practical test	**a lecture**	Fabric preparation steps (fixing, (stabilizers	Learn about the benefits and functionsfixation	10	The third and fourth
	discussion		Fixation methods		
	feedback		Identify the types of fixatives		
	Show poster		Learn about the characteristics and features of each fixatives		
	Show videos and movies				
practical test	**a lecture**	Routine and special fixatives	Identify the routine fixatives used in histopathological laboratories	10	Fifth and sixth
	discussion		Identyfy on specific fixativefor each tissue		

	feedback				
	Show poster				
	Show videos and movies				
practical test	**a lecture**		Identify washing solutions	20	The seventh 000 tenth
	discussion	Steps (washing, drying, quenching, (filtration	Learn dehydration methods and the most important solutions		
	feedback		Identify the steps of clearing and clearing solutions		
	Show poster		Identify the filtration steps and types of media used		
	Show videos and movies				
practical test	**a lecture**	Landfilling and logging	Learn about the method of embeding a nd trimining	5	Eleventh - The
	discussion				
	feedback				
	Show poster				
	Show videos and movies				
practical test	**a lecture**	Cutting using a micro tom	How to secting the tissue sections by microtome	5	twelveth
	discussion		Examine the sections microscopically		
	feedback				
	Show poster				
	Show videos and movies				

3. Course development plan
1- Reviewing modern scientific literature 2- Participation in relevant scientific conferences 3- Training teaching staff devote themselves to applying and working in hospitals, even one day a week 4- Hosting specialized professors 5- Field research related to the specialty 6- Scientific pairing with other universities and corresponding colleges

Course description

This course provides a summary description of the most characteristics of the course and the learning outcomes that the student is expected to achieve ,it must be learning opportunities of the description and must be linked to the program.

1-Educational institution	Southern Technical University
2-Scientific departmen/center	Section Scientific Medical laboratory techniques
3-Course name/code	Laboratory techniques
4-Available attendance forms	1- Weekly lesson schedule (theoretical and practical) 2- Discussions, scientific seminars, other extracurricular activities and scientific conferences
5-Semester/year	quarterly
(total) 6-Number of study hours	90 hours
prepared 7-Date this description was	2023/6/20

8-Course objectives
1-Teaching and training students on the basics laboratory tools.
2- Teaching and training students on the pinciples of bacteriology
3- Teaching and training students on urine examination
*On the principles of hematology Students And training Education

5. Course structure

Evaluation method	Teaching method	Name of the unit/course or subject	Required learning outcomes	hours	the week
practical test	**a lecture**	Definition of some laboratory equipment and tools		5	the first
	discussion				
	feedback				
	Show poster				
	Show videos and movies				
practical test	**a lecture**	mpleSa collection		5	the second
	discussion				
	feedback				
	Show poster				
	Show videos and movies				
practical test	**a lecture**	Fabric preparation steps (fixing, (stabilizers		10	The third and fourth
	discussion				
	feedback				
	howS poster				
	Show videos and movies				
practical test	**a lecture**	Routine and special fixatives		10	Fifth and sixth
	discussion				
6. Infrastructure					

				Required course books .1		
				Main references (sources) .2		
				a. Recommended books and references (scientific journals, reports, 0000)		
				B. Electronic references, Internet sites		
	Show poster					
	Show videos and movies					
practical test	**a lecture**	Steps (washing, drying, quenching, (filtration			5	The seventh ten 000
	discussion					
	feedback					
	Show poster					
	Show videos and					

7. Course development plan
7- Reviewing modern scientific literature 8- Participation in relevant scientific conferences 9- Training teaching staff devote themselves to applying and working in hospitals, even one day a week 10- Hosting specialized profes 11- Field research related to the specialty 12- Scientific pairing with other universities and corresponding colleges

This course description provides a summary of the most important characteristics of the course and the learning outcomes that the student is expected to achieve, demonstrating whether he or she has made the most of the learning opportunities available. It must be .linked to the program description

uthern Technical UniversitySo	8. Educational institution
Section Scientific Medical laboratory techniques	9. Scientific department /center
Laboratory equipment	10. Course name/code
3- Weekly lesson schedule (theoretical and practical) 4- Discussions, scientific seminars, other extracurricular activities and scientific conferences	11. Available attendance forms
quarterly	12. Semester/year
60 hours	13. Number of study hours (total)
2023/2/6	14. Date this description was prepared
15. Course objectives	
1- equipment Teaching and training students on how to deal with laboratory	
2- Teaching and training students on how to maintain laboratory equipment	

16. outcomes and teaching, learning and evaluation methods Course
A- Cognitive objectives A1- Identify all the equipment in the labora A2- Identify the principles of operation of each device in the laboratory A3- Learn how to use, operate and maintain each device
B - The following are the skill objectives of the programme B1 - Training on how each device works B2 - Training on equipment maintenance
based goals - and value Emotional -C
D - General and qualifying transferable skills(other skills employability and personal development .(D1- Field visits to gain experience from others D2- Access to scientific developments in the field of specialization D3- Practical training in hospitals D4- Access to modern learning and teaching methods
Teaching and learning methods
Traditional lecture. writing reports . Conducting seminars, systematic training in the laboratory and summer training
Evaluation methods
Written and oral tests, applied tests, semester and final exams, obligations to assignments, attendance and commitment, feedback (testing the student on the previous subject) evaluation (questions are set for the student by the teacher and the student answers the questions, - and the teacher also answers the same questions and the student is asked to evaluate himself in light of the teacher's answers (reports on scientific developments in the field of specialization, asking analytical and deductive question)

Course description

This course description provides a summary of the most important characteristics of the course and the learning outcomes that the student is expected to achieve, demonstrating whether he or she has made the most of the learning opportunities available. It must be .linked to the program description

Southern Technical University	17. Educational institution
Section Scientific Medical laboratory techniques	18. department Scientific center/
Transfusion	19. Course name/code
5- Weekly lesson schedule (theoretical and practical) 6- Discussions, scientific seminars, other extracurricular activities and scientific conferences	20. Available attendance forms
quarterly	21. Semester/year
150 hours	22. Number of study hours (total)
2023/2/6	23. Date this description was prepared
24. Course objectives	
3- Teaching and training students on how to transfuse blood	
4- Teaching and training students about blood types	
5- Teaching and training students on how to match blood types	

25. Course outcomes and teaching, learning and evaluation methods
A- Cognitive objectives A1- Identifying blood and its most important characteristics A2- Identifying blood types A3- Identify the most important compatibility tests
the programme of The following are the skill objectives -B
C - Emotional and value-based goals..
D - General and qualifying transferable skills (other skills related to employability and personal development .(D1- Field visits to gain experience from others D2- Access to scientific developments in the field of specialization D3- Practical training in hospitals D4- Access to modern learning and teaching methods
Teaching and learning methods
Traditional lecture. writing reports . Conducting seminars, systematic training in the laboratory and summer training
Evaluation methods
Written and oral tests, applied tests, semester and final exams, obligations to assignments, attendance and commitment, feedback (testing the student on the previous subject) evaluation (questions are set for the student by the teacher and the student answers the questions, - and the teacher also answers the same questions and the student is asked to evaluate himself in light of the teacher's answers (reports on scientific developments in the field of specialization, asking analytical and deductive questions)

Course description

This course description provides a summary of the most important characteristics of the course and the learning outcomes that the student is expected to achieve, demonstrating whether he or she has made the most of the learning opportunities available. It must be

.linked to the program description

Southern Technical University	26. Educational institution
Section Scientific Medical laboratory techniques	27. Scientific department /center
Chemistry	28. Course name/code
7- Weekly lesson schedule (theoretical and practical) 8- Discussions, scientific seminars, other extracurricular activities and scientific conferences	29. e attendanceAvailabl forms
quarterly	30. Semester/year
75 hours	31. Number of study hours (total)
2023/2/6	32. Date this description was prepared
33. Course objectives	
6- Teaching and training students on how to prepare chemical solutions	
7- Teaching and training students on how to use devices and tools	

34. Course outcomes and teaching, learning and evaluation methods
A- Cognitive objectives A1- Identify the most important chemical dumps A2- Identify the most important chemical reagents A3- Identify the chemical solutions used and methods of preparing them
B - The following are the skill objectives of the programme

C - Emotional and value-based goals.
D - General and qualifying transferable skills (other skills related to employability and personal development .(D1- Field visits to gain experience from others D2- Access to scientific developments in the field of specialization D3- Practical training in hospitals D4- Access to modern learning and teaching
Teaching and learning methods
Traditional lecture. writing reports . Conducting seminars, systematic training in the laboratory and summer training
Evaluation methods
Written and oral tests, applied tests, semester and final exams, obligations to assignments, attendance and commitment, feedback (testing the student on the previous subject (- evaluation (questions are set for the student by the teacher and the student answers the questions, and the teacher also answers the same questions and the student is asked to evaluate himself in light of the teacher's answers (reports on scientific developments in the field of specialization, asking analytical and deductive questions)

Course description

This course description provides a summary of the most important characteristics of the course and the learning outcomes that the student is expected to achieve, demonstrating whether he or she has made the most of the learning opportunities available. It must be .linked to the program description

Southern Technical University	35. Educational institution
Section Scientific Medical laboratory techniques	36. Scientific department /center
Nursing basics	37. Course name/code
9- Weekly lesson schedule (theoretical and practical) 10- Discussions, scientific seminars, other	38. Available attendance forms

extracurricular activities and scientific conferences	
quarterly	39. Semester/year
60 hours	40. Number of study hours (total)
2023/2/6	41. Date this description was prepared
42. Course objectives	
1- Teaching and training students on the basics of nursing	
2- Learn about the foundations of nursing	
*Learn about first aid and laboratory safety	

43. outcomes and teaching, learning and evaluation methods Course
A- Cognitive objectives A1- Identify the foundations of nursing A2- Learn about first aid and laboratory safety A3- Identifying ways to deal with the patient while he is in the laboratory
the programme of The following are the skill objectives –B
.C - Emotional and value-based goals
D - General and qualifying transferable skills (other skills related to employability and personal development .(D1- Field visits to gain experience from others D2- Access to scientific developments in the field of specialization D3- Practical training in hospitals D4- Access to modern learning and teaching methods
Teaching and learning methods
Traditional lecture. writing reports . Conducting seminars, systematic training in the laboratory and summer training

Evaluation methods
Written and oral tests, applied tests, semester and final exams, obligations to assignments, attendance and commitment, feedback (testing the student on the previous subject (- evaluation (questions are set for the student by the teacher and the student answers the questions, and the teacher also answers the same questions and the student is asked to evaluate himself in light of the teacher's answers (reports on scientific developments in the field of specialization, asking analytical and deductive questions)

Second academic year

Course description

This course description provides a summary of the most important characteristics of the course and the learning outcomes that the student is expected to achieve, demonstrating whether he or she has made the most of the learning opportunities available. It must be .linked to the program description

Southern Technical University	44. Educational institution
Section Scientific Medical laboratory techniques	45. Scientific department /center
Blood diseases	46. ourse name/codeC
11-Weekly lesson schedule (theoretical and practical) 12-Discussions, scientific seminars, other extracurricular activities and scientific conferences	47. Available attendance forms
quarterly	48. Semester/year
90 hours	49. Number of study hours (total)
2023/2/6	50. Date this description was prepared
51. Course objectives	
8- Teaching and training students on how to prepare slides for various body tissues	

9- Teaching and training students on how to stain tissue slides and body smears
10-Teaching and training students on how to prepare chemical solutions
Education And training Students on How stabilizing And save Samples Histological

52. outcomes and teaching, learning and evaluation methods Course
A- Cognitive objectives A1- Identify the tests and examinations conducted in the laboratory A2- Identify the diagnosis of medical conditions
B - The following are the skill objectives of the programme B1 - Training on fixing and preserving the tissue sample B2 - Training on dyeing textile slides B3 - Training on dyeing the body swab B4- Training on preparing chemical solutions
.based goals - Emotional and value -C
D - General and qualifying transferable skills (other skills related to employability and personal development .(D1- Field visits to gain experience from others D2- Access to scientific developments in the field of specialization D3- Practical training in hospitals D4- Access to modern learning and teaching methods
Teaching and learning methods
Traditional lecture. writing reports . Conducting seminars, systematic training in the laboratory and summer training
Evaluation methods
Written and oral tests, applied tests, semester and final exams, obligations to assignments, attendance and commitment, feedback (testing the student on the previous subject (- evaluation (questions are set for the student by the teacher and the student answers the questions, and the teacher also answers the same questions and the student is asked to evaluate himself in light of the teacher's answers (reports on scientific developments in the field of specialization, asking analytical and deductive questions)

Course description

This course description provides a summary of the most important characteristics of the course and the learning outcomes that the student is expected to achieve, demonstrating whether he or she has made the most of the learning opportunities available. It must be .linked to the program description

Southern Technical University	53. Educational institution
Section Scientific Medical laboratory techniques	54. Scientific department /center
Microbiology	55. odeCourse name/c
13-Weekly lesson schedule (theoretical and practical) 14-Discussions, scientific seminars, other extracurricular activities and scientific conferences	56. Available attendance forms
quarterly	57. Semester/year
90 hours	58. Number of study hours (total)
2023/2/6	59. Date this description was prepared

60. Course objectives

11-Teaching and training students on how to prepare agricultural media
12-Teaching and training students on how to stain tissue slides and body smears
13-Teaching and training students on how to prepare chemical solutions
Education And training Students on How stabilizing And save Samples Histological

61. outcomes and teaching, learning and evaluation methods Course
A- Cognitive objectives A1- Identify the types of planting media and how to prepare in advance A2- Identify the types of sterilization and disinfection A3- Identify the isolation and diagnosis of disease-causing organisms
B - The following are the skill objectives of the programme B1 - Training on fixing and preserving the tissue sample B2 - Training on dyeing textile slides B3 - Training on dyeing the body swab B4- Training on preparing chemical solutions
.based goals - Emotional and value -C
D - General and qualifying transferable skills (other skills related to employability and personal development .(D1- Field visits to gain experience from others D2- Access to scientific developments in the field of specialization D3- Practical training in hospitals D4- Access to modern learning and teaching methods
Teaching and learning methods
Traditional lecture. writing reports . Conducting seminars, systematic training in the laboratory and summer training
Evaluation methods
Written and oral tests, applied tests, semester and final exams, obligations to assignments, attendance and commitment, feedback (testing the student on the previous subject(- evaluation (questions are set for the student by the teacher and the student answers the questions, and the teacher also answers the same questions and the student is asked to evaluate himself in light of the teacher's answers (reports on scientific developments in the field of specialization, asking analytical and deductive questions)

Course description

This course description provides a summary of the most important characteristics of the course and the learning outcomes that the student is expected to achieve, demonstrating whether he or she has made the most of the learning opportunities available. It must be .linked to the program description

Southern Technical University	62. Educational institution
Section Scientific Medical laboratory techniques	63. Scientific department /center
Protozoan parasites	64. Course name/code
15- Weekly lesson schedule (theoretical and (practical 16- Discussions, scientific seminars, ficother extracurricular activities and scienti conferences	65. Available attendance forms
quarterly	66. Semester/year
90 hours	67. Number of study hours (total)
2023/2/6	68. Date this description was prepared
69. Course objectives	
14-Teaching and training students on the most important disease-Causing parasites	
15-Teaching and training students on the techniques used in diagnosing parasites	

70. Course outcomes and teaching, learning and evaluation methods
A- Cognitive objectives A1- Identify the types of planting media and how to prepare in advance A2- Identify the types of sterilization and disinfection A3- Identify the isolation and diagnosis of disease-causing organisms
the programme of The following are the skill objectives – B B1 - Training on fixing and preserving the tissue sample B2 - Training on dyeing textile slides B3 - Training on dyeing the body swab B4- Training on preparing chemical solutions
.based goals -Emotional and value - C
D - General and qualifying transferable skills (other skills related to employability and personal development .(D1- Field visits to gain experience from others D2- Access to scientific developments in the field of specialization D3- Practical training in hospitals D4- Access to modern learning and teaching methods
Teaching and learning methods
Traditional lecture. writing reports . Conducting seminars, systematic training in the laboratory and summer training
Evaluation methods
Written and oral tests, applied tests, semester and final exams, obligations to assignments, attendance and commitment, feedback (testing the student on the previous subject(- evaluation (questions are set for the student by the teacher and the student answers the questions, and the teacher also answers the same questions and the student is asked to evaluate himself in light of the teacher's answers (reports on scientific developments in the field of specialization, asking analytical and deductive questions)

Course description

This course description provides a summary of the most important characteristics of the course and the learning outcomes that the student is expected to achieve, demonstrating whether he or she has made the most of the learning opportunities available. It must be linked to the .program description

79. Course outcomes and teaching, learning and evaluation methods

Southern Technical University	71. Educational institution
Section Scientific Medical laboratory techniques	72. Scientific department /center
Immunology	73. Course name/code
17- (Weekly lesson schedule theoretical and practical 18- Discussions, scientific seminars, other extracurricular activities and scientific conferences	74. Available attendance forms
quarterly	75. Semester/year
90 hours	76. Number of study hours (total)
2023/2/6	77. Date this description was prepared
78. Course objectives	
16-Teaching and training students on how to handle samples	
17-Teaching and training students to conduct serological tests	

A- Cognitive objectives A1- Learn about immunological tests A2- Identify the parts of the immune system
the programme of The following are the skill objectives – B
.ed goalsbas -Emotional and value -C
D - General and qualifying transferable skills (other skills related to employability and personal development .(D1- Field visits to gain experience from others D2- Access to scientific developments in the field of specialization D3- Practical training in hospitals D4- Access to modern learning and teaching methods
Teaching and learning methods
Traditional lecture. writing reports . Conducting seminars, systematic training in the laboratory and summer training
Evaluation methods
Written and oral tests, applied tests, semester and final exams, obligations to assignments, attendance and commitment, feedback (testing the student on the previous subject (- evaluation (questions are set for the student by the teacher and the student answers the questions, and the teacher also answers the same questions and the student is asked to evaluate himself in light of the teacher's answers (reports on scientific developments in the field of specialization, asking analytical and deductive questions)

1. Course structure (Biochemistry)					
Evaluation method	**Teaching method**	**Name of the unit/course or subject**	**Required learning outcomes**	**hours**	**the week**
practical test	**a lecture**	Biochemistry and Biochemistry compounds, cell	Know some terms related to biochemistry	6	the first
	discussion		Know some cell science		
	feedback		Know some terms related to biochemistry compounds		
	Show poster				
	Show videos and movies				
practical test	**a lecture**	Carbohydrates	Carbohydrates, classification ,its presence ,its importance, General properties of monosaccharide's.	6	the second
	discussion				
	feedback				
	Show poster				
	Show videos and movies				
practical test	**a lecture**	Monosaccharide and disacchrides	Important monosaccharide's. Derivatives of monosaccharide's, reducing sugars. Its presence in human body , its reactions Disaccharides and polysaccharides properties, reactions occurrence.	12	The third and fourth
	discussion				
	feedback				
	Show poster				
	Show videos and movies				
practical test	**a lecture**	Lipids and Fatty acids	Lipids ,classification ,properties. Fatty acids ,properties , reactions . Essential fatty acids and unessential fatty acids . properties, reactions.	12	Fifth and sixth
	discussion				
	feedback				
	Show poster				
	Show videos and movies				

			Unsaturated fatty acids , properties its importance,		
practical test	**a lecture**		Proteins ,general properties ,peptide bond. Amino acids , properties , occurrence. Amino acid ,classification ,reactions. Classification of proteins ,chemical properties of proteins. Separation of organic compounds by chromatography. Separation of amino acids.	24	The seventh 000 tenth
	discussion				
	feedback				
	Show poster				
	Show videos and movies	Protiens and amino acids			
practical test	**a lecture**	Nucleic acids Enzymes Hormones Vitamins	Nucleic acids, nucleoprotein, analysis of nucleoprotein. Enzymes ,nomenclature, classification. Enzymes, properties , factors in fleecing the rate of enzymatic reactions. Enzyme ,inhibitions. Hormones , properties. , Classification of hormones. Protein hormones , non protein hormones Vitamins ,water soluble vitamins, classification, occurrence, deficiency. Fat soluble vitamins , classification, occurrence, deficiency Complete	24	Eleventh – twelve Thirteen Fourteen

			of vitamins.		
	discussion				
	feedback				
	Show poster				
	Show videos and movies				
practical test	**a lecture**	Creatine and creatinine	Know what are creatinine and creatine and their reactions and presences	6	Fifteen
	discussion				
	feedback				
	Show poster				
	Show videos and movies				
2. Course structure molecular biology					
Evaluation method	**Teaching method**	**Name of the unit/course or subject**	**Required learning outcomes**	**hours**	**the week**
practical test	**a lecture**	Introduction and definition of molecular biology	Introduction and definition of molecular biology	5	the first
	discussion		Know some terms related to molecular biology		
	feedback		A historical overview of molecular biology		
	Show poster				
	Show videos and movies				
practical test	**a lecture**	Cell cycle, tools and materials used in molecular biology	Identify the cell cycle and mitosis	5	the second
	discussion		Tools used in molecular biology		
	feedback		materials used in molecular biology		
	Show poster				
	Show videos and movies				
practical test	**a lecture**	Structure of DNA and RNA	Identify the structure of DNA	10	The third and fourth

	discussion	And DNA isolation	Identify the structure of RNA		
	feedback		Learn about DNA isolation methods		
	Show poster		DNA isolation applications		
	Show videos and movies				
practical test	**a lecture**	DNA replication, electrophoresis	How DNA replicates	10	Fifth and sixth
	discussion		How does electrophoresis work		
	feedback				
	Show poster				
	Show videos and movies				
practical test	**a lecture**	DNA transcription. Translation and protein synthesis. Gene expression and its regulation	How does transcripting occur in DNA	20	The seventh 000 tenth
	discussion		Identify the steps of translation and protein synthesis		
	feedback		Gene expression and its regulation		
	Show poster				
	Show videos and movies				
practical test	**a lecture**	Translation and transcription inhibitors	Identification of translation and transcription inhibitors	5	Eleventh – The
	discussion				
	feedback				
	Show poster				
	Show videos and movies				
practical test	**a lecture**	Restrictions enzymes	Restrictions enzymes, their types,	5	Twelveth
	discussion		their mechanisms of action		

	feedback				
	Show poster				
	Show videos and movies				

3. Course structure					
Evaluation method	**Teaching method**	**Name of the unit/course or subject**	**Required learning outcomes**	**hours**	**the week**
practical test	**a lecture**	Introduction to laboratory safety	Introduction and Difintion of laboratory safety	5	The first and second
	discussion		Safety hazards in laboratory		
	feedback		Several key strategies of laboratory safety		
	Show poster		Lab safety symbols		
	Show videos and movies				
practical test	**a lecture**	laboratory safety rules	Enumerat and explain of laboratory safety rules	5	The third
	discussion				
practical test	**a lecture**	Personal protective equipments	Personal protective equipments	10	The Fourth and fifth
	Show poster		Laboratory safety equipment		
	Show videos and movies		Biological safety Levels		
practical test	**a lecture**	Biological hazards	Introduction and difintion of biological hazard	10	Six, seventh and eighth
	discussion		Mode of biological hazard transmission		
	feedback		Control of biological hazard		
	Show poster				
	Show videos and movies				
practical test	**a lecture**	Type of biological hazard	Enumerate and explain of type biological hazard	20	The ninth and tenth
	discussion				
	Show videos and movies				
practical test	**a lecture**	chemical hazards:	Introduction and difintion of	5	Eleventh The

			chemical hazards:		
	discussion				
	feedback				
	Show poster				
	Show videos and movies				
practical test	**a lecture**	Types of chemical hazards:	Enumerate and explain of type chemical hazards	5	The twelfth
	discussion	Review	Repeat of some subjects for previous lectures		The thirteenth
	feedback				
	Show poster				
		Final exam			The fourth and fifteenth

4. Course structure					
Evaluation method	**Teaching method**	**Name of the unit/course or subject**	**Required learning outcomes**	**hours**	**the week**
practical test	**discussion lecture** **feedback** **Show poster** **Show videos and movies** **a lecture**	Importance of Hematology Know the components of blood	Introduction importance of hematology. Study the blood contains	6	the first
practical test	**lecture** **discussion feedback** **Show poster**	Defination of heamopoiesis and stages	The haemotopoiesis in fetus, children and adult	6	the second

	Show videos and movies				
practical test	**a lecture discussion feedback Show poster Show videos and movies**	RRBC structure ,important, function	The normal red blood cells, importance, Structure, erythropoiesis and Function.	6	The third
practical test	**a lecture**	Define the polycythemia ,know the causes and types	Polycythemia, causes, Clinical Signs and Laboratory diagnosis	6	The four
practical test	**a lecture**	Normal and abnormal morphology of RBC, Abnormality of RBCsize	Study the red cell morphology in health and disease. Abnormality of R.B.C in size.	6	The fifth
	Show videos and movies				
practical test	**a lecture**	Abnormality of RBC size, causes,types	Abnormality of R.B.C in shape	6	The sixth
	discussion				
	feedback				
	Show poster				
	Show videos and movies				
practical test	**a lecture**	Abnormality of R.B.C in colour,causes and types	Abnormality of R.B.C in colour	6	The seventh
	discussion				
	feedback				
	Show poster				
	Show videos andmovies				
practical test	**A lacture discussion feedback Show**	Know normal Hb and impotance	The normal Hb. Of the blood, contain and importance.	6	The eight

	poster				
practical test	**A lacture** **discussion** **feedback** **Show poster**	Types of normal Hb	Study the types of normal Hb. Types.	6	The nineth
practical test	**A lacture** **discussion** **feedback** **Show poster** **Show videos andmovies**	Study variantion of Hb	Common Hb. Variant	6	The tenth
practical test	**A lacture** **discussion** **feedback** **Show poster** **Show videos andmovies**	Study anemia ,classification and types	Anemia. Definition, classification and types	6	The eleventh
practical test	**A lacture** **discussion** **feedback** **Show poster** **Show videos andmovies**	Causes of anemia and lab finding	Anemia. Causes .clinical signs and laboratory Finding	6	The tweleve
practical test	**A lacture** **discussion** **feedback** **Show poster** **Show videos andmovies**	Know Cause of Megaloblastic anemia and Pernicious anemia	Megaloblastic anemia and Pernicious anemia.	6	The thirteen
practical test	**A lacture** **discussion** **feedback** **Show poster**	Know Cause ofAplastic anemia and hemolytic anemia	Aplastic anemia and hemolytic anemia	6	The fourteen
practical test	**Show videos andmovies** **A lacture** **discussion** **feedback** **Show poster**	Study the sickle cell anemia (types,causes) and hemolytic anemia	Sickle Cell an. And acquired and autoimmune hemolytic anemia.	6	The fifteen