Faculty of Medical Science

Department of Medical laboratories

Program Specifications
Of

Medical laboratories BACHELOR

Head of Department

Mohammed Rashid

Dean of the College

Adel Noman

Dean of the Center for Development and Quality Assurance

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Content

1- Introduction:

These are the specification of the academic program Bachelor of Medical laboratories offered by department of medical laboratories - faculty of medical Sciences-Azal University for human devolvement. The program is committed to improve the quality of life of those they serve by

being one of the leading programs in the Yemen, providing superior medical laboratory science education, scientific research, and community services.

2- Program Identification and General Information:

Scientific name of the program:	**Bachelor of Medical laboratories**
Total credit hours required to award the degree	**150hrs**
Number of years needed for completion of the program:	**4 years (8 semesters) + 6-month internship**
The body responsible for granting the degree:	Azal University for Human Development
The body responsible for the program:	**Department of Medical laboratories -faculty of medical sciences**
Other departments participating in the program:	• Pharmacy department • Computer sciences dept., Computer sciences & IT faculty
Award granted on completion of the program:	**Bachelor of Medical laboratories**
Study system:	• Credit hours-Based system • A total of 56 courses distributed over 8 semesters-4 academic years • Each academic semester is composed of 16 weeks (including the exams period) • Attendance is Obligatory "for NOT LESS THAN 75 % of lectures/practical sections of each course
Study Language of the Program:	English
Entry requirements:	Secondary School certificate with minimum grade adopted annually by the Ministry of Higher Education-Yemen
Starting year of the program:	2013
Study methods in the program:	N/A
Location of Delivery:	At the university facility (60th Street-Sana`a)
The program resources:	**Azal University for human devolvement**
Minimum grade requirements:	• 50 % of the mark of each course •" Completion of graduation research project, Completion of 1080 actual hours "internship Training
Other admission requirements:	According to the University Rules and Regulations
Date of program development:	**2013/2014**

3- University Vision, Mission and Goals:

University Vision

Azal university for human developments seeks Leadership locally and regionally in the fields of higher education, scientific research and human development

الرؤية

.أن تكون جامعة ا زال للتنمية البشرية رائدة محليا وإقليمي ا في مجال التعليم العالي والبحث العلمي والتنمية البشرية

University Mission:

Offering opportunities for excellent higher education through leader and competent academic programs that contribute in the improvement of educational outcomes, scientific research and human development and capable to provide the local and regional work market with competitive human professionals.

الرسالة

توفير فرص تعليم جامعي متميز من خلال برامج رائدة ذات جودة عالية تسهم في تحسين مخرجات العملية التعليمية والبحث العلمي والتنمية البشرية لرفد سوق العمل المحلي والإقليمي بكوادر بشرية منافسة.

VALUES

- Quality in education
- Environment supports the competent
- Launching from the work market requirements and needs
- Leadership & Ingenuity
- Human building is our concern
- Human development

القيم

•الجودة في التعليم
•بيئة تحتضن الكفاءات
•الانطلاق من متطلبات واحتياجات السوق
•الريادة والإبداع
•بناء الإنسان محور اهتمامنا •التنمية البشرية

University Goals:

1. Providing the students with the knowledge and skills in various academic specializations
2. Contributing in the support of scientific research efforts in different fields
3. Alignment of the education outcomes with the development requirements and the needs of work market
4. Offering stimulant opportunities for the success of teaching and learning process
5. Expanding in partnerships and relationships with local, regional and international universities and scientific research institutions
6. Augmenting the university role in community service by providing training and consultant programs in different development fields.

الاهداف

1- .إكساب الطالب المعارف والمهارات في التخصصات الاكاديمية المختلفة.
2- .الإسهام في دعم جهود البحث العلمي في المجالات المختلفة
3- .ربط المخرجات التعليمية بمتطلبات التنمية واحتياجات سوق العمل.
4- .توفير فرص محفزة لإنجاح عملية التعليم والتعلم
5- .التوسع في الشراكات وتطوير العلاقة مع الجامعات ومؤسسات البحث العلمي محليا وإقليميا ودوليا.
6- .تعزيز دور الجامعة في خدمة المجتمع بتقديم برامج استشارية وتدريبية في مختلف جوانب التنمية

4- Faculty of medical sciences Vision, Mission and Goals:

VISION

Leadership and excellence in quality of the medical education and scientific research

MISSION

The faculty mission is to offer the students a remarkable high education service in medical sciences that concerns with students` acquiring of scientific knowledge and skills to potentiate their capabilities to compete in work market and make them qualified medical staff able to lead and develop in medical work fields and to be creative and effective elements in their society. The faculty also intends to contribute in progress of medical scientific research and to fulfill the community need with medical services

GOALS

1. Raising and developing Medical Sciences Education and outcomes
2. Achieving superiority in academic, instructional and learning aspects of graduate and postgraduate programs
3. Enhancing the effectiveness of its teaching staff to augment student learning
4. Establishing and improving medical sciences learning environment and resources
5. Potentiating the student's ingenuity and their personal, academic and social development
6. Augmenting the relationship with local, regional and international medical academic institutions in the field of scientific research

5- Department of Medical Laboratories Vision, Mission and Goals:

Vision

To be a leading academic program locally and regionally in producing highly qualified professionals in medical laboratory sciences who contribute effectively to healthcare advancement, scientific research, and community development

Mission:

The mission of the department of Medical Laboratories at the University of Azal is to develop and maintain a superior educational program in the field of medical laboratories . Graduates of the program will be well-trained professionals, knowledgeable, highly skilled and ethical. They are prepared to practice as competent professional and capable to grow with the future of laboratory medicine.

GOALS:

1. Demonstrate a comprehensive understanding of foundational biomedical sciences—including anatomy, physiology, histology, pharmacology, and pathology—with an emphasis on their applications in laboratory medicine.
2. Apply core knowledge and technical competencies in major laboratory disciplines such as biochemistry, microbiology, parasitology, hematology, immunology, and blood banking to support accurate diagnostic services.
3. Integrate clinical and laboratory knowledge to contribute effectively to disease diagnosis, patient care, and interdisciplinary collaboration within the healthcare system.
4. Utilize critical thinking and evidence-based reasoning to solve diagnostic problems, interpret laboratory results, and address professional challenges in medical laboratory practice.
5. Perform a wide range of up-to-date laboratory procedures competently and interpret laboratory investigations in accordance with scientific standards and patient-specific contexts.

6. Implement biosafety protocols and quality management systems to ensure safe laboratory practices and maintain the accuracy, reliability, and validity of test results.
7. Demonstrate professionalism, ethical responsibility, and effective communication skills in interactions with patients, families, and the healthcare team, while preserving confidentiality and adhering to legal frameworks.
8. Engage in research, leadership, and lifelong learning, showing initiative in acquiring new knowledge, managing time effectively, and functioning as a productive member or leader in multidisciplinary teams.

6- Program Mission, Goals, and Outcomes:

Program Vision

To be a leading academic program locally and regionally in producing highly qualified professionals in medical laboratory sciences who contribute effectively to healthcare advancement, scientific research, and community development.

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Program Goals:

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: The program vision, mission and goals are the same as the department vision, mission and goals because the department, till now, offers one program only.

7-Program Standards& Benchmarks:

Academic Standards:

The program intended learning outcomes (ILO's) are developed according to the National Academic Reference Standards (NARS) for Undergraduate laboratory Medicine Programs, Jan. 2019 First Edition issued by Council for Accreditation and Quality Assurance Yemen.

Program Benchmarks:

Similar academic program offered by the following universities:

1- king Abdulaziz university, Saudi Arabia

2- Jordan university of science and technology, Jordan

3- Sana'a university, Yemen

4- University of Sharjah. United Arab Emirate

5- King Saud university. Saudi Arabia

6- Bangalore university. India

8- Program Learning Outcomes:

A. Knowledge and Understanding

B. Upon successful completion of an undergraduate Bachelor of Radiology, graduates should be able to:

A1. Master fundamental scientific concepts in biology, chemistry, and biophysics, and apply them to laboratory medicine.

A2. Understand the structure and function of human tissues and organs, and their relevance to disease diagnosis and clinical management.

A3. Identify key aspects of diseases in clinical and laboratory settings, including biochemical, hematological, microbiological, immunological, and genetic factors.

A4. Apply laboratory techniques and procedures related to blood banking, sample collection, processing, preservation, and transportation for accurate diagnostics.

A5. Use medical research methods and statistical tools to analyze experimental results, address laboratory

B. Cognitive/ Intellectual Skills:

Upon successful completion of an undergraduate Bachelor of Radiology, graduates should be able to:

B1. Compare the structure and function of human organs in both healthy and diseased conditions.

B2. Formulate diagnostic approaches by integrating pathogenesis concepts, laboratory findings, and differential diagnosis of common diseases.

B3. Select and apply appropriate laboratory tests for accurate diagnosis and monitoring of diseases.

B4. Interpret laboratory results critically, identify potential sources of errors, and correlate findings with clinical conditions.

B5. Develop creative, evidence-based solutions to complex medical problems using advanced problem-solving and critical thinking skills

C. Practical and Professional Skills:

Upon successful completion of an undergraduate Bachelor of Radiology, graduates should be able to:

C1. Implement biosafety and quality management procedures to ensure safe and effective laboratory practice.

C2. Efficiently use laboratory tools, equipment, and materials, adhering to safety and operational standards.

C3. Perform blood collection, transport, and storage according to Standard Operating Procedures, ensuring proper preservation of samples from all age groups.

C4. Conduct a wide range of diagnostic tests, including biochemical, hematological, serological, bacteriological, immunological, and parasitological tests, both manually and using automated systems.

C5. Apply blood banking and transfusion techniques efficiently to support clinical care and patient safety.

C6. Analyze and interpret laboratory data using appropriate statistical methods, and present findings through professional reports.

D. General and Transferable Skills:

Upon successful completion of an undergraduate Mechatronics Engineering program, graduates should be able to:

D1. Collaborate effectively within multidisciplinary healthcare teams, demonstrating leadership and teamwork skills.

D2. Communicate effectively with patients, colleagues, and healthcare providers, both verbally and non-verbally.

D3. Engage in lifelong learning to stay updated in laboratory medicine and apply new knowledge to practice.

D4. Conduct ethical interactions with patients, their families, and healthcare providers, ensuring trust and professionalism in all situations.

D5. Manage time and resources efficiently, setting priorities, and adhering to professional and regulatory

9- Graduates Attributes:

Upon successful completion of an undergraduate Program, graduates should be able to:

1. Possesses comprehensive knowledge in fundamental and advanced sciences such as biology, chemistry, physics, and biomedicine.
2. Skilled in performing diagnostic tests, interpreting results accurately, and integrating them with clinical data.
3. Applies critical thinking and problem-solving skills to analyze laboratory results and address complex issues.
4. Demonstrates a high level of professionalism and ethical conduct, ensuring confidentiality and compliance with legal and regulatory standards.
5. Has strong verbal and written communication skills, enabling effective interaction with patients and healthcare professionals.
6. Works efficiently within a multidisciplinary team and can take on leadership roles when necessary.
7. Committed to lifelong learning, continuously updating knowledge and skills in medical laboratory practice.
8. Capable of conducting research and contributing to the development of innovative diagnostic methods to address current healthcare challenges.

10- Teaching and Learning Strategies:

- Active Lecture
- Feed back Learning (FBL) **including (Problem based learning (PBL), Seminars , Journal clubs and workshops, Computer and web based learning (WBL), Use of communication and information technology (CIT) and Self Directed Learning (SDL)**
- Group Project
- **Lab. practice (Practical classes) and Field Training**

Teaching Strategy	Description
Active lectures	This is the most frequently employed teaching method in the program. It is to convey knowledge and explain theories to students. The efficiency of lecturing should be enhanced by using techniques such as **Brain-storming**: It depends on stimulation of the student`s

	brain through a group of questions &/or **Concepts mapping**: which depends on sequencing of thoughts in the form of maps with horizontal or vertical relations **and other techniques**& by using **learning aids** such as **Data show projector, Intelligent board** and **models.**
Feed-back learning (FBL)	**Feed-back learning:** students are individually asked to do certain assignments such as summarizing, internet search, make charts or solve mathematical problems related to the courses topics. The teacher will provide them feed-back correction & evaluation. Common examples of FBL strategy is • **Problem-Based Learning**: The PBL strategy involves working in small groups of students. The group are assigned to solve a problem of a real-world issue or a mathematical problem or a clinical case study and asks them to come up with a well-constructed answer. • Seminars: These are mainly used with small groups of students (5-10) students in which they find better chances for discussing and participating in the teaching process. • **Computer and web-based learning (WBL):** The student (individually) is assigned to do a search on a topic using computer CD and/or web search form a reliable web sites. • **Use of communication & information technology (CIT):** This strategy involves, during class, the use of computer, scientific mobile applications (e.g. Medscape, Lexi-comb, etc. • **Journal clubs & workshops:** In this strategy, a group of students are assigned to critically evaluate recent articles in the literature and report their work to the teacher to be discussed in a workshop with other students. • **Self-directed learning (SDL** : In this strategy, the student takes control of their own learning, with or without the help of others.
Group Project	Students work on a topic or a project in groups of 2 to 3 students. Important for learning by doing ,using the results in practical manner &for promoting team work skills
Lab. practice (Practical classes)	students doing experiments in labs individually or in small groups.
Field-Training	The students are assigned to perform certain tasks in the real-life field in hospitals, medical centers during summer.

11- Assessment strategies:

- **Theoretical part assessment:** Written exam (e.g. MCQs and short essay) and Quizzes ,
- **Assignment** (e.g. Short essays, Reports, homework, group project , seminar assessment, Work samples such as logbooks and portfolios) assessments.
- **Practical part assessment** (including: Lab. term work attitude + Lab. accomplishments (Summative practical assessment) and final practical exam)
- **Field Training assessment** (Multi source assessments, Work samples such as logbooks and portfolios)
- **Graduation Project** assessment Multisource assessment)

	Assessment Strategy	Description
Theoretical part assessment	**Written Exams**	The written exams are employed in mid-exam and final exams. It should be comprehensive for the knowledge and intellectual skills provided by the course. Models of the exam should be variant and include at least: Short essay: A short essay is, generally, a piece of writing on a certain topic related to course. MCQ is a model written assessment where the question involves selection of one appropriate answer among other answers. It can be a method employed in mid, final exams. or Quizzes
	Quizzes	A short spoken or written test that is often taken without preparation; It generally concerns with a particular thought, idea or problem.
	Assignments	Assignments refer to the allocation of a task or set of tasks that are marked and graded by the teacher. Examples of tasks include, written Reports, homework, group project, seminar assessment, work samples such as logbooks and portfolios, etc.
Practical part assessment	**Attitude**	The Lab. teacher measures cooperation, friendliness, activity, care and other good behaviors during the lab. Sections
	Lab. accomplishments (Summative practical assessments)	The Lab. teacher measures the student`s ability (with the aid of the teacher) to perform practical tasks every Lab. section and provides the result as summative mark at the end of the term.
	Final Practical Exam	The Lab. Teacher measures the student`s ability (with no aid of the teacher) to perform practical tasks at the end of the semester.
Graduation project assessment		It is also multi-sources assessment . Committee from the department and external examiner to discuss the students
Field-training assessment ▪ Field attendance		Log book Assessment sheet

▪ Field attitude and Reporting	Final oral exam

Assessment of students in courses that involve only theoretical parts

Assessment method	Mark	Weight %
Assignments	10	10 %
Quizzes	10	10 %
Mid-exam	20	20 %
Final Exam	60	60 %
Total	100	100%

Assessment of students in courses involve both theoretical sections & practical section

1- Theoretical part (70 marks)		
Assessment method	Mark	Weight %
Assignments	5	5 %
Quizzes	5	5 %
Mid-exam	10	10 %
Final Exam	50	50 %
Total	70	70%
2- Practical part (30 marks)		
Attitude	5	5%
Lab. accomplishments	5	5%
Final practical Exam	20	20%
Total	30	30%

11.1 Field- Training Assessment Tools:

Item	Weight %
Attendance	20%
Attitude (assessed by the training supervisor and approved by a signed report by the facility responsible)	20%
Assignment (Seminar)	10%
Reporting (log book)	20%
Oral exam by a committee of teaching staff	30%
Total	100%

*: Field training for 600 actual hours is a compulsory requirement for graduation.
To pass the training, the student must get 80 % of the training weight %

11.2Graduation Project Assessment:

Each project will be assessed by a committee of three members as follows

Item	Marks Distribution
Research project supervisor	70%
Internal examiner: a member of the department teaching staff.	15%
External examiner: a qualified external examiner (either from other departments of the faculty or from another university)	15%
Total	100%

12. Alignment of Program Intended Learning Outcomes (PILOs) with Teaching Strategies and Assessment Methods:

PILOs	Teaching Strategy	Assessment Methods
Knowledge and Understanding A1,A2,A3,A4,A5	• **Active Lectures** • **Feed-back Learning (FBL)** • **Group Project**	**Written exam, Quizzes, Assignments**
Intellectual Skills B1,B2,B3,B4,B5	▪ **Active Lectures** • **Feed-back Learning (FBL)** • **Lab. practice** • **Group Project**	**Written exam, Quizzes** and **Assignments, Lab. term work** (Lab. accomplishment and Final practical exam), Field **Training assessment** and **Graduation Project assessment**

Professional & practical skills C1,C2,C3,C4,C5,C6	• **Lab Practice** • **Feed-back Learning (FBL)** • **Field training** • **Group project**	**Lab. term work** (Lab. accomplishment and Final practical exam), Field **Training assessment** and **Graduation Project assessment**
General & Transferable Skills D1,D2,D3,D4,D5	• **Lab. Practice** • **Feed-back Learning (FBL)** • **Group project**	• **Lab. term work** (attitude) • **Assignments** • **Field-training assessment** • **Graduation Project assessment**

10- Program Structure:

Requirements					
No	Requirements		No. of Courses	Credit Hours	Rational Weight %
1	University Requirements	Compulsory	8	17	11.3%
		Elective			
2	Faculty Requirements	Compulsory	10	25	16.7%
		Elective			
3	Program Requirements	Compulsory	38	108	72 %
		Elective			
4	Field training, and the rate of the total hours of the program	*Field-training (internship) 1080 actual hours is a compulsory requirement for graduation*			
Total:			56	150	100%

15.1. University Requirements (17 hrs)

Compulsory Courses (--- hrs)								
No	Course Code	Course Name	L	T	P	Cr. Hrs.	Prerequisites, Co-requisites	Level/ Semester
1	AZU01	Arabic Language 1	2	--	--	2	None	First/ 1st
2	AZU03	English Language 1	2	--	--	2	None	First/ 1st
3	AZU05	Computer skills	--	--	3	3	None	First/ 1st
4	AZU07	Arab-Israel Conflict	2	--	--	2	None	First/ 1st
5	AZU02	Arabic Language 2	2	--	--	2	AZU01	First/ 2nd
6	AZU04	English Language 2	2	--	--	2	AZU03	First/ 2nd
7	AZU06	Islamic Culture	2	--	--	2	None	First/ 2nd
8	AZU08	National culture	2	--	--	2	None	First/ 2nd
			14		3	17		

11- 15.2. Faculty Requirements (25 hrs)

Compulsory Courses (15 hrs)								
No	Course Code	Course Name	L	T	P	Cr. Hrs.	Prerequisites, Co-requisites	Level/ Semester
1	FMS01	Biology	2	-	1	3		First/ 1st
2	FMS02	Medical physics	2	-	1	3		First/ 1st
3	FMS03	General chemistry	2	-	1	3		First/ 1st
4	FMS04	Medical Terminology	3	-	-	3		First/ 1st
5	FMS05	Psychology	2	-	-	2		First/ 2nd
6	FMS06	First Aid	2	-	1	3		First/ 2nd
7	FMS07	Medical Ethics	2	-	-	2		Second/ 1st
8	FMS10	Health Administration	2	-	-	2		Second/ 2nd
9	FMS08	Medical Statistic	2	-	-	2		Third/ 1st
10	FMS09	Research Methodology	2	-	-	2		Fourth/ 1st
			21	-	4	25		

12-15.3. Program Major (108hrs)

Compulsory Courses (115 hrs)								
No	Course Code	Course Name	L	T	P	Cr. Hrs.	Prerequisites, Co-requisites	Level/ Semester
1	ML121	Biochemistry I	2		1	3		First/ 2nd
2	ML122	Analytical chemistry	2		1	3		First/ 2nd
3	ML211	Human Anatomy	2		1	3		Second/ 1st
4	ML212	Medical Bacteriology I	2		1	3		Second/ 1st
5	ML213	Hematology I (Hematopoiesis and Hb synthesis)	2		1	3		Second/ 1st
6	ML214	Medical Parasitology1	2		1	3		Second/ 1st
7	ML 215	Physiology I	2		1	3		Second/ 1st
8	ML 221	Physiology II	2		1	3		Second/ 2nd
9	ML 222	Medical Bacteriology II	2		1	3		Second/ 2nd
10	ML 223	Hematology II (RBC disorder-anemia)	2		1	3		Second/ 2nd
11	ML 224	Immunology	2		1	3		Second/ 2nd
12	ML 225	Histology	2		1	3		Second/ 2nd
13	ML 226	Medical Parasitology II	2		1	3		Second/ 2nd
14	ML 311	Blood banking and transfusion	2		1	3		Third/ 1st
15	ML 312	Pharmacology	2		-	2		Third/ 1st
16	ML 313	Medical virology	2		-	2		Third/ 1st
17	ML 314	Molecular biology and genetics	2		1	3		Third/ 1st
18	ML 315	Pathology I	2		1	3		Third/ 1st
19	ML 316	Medical Bacteriology III	2		1	3		Third/ 1st
20	ML 321	Hematology III(WBC disorder-leukemia)	2		1	3		Third/2nd

21	ML 322	Toxicology	2		-	2		Third/2nd
22	ML 323	Epidemiology	2		-	2		Third/2nd
23	ML 324	Medical mycology	2		1	3		Third/2nd
24	ML 325	Medical Parasitology III	2		1	3		Third/2nd
25	ML 326	Pathology II	2		1	3		Third/2nd
26	ML 327	Clinical Chemistry I	2		1	3		Third/2nd
27	ML 411	Body fluids	2		1	3		Fourth/ 1st
28	ML412	Hematology IV(Platelet and coagulation factor disorder)	2		1	3		Fourth/ 1st
29	ML 413	Clinical immunology	2		-	2		Fourth/ 1st
30	ML414	Food and water Microbiology	2		1	3		Fourth/ 1st
31	ML415	Diagnostic parasitology	2		1	3		Fourth/ 1st
32	ML416	Research Methodology	2		-	2		Fourth/ 1st
33	ML421	Diagnostic Microbiology	2		1	3		Fourth/ 1st
34	ML422	Diagnostic Hematology	2		1	3		Fourth/ 2nd
35	ML423	Clinical chemistry II	2		1	3		Fourth/ 2nd
36	ML424	Medical Genetics	2		-	2		Fourth/ 2nd
37	ML425	Quality Assurance and laboratory management	2		1	3		Fourth/ 2nd
38	ML426	Graduation research project	3		-	3		Fourth/ 2nd
			77		31	108		

13-Elective Courses: 3 courses(.....hrs)

Elective Course 1 (3 hrs)

No	Course Code	Course Name	L	T	P	Cr. Hrs.	Prerequisites, Co-requisites	Level/ Semester
1	-	Nil	-	-	-	-	-	-
2	-	Nil	-	-	-	-	-	-
3	--	Nil	-	-	-	-	-	-

Elective Course 2 (2 hrs)

No	Course Code	Course Name	L	T	P	Cr. Hrs.	Prerequisites, Co-requisites	Level/ Semester
1	-	Nil	-	-	-	-	-	-
2	-	Nil	-	-	-	-	-	-
3	-	Nil	-	-	-	-	-	-
4	-	Nil	-	-	-	-	-	-

Elective Course 3 (3 hrs)

No	Course Code	Course Name	L	T	P	Cr. Hrs.	Prerequisites, Co-requisites	Level/ Semester
1	-	Nil	-	-	-	-	-	-
2	-	Nil	-	-	-	-	-	-
3	-	Nil	-	-	-	-	-	-
4	-	Nil	-	-	-	-	-	-

14- Study Plan:

First year: first semester

Term 1								
No.	Course Code	Course Name		L	T	P	Cr. Hrs.	Prerequisites, Co-requisites
1	FMS 01	Biology	الاحياء	2	-	1	3	-
2	AZU03	English Language I	اللغه الانجليزية1	2	-	-	2	-
3	FMS02	Biophysics	الفيزياء الطبية	2	-	1	3	-
4	AZU05	Computer Skills	مهارات الحاسوب	2	-	1	3	-
5	FMS03	General chemistry	الكيمياء العامة	2	-	1	3	-
6	AZU01	Arabic Language I	اللغة العربية 1	2	-	-	2	-
7	FMS 04	Medical Terminology	المصطلحات الطبية	3	-	-	3	-
8	FMS 01	Arab-Israel Conflict	الصراع العربي الاسرائيلي	2	-		2	-
Total				17	-	4	21	

First year: Second semester								
Term 2								
No.	Course Code	Course Name		L	T	P	Cr. Hrs.	Prerequisites, Co-requisites
1	AZU04	English language II	اللغة الانجليزية 2	2	-	-	2	AZU03
2	AZU02	Arabic Language II	اللغة العربية 2	2	-	-	2	AZU01
3	ML121	Biochemistry I	الكيمياء الحيوية 1	2	-	1	3	-
4	AZU07	Islamic Culture	الثقافة الاسلامية	2	-	-	2	-
5	ML122	Analytical chemistry	الكيمياء التحليلية	2	-	1	3	FMS 03
6	FMS 05	Psycho-social sciences	علم النفس	2	-	-	3	-
7	FMS06	First Aid	الاسعافات الاولية	2	-	1	3	-
8	AZU08	National culture	الثقافة الاسلامية	2	-	-	2	-
Total				16	-	3	19	

Second year: first semester

Term 1								
No.	Course Code	Course Name		L	T	P	Cr. Hrs.	Prerequisites , Co-requisites
1	ML211	Human Anatomy	علم التشريح	2	-	1	3	-
2	ML 212	Biochemistry II	الكيمياء الحيوية 2	2	-	1	3	ML121
3	ML 213	Medical Bacteriology I	علم البكتريا الطبية 1	2	-	1	3	FMS 01
4	ML 214	Hematology I (Hematopoiesis and Hb synthesis)	علم الدم 1	2	-	1	3	-
5	ML 215	Medical Parasitology1 (Helminthology)	علم الطفيليات الطبية 1	2	-	1	3	
6	FMS07	Medical Ethics	الاخلاقيات الطبية	2	-	-	2	-
7	ML 216	Physiology I	علم وظائف الاعضاء 1	2	-	1	3	FMS 01
Total				14	-	6	20	

Second year: second semester

Term 2								
No.	Course Code	Course Name		L	T	P	Cr. Hrs.	Prerequisites, Co-requisites
1	ML221	Physiology II	علم وظائف الاعضاء 2	2	-	1	3	ML216
2	ML222	Medical Bacteriology II	علم البكتريا الطبية 2	2	-	1	3	ML213
3	ML223	Hematology II (RBC disorder-anemia)	علم الدم 2	2	-	1	3	ML214
4	FMS08	Health Administration	الادراة الصحية	2	-	-	2	-
5	ML224	Immunology	علم المناعة	2	-	1	3	ML214
6	ML225	Histology	علم الانسجة	2	-	1	3	FMS 01
7	ML226	Medical Parasitology II (Protozoa)	علم الطفيليات الطبية 2	2	-	1	3	ML215
Total				14	-	6	20	

Third year: first semester

Term 1								
No	Course Code	Course Name		L	T	P	Cr. Hrs.	Prerequisites , Co-requisites
1	ML311	Blood banking and transfusion	نقل الدم	2	-	1	3	ML224
2	ML312	Pharmacology	علم الادوية	2	-	-	2	-
3	ML313	Medical virology	الفيروسات الطبية	2	-	-	2	-
4	ML314	Molecular biology and genetics	البيلوجيا الجزيئية والجينات	2	-	1	3	FMS 01 ML121
5	MSC09	Medical Statistics	الاحصاء الطبي	2	-	-	2	-
6	ML315	Pathology I	علم الامراض	2		1	3	ML225
7	ML316	Medical Bacteriology III	علم البكتريا الطبية 3	2	-	1	3	-
Total				14	-	4	18	

Third year: second semester

Term 2								
No	Course Code	Course Name		L	T	P	Cr. Hrs.	Prerequisites , Co-requisites
1	ML321	Hematology III(WBC disorder-leukemia)	علم الدم 3	2	-	1	3	ML214
2	ML322	Toxicology	علم السموم	2	-	-	2	-
3	ML323	Epidemiology	علم الاوبئة	2	-	-	2	FMS 09
4	ML324	Medical mycology	الفطريات الطبية	2	-	1	3	-
5	ML325	Medical Parasitology III	علم الطفيليات الطبية 3	2		1	3	-
6	ML326	Pathology II	علم الامراض	2	-	1	3	ML315
7	ML327	Clinical Chemistry I	الكيمياء السريرية 1	2		1	3	ML212 & ML121
Total				14	-	5	19	

Fourth year: first semester

Term 1

No	Course Code	Course Name		L	T	P	Cr. Hrs.	Prerequisites, Co-requisites
1	ML411	Body fluid	سوائل الجسم	2	-	1	3	-
2	ML412	Hematology IV(Platelet and coagulation factor disorder)	علم الدم 4	2	-	1	3	ML214
3	ML413	Clinical immunology	المناعة السريرية	2	-	-	2	ML224
4	ML414	Food and water borne disease	ميكروبات الماء والغذاء	2	-	1	3	ML213 & ML222
5	ML415	Diagnostic parasitology	تشخيص الطفيليات	2	-	1	3	ML325& ML215 &ML226
6	FMS10	Research Methodology	طرق البحث	2	-	-	2	-
				12		4	16	

Fourth year: second semester

Term 2

No	Course Code	Course Name		L	T	P	Cr. Hrs.	Prerequisites, Co-requisites
1	ML421	Diagnostic Microbiology	تشخيص الاحياء الدقيقه	2	-	1	3	ML213 & ML222
2	ML422	Diagnostic Haematology	تشخيص الدم	2	-	1	3	ML223& ML412 & ML321
3	ML423	Clinical chemistry II	الكيمياء السريرية 2	2	-	1	3	ML327
4	ML424	Medical Genetics	الوراثة الطبية	2	-	-	2	ML314
5	ML425	Quality control and Q Assurance	ضبط الجودة واداره المختبرات	2	-	1	3	-
6	ML426	Graduation research project	مشروع التخرج	3	-	-	3	All course
		Total		13	-	4	17	

15- Distribution of Total Credit Hours:

Level	Term	University Requirements		Faculty Requirements		Program Requirements		Program Electives		Training		Total Cr. Hrs		Total Cr. Hrs./ Level
		No. of Courses	Credit Hours	No. of Courses	Credit Hours	No. of Courses	Credit Hours	No. of Courses	Credit Hours	No. of Courses	Credit Hours	No. of Courses	Credit Hours	
First	First	4	9	4	12							8	21	40
	Second	4	8	2	5	2	6					6	19	
Second	First			1	2	6	18					7	20	40
	Second			1	2	6	18					7	20	
Third	First			1	2	6	16					7	18	37
	Second					7	19					7	19	
Fourth	First			1	2	5	14					6	16	33
	Second					6	17					6	17	
Total:		8	17	10	25	38	108			-		54	150	150
Percentage:		11.3%		16.7%		72%						100		

16- Admission Requirements:

1. Admissions to the program shall be made as per the admission rules set by the Ministry of Higher Education and Scientific Research as well as university admission guidelines.
2. General Secondary school certificate (Science Section) or any equivalent certificate with grade as specified in the admission rules made by Ministry of Higher Education and Scientific Research.
3. Pass the aptitude test and personal interview.
4. Any necessary requirement for specialization, decided by the Scientific Section.

17- Attendance and Graduation Requirements:

1. Student attendance should not be less than 75%.
2. Student will graduate after successfully passing all program requirements.
3. Total credit hours for the program are 150 credit hours.
4. Minimum score for any student to pass any credit hours course is 50% degree.

18- Grading System:

From 90% to 100% of total marks	Excellent
From 80% to less than 90%	Very Good
From 65% to less than 80%	Good
From 50% to less than 65%	Pass
Less than 50%	Poor/Fail

19- Facilities Required for Running the Program:

1. Sufficient Classrooms furnished with all necessary pieces and equipment.
2. Labs as per the course's specifications.
3. Computer Labs.
4. Academic and administrative staff offices.
5. Hospitals and health centers for field training
6. Sufficient Classrooms furnished with all necessary pieces and equipment.

	Classroom
NO	Lecture Rooms
1	Ibn arbiter
2	Underground classroom
3	Classroom 4
4	Ibn Cina
5	Ibn Hayan
6	616
7	Classroom 7
8	Ibn anaphias

	Laboratories
NO	Name
1	Microbiology Lab.
2	Medical parasitology Lab.
3	Biochemistry Lab
4	Histopathology Lab
5	Hematology and Blood Banking Lab
6	Anatomy Lab.
7	Physiology Lab.
8	Computer Lab.
9	Organic and analytical chemistry Lab.

*: The classrooms and laboratories are supplied with necessary teaching tools, media, wares and instruments

20-Program Policies:

Based on University Regulations	
1.	**(Class Attendance):** A student should attend not less than 75 % of total hours of the subject; otherwise, he/she will not be able to take the exam and will be considered as exam failure. If the student is absent due to illness, he/she should bring a proof statement from university Clinic. If the absent is more than 25% of a course total contact hour, student will be required to retake the entire course again.
2.	**(Tardy) :** For late in attending the class, the student will be initially notified. If he repeated lateness in attending class, he/she will be considered as absent.
3.	**(Exam Attendance/Punctuality) :** A student should attend the exam on time. He/she is permitted to attend an exam half one hour from exam beginning, after that he/she will not be permitted to take the exam and he/she will be considered as absent in exam.
4.	**(Assignments & Projects) :** In general, one assignment is given to the students after each chapter; the student has to submit all the assignments for checking on time, mostly one week after given the assignment.
5.	**(Cheating) :** For cheating in exam, a student will be considered as fail. In case the cheating is repeated three times during his/her study the student will be disengaged from the faculty.
6.	**(Plagiarism) :** Plagiarism is the attending of a student the exam of a course instead of another student. If the examination committee proofed a plagiarism of a student, he/she will be disengaged from the faculty. The final disengagement of the student from the faculty should be confirmed from the Student Council Affair of the university or according to the university roles.
7.	**(Other policies) :** - Mobile phones are not allowed to use during a class lecture. It must be closed; otherwise the student will be asked to leave the lecture room. - Mobile phones are not allowed in class during the examination. - Lecture notes and assignments might be given directly to students using soft or hard copy.

21- Sources of learning:

Learning source	Detail
White Boards	At least One at each classroom
Library	**Office equipment** Reading tables, Computer tables, chairs , Shelves for books and periodicals
	Books and Periodicals suitable number of books and periodicals that comprehend all courses
	Electronic Books the library computers will be supplied with a variety number of electronic books and CDs that comprehend a lot of courses
Information technology sources	**Computer desktops** 8 computers at the library and 20 at the computer lab.)
	Data show projectors 2
	Printer/ s at the library, computer lab, at the photocopy services center
	Photocopy machine: at the library , at the photocopy services center
	Scanner: at the library, the computer lab, at the photocopy services center
	Internet links at: the library , at the computer lab
Labs	**Clinical labs (Biochemistry, Hematology and Blood Banking , microbiology, parasitology, Histopathology, organic and analytical chemistry, Anatomy, computer ,and physiology Lab)**
Health services	**for field internship**

22-Program Evaluation and improvement:

No	Stakeholders Targeted	Assessment method	Sample
1	Last-Year Students	Questionnaire	**25**
2	Graduates	Questionnaire	**25**
3	Administration and laboratories supervisors. Representatives in the hospitals	Questionnaire	**10**
4	Hospital laboratory manager	Questionnaire	**10**
5	Specialized laboratories owners	Questionnaire	**30**

22.1Evaluation Committee:

#	Evaluator Name	Specialization	Working at	Comments
1	External evaluator 1	-	CAQA	
2	External evaluator 2	Parasitology	Another university	
3	External evaluator 3	Microbiology	Another university	
4	Internal evaluator: Head of medical laboratories department	Biochemistry and molecular biology	At the university	
5	Internal evaluator: Quality assurance	Quality assurance	Development & Quality Assurance Center	
6	Internal evaluator: Manager of marketing at the university	Business administration / Marketing	At the university	