

**In the Name of God**

Islamic Republic of Iran  
Ministry of Health and Medical Education  
Supreme Council of Educational Planning for Medical Sciences

# **Bachelor of Medicine & Bachelor of Surgery (MBBS) Program**

(General Description, Curriculum, Syllabi, and Evaluation Procedure)

Approved in the 31<sup>st</sup> Curriculum Internationalization Committee for International  
Students on August 4, 2024



The resolution approved in the 31st Curriculum Internationalization Committee for International Students dated August 4, 2024 about the Bachelor of Medicine & Bachelor of Surgery program (MBBS):

1. The curriculum for the Bachelor of Medicine & Bachelor of Surgery program (MBBS) was approved.
2. This resolution is effective from the date of issuance.

Approved

**Dr. Babak Sabet**

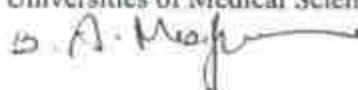
Secretary of the Council for Undergraduate  
Medical Education (SCUME)



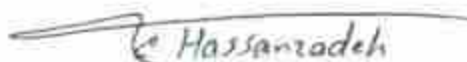
Approved

**Dr. Behrooz Attarbashi Moghadam**

Secretary of the Council for Development of  
Universities of Medical Sciences



Approved



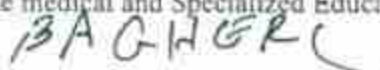
**Dr. Gholamreza Hassanzadeh**

Secretary of the Supreme Council of  
Educational Planning for Medical Sciences

The decision made in the 31st Curriculum Internationalization Committee for International Students on August 4, 2024 regarding the Bachelor of Medicine & Bachelor of Surgery (MBBS) program is affirmed and shall hereby be carried into effect.

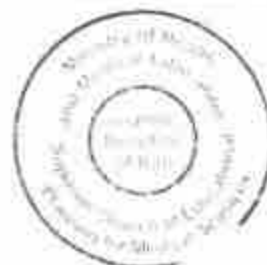
**Dr. Abolfazl Bagherifard**

Deputy Minister for Education  
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# Chapter 1

## Bachelor of Medicine & Bachelor of Surgery (MBBS) Program



## Introduction

With regard to the changes in the health care system, including the development of family physician programs within the health system, aging population and burden of diseases, increasing use of diagnostic and therapeutic technologies in the routine care and high cost of the medical care, further active international engagements in the health care, as well as the development of evidence-based practice and innovative applied concepts and technologies in medicine, a standard curriculum for developing the expected competencies of general practitioners seems inevitable.

The present curriculum has been developed considering changes in the requirements of the health system, the context and conditions of medical schools, developments in medicine and medical education in the country and in the world, and the experience accumulated and the measures taken thus far for further improvement. In developing the present MBBS curriculum, which can essentially be considered as a younger sister of the current national Doctor of Medicine (M.D.) curriculum, effort was made to avoid a fundamental shift from the older sibling such that the qualified and accredited schools which run the M.D. program can implement the MBBS program with the suggested educational strategies while observing its original goals to ensure its smooth implementation in the medical schools.

Similar to its older sister, among the significant features of this MBBS curriculum are its emphasis on the expected competencies of a general practitioner, flexibility in implementation, narrowing the courses to only the compulsory ones and relegating others to elective courses which can be decided by schools, and providing different implementation strategies depending on the circumstances and conditions of schools. Like the M.D. program, in this MBBS curriculum, credit courses on such important concepts and skills as professionalism, evidence-based medicine (EBM), traditional and complementary medicine, family medicine, as well as practical examinations and assessment of skills, are among the prerequisites for the completion of the program. It is expected that the proper implementation of the curriculum in the defined settings especially clinical and community-oriented ones (in accordance with the standards set forth in this curriculum), result in a highly accountable education.

### Program Definition and Description:

Medicine is a branch of applied sciences, which involves diagnosing, treating and preventing diseases with the aim of maintaining and promoting health. Rabi 'ibn Ahmad Akhaveini, in *Hedayat Al Motealemin* (Guidance of Scholars), the oldest Persian text on medicine (4th century A.H.), defined medicine as a profession that, scientifically and practically, retains people's health and retrieves it if gone. Today, with all the well-established specialized medical disciplines and sub-disciplines, general medicine is still the basis of all specialized medical disciplines, so the knowledge learned and the skills developed in this program, are essential not only for professional good practice for medical practitioners, but also for success in their future education in various medical specialties and subspecialties.



MBBS graduates will gain the knowledge, art, and skills of diagnosing, treating, and preventing diseases through the acquisition of the fundamentals of basic medical sciences and various branches of clinical sciences as well as the implementation of a plethora of practice in different and various situations. In addition to acquiring knowledge and skills, social and professional development, through guided, purposeful, and thoughtful participation in and critical reflection on the professional interactions during the period of study, is also necessary and of paramount significance for the students in their path to becoming competent practitioners. In order to achieve these goals, carefully implementing the program standards specified in this curriculum is essential.

## History

From a historical perspective, medicine and medical sciences have progressed along with human civilization, and the scientific authority thereupon has moved across civilizations analogous to their effective influence as well as global effects and communication. The Flexner Report, at the beginning of the twentieth century, may well be the first milestone in the modern formal medical education. The impact of this report and the dynamism of medical education throughout the present era have had clear implications for medical schools, including the expounding of various strategies and methods of education and assessment, systematization of educational processes, as well as acknowledging medicine and its education as a particular branch of scientific knowledge and recognizing it as a scientific discipline which endeavors to document evidence concerning the relevant processes and organizations thereof. In addition to such advances in the academic medical education, dramatic changes in the content and context of medicine, both as a scientific inquiry and in the form of the service provided, accelerated by general scientific paradigm shifts, have strongly influenced the teaching and learning of general medicine, especially in the third millennium.

Medicine and medical education in Iran dates back to before the advent of Islam. In the sixth century A.D., the great and well-known institute of higher education, *Jundishapur* (AKA *Academy of Gondishapur*), and its affiliate clinical center (what can best be termed a hospital in the modern nomenclature), was what can be considered a center of education for medicine and philosophy, which, in addition to the hospital, comprised dormitories as well. As the most important educational and research center of its time, it had many scientists and physicians who were studying, teaching, and practicing medicine. In this center, in addition to teaching the books written by Iranian scholars, many references translated from Greek and Hindi into Pahlavi (Middle Persian language) were also taught.

By studying *Jundishapur*, the history of formal education of medicine in Iran can be recognized. Also, the invention of hospital treatment method can, to a large extent, be attributed to Iranians. The renown hospitals of the Islamic period were built and took after the *Jundishapur* hospital. The eminent hospitals of Azodoldoleh (AKA Adud al-Dawla) in Shiraz and Baghdad, and the ones built later in Damascus, followed the example of *Jundishapur*. The first Islamic pharmaceutical product was also made in this center. *Jundishapur* was the most important medical center of the





world during the Arab conquests. It was indeed one of the most famous centers of higher education across the world for centuries.

Later as the Islamic civilization was flourishing, Iranian physicians were still the forerunners of teaching academic medicine as well as writing the reference books. As one of the oldest medical academies globally, the Avicenna School (in Isfahan, Iran) which is designated as one of the Iranian national heritage sites is the place where the book *The Canon of Medicine*, a valuable source of medical education for centuries, was published.

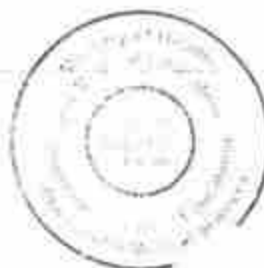
Far from its glorious days, medical education and the teaching of modern medicine in Iran did not follow a systematic educational approach well until the foundation of *Dar al-Fonoun*. In 1851, Amir Kabir (Iranian Chancellor) founded *Dar-al- Fonoun*, the first modern center of medical training in Iran. In 1873, Nasser-al-Din Shah Qajar (the Persian King from 1848 to 1896 C.E.) ordered the establishment of a hospital, and the first hospital (in the modern sense of the word), called *Sina*, was opened in 1881. *Dar al-Fonoun* was expanding, and it had several Schools at that time.

In 1880, the School of Medicine was separated from *Dar al-Fonoun* and later constituted School of Medicine at the then forthcoming *Tehran University* (which was established in 1934). In 1934, the establishment of *Tehran University* (which in 1986, branched off into *University of Tehran* and *Tehran University of Medical Sciences*) with various Schools including School of Medicine was approved by the Parliament. And today, there are more than 60 medical schools in the country training and educating domestic as well as international general practitioners. In 2024, students from more than 40 countries study medicine at Iranian universities.

### **Philosophy (Values and Beliefs):**

A general practitioner serves in the first line of providing health care services to the community. So, as a person who is constantly subject to judgment and appraisal, she or he should have the appropriate professional qualities skills while conforming to the established social norms of the society where they practice. Humans are multi-dimensional creatures with diverse physical, mental, spiritual, as well as cultural concerns and needs. A medical practitioner cannot solely deal with the patients' physiques and bodies and their illnesses. A physician is among the few persons who, as a professional, have the right to enter the intimate space of the people in need of health care, and at times, he or she is cognizant of a patient's secret that even their close friend or relatives are not aware of. Therefore, educating doctors committed to ethical conduct and professionalism should be the most important value and key element in health-related programs.

Medical sciences are constantly changing, so physicians should be committed to lifelong learning and continuous professional development to ensure the appropriacy and accuracy of their clinical decision-making to provide proper services based on and consistent with solid evidence. Thus, developing critical thinking and self-directed learning skills are mandatory in this program which should be taken into account regarding the implementation strategies.



According to the principles of education, proper instructional design and content organization of learning are absolutely essential in this MBBS program. More direct interaction between the professors and students, early and purposeful contacts of the students with the clinical environment, as well as taking advantage of the opportunities to practice and develop practical skills and judiciously assigning more responsibilities to students in accordance with the educational phases, coupled with methods of ensuring patient safety while observing patients' rights are emphasized in this program.

#### **Vision:**

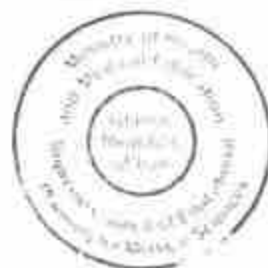
The present MBBS curriculum, while enjoying the advantage of being implementable by almost all medical schools of the country, incorporates the internationally accepted standards using the latest findings in medical education. The ultimate vision is to educate students and prepare capable, competent, knowledgeable, adept, ethically committed, and socially accountable graduates dedicated to humanity and passionate about their career.

#### **Mission:**

The mission of this MBBS curriculum is to explain and elucidate the goals, learning opportunities, and principles the fulfillment of which will result in the expected competencies of the program graduates. The curriculum, while addressing the concerns of all the stakeholders, defines educational goals with a pragmatic and flexible approach so that all the medical schools of the country, capitalizing on and effectively employing their resources and educational advantages, can train and educate their students in as much accordance as possible with the national and international standards. We believe that the graduates of this program will have sufficient knowledge and skills to serve as the gatekeepers of the health care system. They will be able to fulfill their professional role either through providing optimum (and up-to-date) services to the patients directly or through coordinating their services with other providers with regard to the needs and resources, through which they can contribute to the fulfillment of the integrated delivery system.

The care provided by the graduates should be as continuous and comprehensive as possible, regardless of and unrestricted by the patients' age, gender, race, as well as their cultural or social status, while taking their cultural, social, economic, and psychological background into account. In order to promote the health of the community, they should also identify community problems that go beyond those of the people who seek health services. By understanding health-related behaviors of the community, they will play a more effective role in sustaining and promoting health in the society.

We believe graduates of this discipline should be responsible, compassionate, altruist and self capacity developers, who work hard with commitment in promoting the health of the community. Considering human dignity as the ultimate goal of medical education, the medical schools, as the institutions responsible to execute this curriculum, are committed to adhere to the international





academic and educational standards and to observe the values and principles of the country and create the proper conditions for the students to live up to the standards of human excellence based on the inexhaustible culture of this country and its people. Providing the basis for evaluating the implementation and execution of the program along with determining the extent to which all the required educational objectives are achieved and providing an appropriate mechanism for assessing graduates' ability and competencies are among the most significant missions of the program.

#### **Program Goals:**

The ultimate goal of this program is that by acquiring the expected competencies, graduates will be able to provide optimum health care and treatment to patients according to the established standards of service and in compliance with the standards of professional ethics, to acquire the required competencies for information management and life-long learning, and to serve in the front line of health services delivery.

#### **Admission Requirements**

Students seeking admission to MBBS must follow the admission procedures for international students and comply with the admission requirements specified by the universities offering this program.

#### **Expected Key Competencies and Skills:**

1. Clinical skills
2. Communication skills
3. Research skills
4. Patient care (diagnosis, treatment, rehabilitation)
5. Health Promotion and prevention
6. Personal and professional development, as well as continuous learning
7. Professional commitment, medical ethics and law
8. Decision-making, argumentation, and problem-solving

#### **Educational Strategies:**

Drawing on the systematic planning approach and adopting a competency-oriented framework, this program is designed in a way so as to enable any given university offering it to implement different parts of this curriculum through one or a combination of the following strategies:

- A concurrent student- and professor-centered education
- Community-oriented education



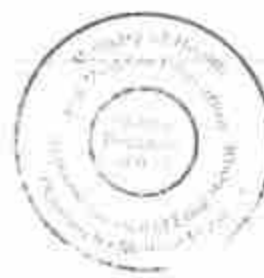
- Subject-based education
- Outpatient-based education
- Hospital-based education
- Problem-based education
- Task based education
- Systematic learning
- TBL (Team Based Learning)
- CBL (Competency Based Learning)
- CBL (Case Based Learning)
- GBL (Game Based Learning)
- EBL (Evidence Based Learning)
- Disciplinary learning with some integration as required

### **Educational Methods and Techniques**

This program will enjoy the different educational methods and techniques according to the learning goals of each course, as well as the facilities and conditions of the schools offering it. The main focus is on the correspondence and harmony between methods and techniques and the learning goals and objectives, and therefore, no certain methods or techniques are not restrictively prescribed in this curriculum. However, in selecting and employing educational methods and techniques, it is suggested to take into account the educational outcomes of each method and technique, readiness of students and professors for their effective execution, and their economic and executive issues of application. At times, suggestions are made and recommendations are provided on the selection of methods and techniques in the course description of some courses.

### **Some Suggested Methods and Techniques**

- A variety of departmental and interdepartmental, hospital-based, inter-university, and international conferences
- Small group discussions, educational workshops, journal clubs and book reading sessions, and case presentations
- Morning reports, and educational rounds
- Individual and group practice in skill labs
- Blended Learning, and using simulation techniques contingent on the available facilities
- Laboratory practice
- Self-study
- Other educational methods and techniques such as TBL, CBL, GBL and PBL



## Ethical Considerations

It is expected that the learners:

- in their provision of care for patients, observe patients' rights and strictly adhere to Patient Rights Charter;
- observe the regulations of patient safety and security (which will be prepared by the related educational department and presented to the students);
- observe carefully the ethical codes relating to mother, embryo, and infants (presented to students by the corresponding educational department);
- observe the regulations relating to the safety and security of drugs including chemical and non-chemical compounds (which will be prepared by the related educational department and presented to the students);
- observe the professional dress code;
- observe the regulations of working with animals in the laboratory;
- be committed to their professional medical oath;
- protect the resources and equipment that they work with under any condition;
- respect professors, personnel and staff, and their peers (other students), and contribute towards creating and promoting a respectful and amiable atmosphere in the workplace;
- observe considerations of social and professional ethics in their criticisms;
- observe research ethics when conducting research.

## Student Assessment (Methods and Types)

### a). Methods of Assessments

The assessment methods will be decided by the lesson planning committee of the school running this program based on the learning objectives and the specific conditions of each school. The methods of assessment should be selected judiciously and employed effectively in such a way that, while their validity and reliability are ensured, students get encouraged and motivated to learn deeply and continuously. The suggested assessment methods for this program can include (but are not limited to):

- For theoretical courses: written assessments, assignments (such as written reports and lectures), oral assessments, computer interactive examinations
- For practical and clinical courses: observation of students' clinical performance throughout the program, objective structured examinations such as OSCE (objective structured clinical examination), OSPE (objective structured practical examination), OSFE (objective structured field examination), DOPS (directly observed procedural skills), 360-degree evaluations, and portfolio assessment (including logbooks).

With regard to the objectives of the program concerning students' professional behavior and conduct, it is necessary to assess their behavior and conduct summatively at the end of the course as well as continuously throughout the course of study.



b) Frequency and Time of Assessments

The schedule for the internal (university-administered) formative (continuous) assessments of students will be arranged by lesson planning committees of schools of medicine.

Comprehensive examinations of MBBS program will be:

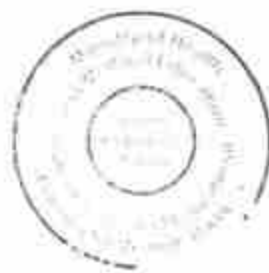
- The Comprehensive Examination of Basic Sciences (CEBS) at the end of the Basic Sciences stage
- The Comprehensive Theoretical and Practical Final Examination at the end of the program (Formal Exit Assessment; FEA)

Passing CEBS with success will be a requisite for going to the next stage; passing the Formal Exit Assessment will be required for graduation.



## **Chapter 2**

### **Bachelor of Medicine & Bachelor of Surgery (MBBS) Program: Minimum Requirements**



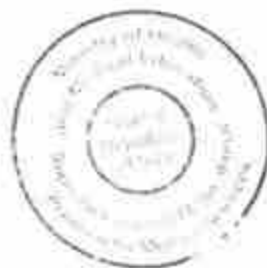


The minimum requirements as to the academic and executive staff to run the program, the spaces and educational facilities including general, specific, laboratory, and clinical facilities, departments and educational specialties, and the essential equipment to run the program are determined in accordance with the standards of the undergraduate medical program approved in the 249th meeting of the Secretariat of the Council for Development of Universities of Medical Sciences dated October 18, 2015.



## **Chapter 3**

### **Bachelor of Medicine & Bachelor of Surgery (MBBS) Degree: Program Description & Courses**



## General Description of the Program

**Name:** Bachelor of Medicine & Bachelor of Surgery (MBBS)

**Total Course Credits:** 227 / 233 (depending on whether the student selects thesis or not)

- General Courses: 20 (+ 8) (+ 6)
  - 20 credits for all students
  - up to 8 credits for Persian language courses (determined based on an individual student's level of proficiency according to the placement test); (See Table 1.A. below)
  - up to 6 credits for English language courses (determined based on an individual student's level of proficiency according to the placement test); (See Table 1.B. below)
- Basic Core Courses: 69.5
- Specialized Core Courses: 133.5
- Non-Core Courses: 4
- Thesis: 6 (Optional)

**Phases:** The MBBS program comprises three phases:  
**Basic Sciences, Physiopathology, and Clerckship.**



## Tables of Courses

**Table 1. General Courses (for all students)**

Code	Course Name	Number of Credits	Hours			Prerequisite or Concurrent Courses
			Theoretical	Practical	Total	
1	Islamic Thought and Divine Religions 1	2	34	-	34	-
2	Islamic Thought and Divine Religions 2	2	34	-	34	Islamic Thought and Divine Religions 1
3	Lifestyle	2	34	-	34	-
4	Iranian Contemporary History	2	34	-	34	-
5	History of Culture and Civilization of Iran and Islam	2	34	-	34	-
16	Persian Language and Literature** (General Persian)	3	51	-	51	Preliminary Persian 1, 2, & 3 (See Table 1.A. below)
17	General English Language*** (General English)	3	51	-	51	Preliminary English 1, 2, & 3 (See Table 1.B below)
18	Physical Education 1	1	-	34	34	-
19	Physical Education 2	1	-	34	34	Physical Education 1
20	Family and Population Study	2	34	-	34	-
<b>Total</b>		<b>20</b>	<b>306</b>	<b>68</b>	<b>374</b>	<b>-</b>

\*Note: Completing these courses is according to the titles of Islamic Education General Courses (the following table), ratified on meeting 542 of the Supreme Council of the Cultural Revolution dated 2004/07/13.

\*\*Note: See Table 1.A. below

\*\*\*Note: See Table 1.B below

**Table 1.A.**  
**Persian Language Courses\***

Code	Course Name	Prerequisite/Corequisite	Credits	Hours
13	Preliminary Persian 1	-	3 Practical Credits	102
14	Preliminary Persian 2	Preliminary Persian 1	3 Practical Credits	102
15	Preliminary Persian 3	Preliminary Persian 2	2 Practical Credits	68
16	General Persian	Preliminary Persian 3	3 Theoretical Credits (Same as Code 16 in Table 1)	51
<b>Total (11 Credits)</b>			8 Practical Credits 3 Theoretical Credits (Same as Code 16 in Table 1)	323

\*Note: These courses (and the credits thereof) are to be determined for the students based on their level of proficiency according to the results of an approved language placement test.



**Table 1.B.**  
English Language Courses\*

Code	Course Name	Prerequisite/Corequisite	Credits	Hours
10	Preliminary English 1	---	2 Practical Credits	68
11	Preliminary English 2	Preliminary English 1	2 Practical Credits	68
12	Preliminary English 3	Preliminary English 2	2 Practical Credits	68
17	General English	Preliminary English 3	3 Theoretical Credits (Same as Code 17 in Table 1)	51
Total (9 Credits)			6 Practical Credits 3 Theoretical Credits (Same as Code 17 in Table 1)	255

\*Note: These courses (and the credits thereof) are to be determined for the students based on their level of proficiency according to the results of an approved language placement test

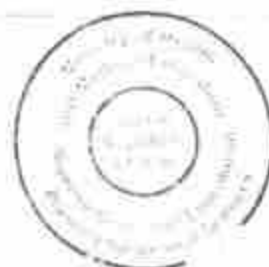




**Table 2. Core Courses**

Code	Course Name	Hours (Credits)				Phase (Basic or Clinical Sciences)	Type of Courses (Basic or Specialized)
		Theo.	Prac.	Total	Clerkship		
Anatomical Sciences		196	118	314 (15)			
101	Introduction to Anatomical Sciences	38	8	46		Basic Sciences	Basic
102	Anatomy of the Musculoskeletal System	30	20	50		Basic Sciences	Basic
103	Anatomy of the Head & Neck	20	17	37		Basic Sciences	Basic
104	Anatomy of the Cardiovascular System	17	16	33		Basic Sciences	Basic
105	Anatomy of the Respiratory System	8	8	16		Basic Sciences	Basic
106	Anatomy of the Gastrointestinal System	26	17	43		Basic Sciences	Basic
107	Anatomy of the Endocrine System	4	6	10		Basic Sciences	Basic
108	Anatomy of the Nervous System	25	14	39		Basic Sciences	Basic
109	Anatomy of the Special Senses	14	4	18		Basic Sciences	Basic
110	Anatomy of the Urogenital System	14	8	22		Basic Sciences	Basic

Code	Course Name	Hours (Credits)				Phase (Basic or Clinical Sciences)	Type of Courses (Basic or Specialized)
		Theo.	Prac.	Total	Clerkship		
Physiology		122	28	150 (8)			
111	Cell Physiology	14	-	14		Basic Sciences	
112	Physiology of the Heart	8	2	10		Basic Sciences	Basic
113	Physiology of the Respiratory System	10	4	14		Basic Sciences	Basic
114	Physiology of the Nervous System and Special Senses	24	4	28		Basic Sciences	Basic
115	Physiology of the Circulatory System	19	4	23		Basic Sciences	Basic
116	Physiology of the Gastrointestinal System	10	4	14		Basic Sciences	Basic
117	Blood Physiology	5	2	7		Basic Sciences	Basic
118	Endocrine and Reproductive Physiology	20	4	24		Basic Sciences	Basic
119	Renal Physiology	12	4	16		Basic Sciences	Basic



Code	Course Name	Hours (Credits)				Phase (Basic or Clinical Sciences)	Type of Courses (Basic or Specialized)
		Theo.	Prac.	Total	Clerkship		
	Medical Biochemistry	70	30	100 (5)			
120	Cell and Molecular Biochemistry	32	15	47		Basic Sciences	Basic
121	Biochemistry	22	15	37		Basic Sciences	Basic
122	Hormones Biochemistry	12	-	12		Basic Sciences	Basic
123	Renal Biochemistry	4	-	4		Basic Sciences	Basic

124	Medical Genetics	34	-	34 (2)		Basic/Introduction to Clinical Sciences	Basic
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125	General Principles of Nutrition	34	-	34 (2)		Basic Sciences /Introduction to Clinical Sciences	Basic
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126	Medical Physics	30	8	38 (2)		Basic Sciences /Introduction to Clinical Sciences	Basic
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Code	Course Name	Hours (Credits)				Phase (Basic or Clinical Sciences)	Type of Courses (Basic or Specialized)
		Theo.	Prac.	Total	Clerkship		
	Microbiology & Parasitology	101	36	137 (7)			
127	Medical Bacteriology	41	20	61		Basic Sciences	Basic
128	Medical Parasitology	28	12	40		Basic Sciences	Basic
129	Medical Mycology	15	4	19		Basic Sciences	Basic
130	Medical Virology	17	-	17		Basic Sciences	Basic

Code	Course Name	Hours (Credits)				Phase (Basic or Clinical Sciences)	Type of Courses (Basic or Specialized)
		Theo.	Prac.	Total	Clerkship		
	Immunology	47	8	55 (3)			
131	Medical Immunology	30	8	38		Basic/Introduction to Clinical Sciences	Basic



132	Clinical Immunology	17	-	17		Basic/Introduction to Clinical Sciences	Basic
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Code	Course Name	Hours (Credits)				Phase (Basic or Clinical Sciences)	Type of Courses (Basic or Specialized)
		Theo.	Prac.	Total	Clerkship		
Community Medicine & Health Sciences		152	19	171 (9.5)			
133	Principles of Health Services	26	-	26		Basic Sciences	Basic
134	Principles of Epidemiology	34	-	34		Basic Sciences	Basic
135	Medical Statistics	17		17		Introduction to Clinical Sciences	Basic
136	Research Methods & Evidence-Based Medicine	7	19	26		Introduction to Clinical Sciences/Clerkship	Basic
137	Epidemiology of Common Communicable Diseases of the Country	17	-	17		Introduction to Clinical Sciences/Clerkship	Basic
138	Epidemiology of Common Non-Communicable Diseases of the Country	17	-	17		Introduction to Clinical Sciences/Clerkship	Basic
139	Principles of Demography and Family Health	34	-	34		Clerkship	Specialized

140	Health Psychology	34	-	34 (2)		Introduction to Clinical Sciences/Clerkship	Basic
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Code	Course Name	Hours (Credits)				Phase (Basic or Clinical Sciences)	Type of Courses (Basic or Specialized)
		Theo.	Prac.	Total	Clerkship		
Medical Etiquette & Professional Conduct		68		68 (2)			
141	Professional Etiquette and Conduct 1	-	17	17		Basic Sciences	Basic
142	Professional Etiquette and Conduct 2	-	17	17		Basic Sciences	Basic
143	Professional Etiquette and Conduct 3	-	17	17		Basic Sciences	Basic



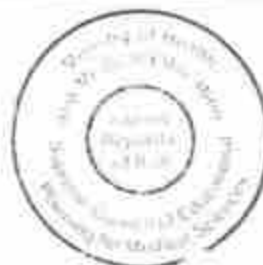
144	Professional Etiquette and Conduct 4	-	17	17		Basic Sciences	Basic
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Code	Course Name	Hours (Credits)				Phase (Basic or Clinical Sciences)	Type of Courses (Basic or Specialized)
		Theo.	Prac.	Total	Clerkship		
	English for Specific Purposes	102	-	102 (6)			
145	English for Medical Purposes 1	51	-	51		Basic Sciences	Basic
146	English for Medical Purposes 2	51	-	51		Basic Sciences	Basic

Code	Course Name	Hours (Credits)				Phase (Basic or Clinical Sciences)	Type of Courses (Basic or Specialized)
		Theo.	Prac.	Total	Clerkship		
	General Pathology	51	-	51 (3)			
147	General Pathology and Cell Damage	-	9	9		Basic/Introduction to Clinical Sciences	Basic
148	Pathology of Inflammation, Tissue Repair, and Hemodynamic Disorders	-	10	10		Basic/Introduction to Clinical Sciences	Basic
149	Pathology of Human Immunologic Disorders		8	8		Basic/Introduction to Clinical Sciences	Basic
150	Pathology of Neoplasia		10	10		Basic/Introduction to Clinical Sciences	Basic
151	Pathology of Genetic Disorders and Childhood Diseases		8	8		Basic/Introduction to Clinical Sciences	Basic
152	Pathology of Environmental, Nutritional, and Infectious Diseases		6	6		Basic/Introduction to Clinical Sciences	Basic

153	Practical Pathology	-	34	34 (1)		Basic/Introduction to Clinical Sciences	Basic
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154	Clinical Pathology	16	2	18 (1)		Introduction to Clinical Sciences/Clerkship	Specialized
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Code	Course Name	Hours (Credits)				Phase (Basic or Clinical Sciences)	Type of Courses (Basic or Specialized)
		Theo.	Prac.	Total	Clerkship		
	<b>Specific Pathology</b>	68	24	92(4.7)			
155	Pathology of Cardiovascular System	6	2	8		Introduction to Clinical Sciences	Specialized
156	Pathology of Respiratory System	6	2	8		Introduction to Clinical Sciences	Specialized
157	Pathology of the Kidney and Upper Urinary Tract	6	2	8		Introduction to Clinical Sciences	Specialized
158	Pathology of Gastrointestinal System	8	4	12		Introduction to Clinical Sciences	Specialized
159	Pathology of Liver and Biliary Duct	6	2	8		Introduction to Clinical Sciences	Specialized
160	Pathology of Genitals, Lower Urinary Tract and Breasts	10	4	14		Introduction to Clinical Sciences	Specialized
161	Pathology of the Hematologic and Endocrine Disorders	10	2	12		Introduction to Clinical Sciences	Specialized
162	Pathology of the Skin, Bones, Soft Tissues, and Joints	8	4	12		Introduction to Clinical Sciences	Specialized
163	Pathology of the Central and Peripheral Nervous System	8	2	10		Introduction to Clinical Sciences	Specialized

Code	Course Name	Hours (Credits)				Phase (Basic or Clinical Sciences)	Type of Courses (Basic or Specialized)
		Theo.	Prac.	Total	Clerkship		
	<b>Medical Pharmacology</b>	68		68 (4)			
164	Basic Principles of Medical Pharmacology	17	-	17		Basic/Introduction to Clinical Sciences	Basic
165	Cardiovascular and Pulmonary Pharmacology	10	-	10		Basic/Introduction to Clinical Sciences	Basic
166	Pharmacology of Antimicrobial Drugs	10	-	10		Basic/Introduction to Clinical Sciences	Basic
167	Gastrointestinal, Hematologic and Rheumatologic Pharmacology	10	-	10		Basic/Introduction to Clinical Sciences	Basic
168	Pharmacology of Endocrine Drugs	9	-	9		Basic/Introduction to Clinical Sciences	Basic
169	Neuropharmacology	12	-	12		Basic/Introduction to Clinical Sciences	Basic





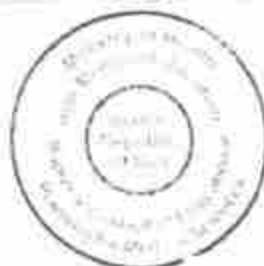
Code	Course Name	Hours (Credits)				Phase (Basic or Clinical Sciences)	Type of Courses (Basic or Specialized)
		Theo.	Prac.	Total	Clerkship		
	<b>History Taking and Physical Examination</b>	34		136 (4)	102		
170	History Taking and Physical Examination 1	17	-	17 (1)		Introduction to Clinical Sciences	Specialized
171	History Taking and Physical Examination 1 Clerkship		-	51 (1)	51	Introduction to Clinical Sciences	Specialized
172	History Taking and Physical Examination 2	17	-	17 (1)		Introduction to Clinical Sciences	Specialized
173	History Taking and Physical Examination 2 Clerkship		-	51 (1)	51	Introduction to Clinical Sciences	Specialized

Code	Course Name	Hours (Credits)				Phase (Basic or Clinical Sciences)	Type of Courses (Basic or Specialized)
		Theo.	Prac.	Total	Clerkship		
	<b>Clinical Introduction to Diseases</b>	190	32	322 (18)			
174	Clinical Reasoning in Approaching Common Signs and Symptoms	8	-	8 (0.5)		Introduction to Clinical Sciences	Specialized
175	Introduction to Cardiovascular Diseases	32	4	36 (2)		Introduction to Clinical Sciences	Specialized
176	Introduction to Respiratory Diseases	32	4	36 (2)		Introduction to Clinical Sciences	Specialized
177	Introduction to Hematologic Diseases	32	4	36 (2)		Introduction to Clinical Sciences	Specialized
178	Introduction to Gastroenterology and Hepatic Diseases	36	4	40 (2.1)		Introduction to Clinical Sciences	Specialized
179	Introduction to Endocrine and Metabolic Diseases	32	4	36 (2)		Introduction to Clinical Sciences	Specialized
180	Introduction to Kidney Diseases	26	4	30 (1.6)		Introduction to Clinical Sciences	Specialized
181	Introduction to Rheumatologic Diseases	26	4	30 (1.6)		Introduction to Clinical Sciences	Specialized
182	Introduction to Pediatric Diseases	17	-	17 (1)		Introduction to Clinical Sciences	Specialized
183	Introduction to Clinical Surgery	15	4	19 (1)		Introduction to Clinical Sciences	Specialized
184	Introduction to Neurological Diseases	9	-	9 (0.5)		Introduction to Clinical Sciences	Specialized



185	Introduction to Psychiatry	8	-	8 (0.5)		Introduction to Clinical Sciences	Specialized
186	Introduction to Infectious Diseases	17	-	17 (1)		Introduction to Clinical Sciences	Specialized

Code	Course Name	Hours (Credits)				Phase (Basic or Clinical Sciences)	Type of Courses (Basic or Specialized)
		Then.	Prac.	Total	Clerkship		
Clinical Courses							
187	Traditional Medicine	34		34 (2)		Clerkship	Specialized
188	Internal Medicine Diseases Clerkship		153 (9)	153 (9)	3 months (12 weeks)	Clerkship	Specialized
190	Cardiovascular Diseases Clerkship		51 (3)	51 (3)	1 month (4 weeks)	Clerkship	Specialized
192	Pediatric Diseases Clerkship		153 (9)	153 (9)	3 months (12 weeks)	Clerkship	Specialized
194	Pediatric Diseases (1)	68		68 (4)		Clerkship	Specialized
195	Pediatric Diseases (2)	17		17 (1)		Clerkship	Specialized
196	General Surgery Clerkship			6 credits	2 months (8 weeks)	Clerkship	Specialized
198	Surgical Diseases	85 (5)		85 (5)		Clerkship	Specialized
199	Orthopedics Clerkship			3 credits	1 month (4 weeks)	Clerkship	Specialized
201	Orthopedic Diseases		51 (3)	51 (3)		Clerkship	Specialized
202	Urology Clerkship			1.5 credits	2 weeks	Clerkship	Specialized
204	Urogenital Diseases (Urology)	17		17 (1)		Clerkship	Specialized
205	Anesthesia Clerkship			1.5 credits	2 weeks	Clerkship	Specialized
206	Obstetrics & Gynecology Clerkship			6 credits	2 months (8 weeks)	Clerkship	Specialized
208	Obstetrics & Gynecology Diseases	68		68 (4)		Clerkship	Specialized
209	Family and Community Medicine			3 credits	1 month (4 weeks)	Clerkship	Specialized
211	Psychiatry Clerkship			3 credits	1 month (4 weeks)	Clerkship	Specialized
213	Psychiatric Diseases	26		26 (1.5)		Clerkship	Specialized
214	Emergency Medicine Clerkship			1.5 credits	2 weeks	Clerkship	Specialized
216	Radiology Clerkship			3 credits	1 month (4 weeks)	Clerkship	Specialized



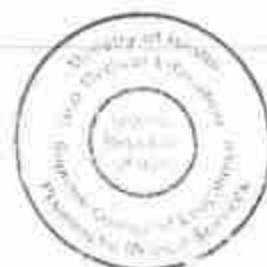
217	Infectious Diseases Clerkship			3 credits	1 month (4 weeks)	Clerkship	Specialized
219	Infectious Diseases	34		34 (2)		Clerkship	Specialized
220	Neurological Diseases Clerkship			3 credits	1 month (4 weeks)	Clerkship	Specialized
222	Neurological Diseases	25		25 (1.5)		Clerkship	Specialized
223	Skin Diseases Clerkship			3 credits	1 month (4 weeks)	Clerkship	Specialized
225	Ophthalmological Diseases Clerkship			1.5 credits	2 weeks	Clerkship	Specialized
227	Ear, Nose, and Throat (ENT) Diseases Clerkship			3 credits	1 month (4 weeks)	Clerkship	Specialized
229	Medical Ethics	34		34 (2)		Clerkship	Specialized
230	Forensic Medicine and Intoxications	34		34 (2)		Clerkship	Specialized

231	Thesis (optional)			6 Credits			Specialized
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Note: Courses labeled as 'Specialized' are the clinical core courses and do not end up to any specific specialty degree.

Table 3. Some Non-Core Courses

No.	The Course Category	Course Name	Hours (Credits)				
			Theo.	Prac./Workshop	Total	Clerkship	Type of the course
1	Anatomical Sciences	Surgical Anatomy	17		17 (1)		Specialized
2	Physiology	Exercise Physiology	17		17 (1)		Specialized
3	Biochemistry	Clinical Biochemistry	17		17 (1)		Specialized
4	Community Medicine	Health Management in Emergencies and Disasters	34		34 (2)		Specialized
5	Genetics	Clinical Genetics	7	10	32 (1)	15	Specialized
6	Nutrition	Nutrition in Diseases	28	12	40 (2)		Specialized
7	Immunology	Applied Immunology	34		34 (2)		Specialized
8	Pharmacology	Therapeutics for Common Diseases	34	-	34 (2)		Specialized



9	Pharmacology	Prescription and Reasonable Administration of Medications		34	34 (1)		Specialized
10	Clinical Departments	Principles of Medical Physics and Rehabilitation	14	10	(1.5)	20	Specialized
11	Clinical Departments	Patient Safety			34 (2)		Specialized

Note: Courses labeled as 'Specialized' are the clinical non-core courses and do not end up to any specific specialty degree

\*The maximum number of selected credits for each student during the course will be 4.

\*\* Departments at different universities can develop selected courses for students during the program according to their requirements and their students' needs. The arrangement as well as the theoretical and practical/workshop hours are the responsibility of lesson planning committees of medical schools depending on the subject, objectives, and content of the course.

The courses in Table 3 are examples of elective courses, and universities can add other courses to the list according to their needs and the discretion of lesson planning committee of medical schools, in which case obtaining the approval of the Secretariat of the General Medical Education Council of the Ministry is required.



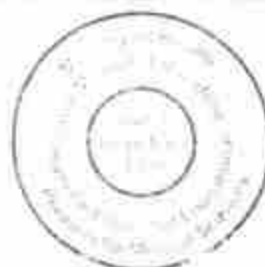


Course Code	101		
Course Name	Introduction to Anatomical Sciences		
Course Level	Basic Sciences		
Pre-requisite courses	-		
Course Type	Theoretical	Practical	Total
Credits Hours	38 hours	8 hours	46 hours
General Objectives	<p><b>The Cognitive Domain:</b></p> <p>At the end of this course, the students are expected to:</p> <ol style="list-style-type: none"> <li>1- know the basics of anatomical naming and be able to visualize and describe different body positions and movements;</li> <li>2- know the major structures and systems, including skeletal, muscular, vascular and nervous systems, and be able to locate important organs and identify the relationships between these and different body systems; and</li> <li>3- know different types of cells and tissues; including epithelial, muscular, and connective tissues (along with their related content); their embryonic origin; how the embryo and placenta are formed; and how essential organs are derived from the embryo.</li> </ol> <p><b>The Affective Domain*:</b></p> <p>The students should:</p> <ol style="list-style-type: none"> <li>1- respect the dignity of the human cadaver;</li> <li>2- pay close attention to the educational value of every organ of the cadaver;</li> <li>3- present the information and relevant questions on medical mouldages before direct contact with the cadaver; and</li> <li>4- be actively involved in simultaneous learning and teaching through group work on the cadaver.</li> </ol>		
Course Description	<p>In this course, the following topics will be covered: basic principles of anatomical naming, general structures of the body, including skeletal, muscular, and nervous systems; the relative locations and connections between organs; types of epithelial, muscular, and connective tissues (together with their derivatives); and the formation and development of the embryo and placenta.</p>		

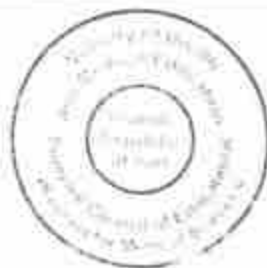


<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- Introduction (history and pioneers), definitions, the basics of working with a cadaver, and ethics of medical practice and working with a cadaver.</li> <li>2- The anatomical position of the body, planes and axes, medical terminology, and body movements</li> <li>3- Basics of body systems, including bones, joints, muscular, and nervous systems.</li> <li>4- The normal anatomy of the body and variations</li> <li>5- Principles of radiological and clinical anatomy</li> <li>6- Basics of histology and methods of tissue examination</li> <li>7- Cells and cytology</li> <li>8- Epithelial tissues</li> <li>9- Connective and adipose tissues</li> <li>10- Blood and erythropoiesis</li> <li>11- Bones, cartilages, and joints</li> <li>12- Muscular tissues</li> <li>13- Nerve tissues</li> <li>14- Basics and definitions of gametogenesis, including oogenesis and spermatogenesis</li> <li>15- Ovulation, fertilization, and egg formation (first week)</li> <li>16- Implantation, formation of fetal sacs, and mother-fetus blood connection and circulation (second week)</li> <li>17- Disc formation of the three fetal layers, gastrulation, and development of body axes (third week).</li> <li>18- Derivatives of ectoderm, mesoderm, endoderm, and neural crest (third to eighth week).</li> <li>19- Fetal stage (weeks eight to thirty-eight), placenta, embryonic sacs and twins.</li> <li>20- Basics of teratology and innate malformations.</li> <li>21- Postnatal growth.</li> </ol>
<b>Notes</b>	<p>* It is necessary that emphasis be placed on the affective domain in all courses of anatomical sciences.</p> <p>** If skin anatomy is not covered in this course, it is necessary that it be covered in Anatomy of the Endocrine System course.</p>

<b>Course Code</b>	102		
<b>Course Name</b>	Anatomy of the Musculoskeletal System		
<b>Course Level</b>	Basic Sciences		
<b>Prerequisite Courses</b>	Introduction to Anatomical Sciences		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	30 hours	20 hours	50 hours
<b>General Objectives</b>	<p><b>The Cognitive Domain:</b></p>		



<p>The Cognitive Domain</p> <p>The Affective Domain*</p> <p>The Psychomotor Domain</p>	<p>At the end of this course, the students should know the importance of surface and radiological findings related to normal and clinical conditions as well as the following:</p> <ol style="list-style-type: none"> <li>1- Upper and lower limb bones, their positions, and the insertion sites of muscles and ligaments</li> <li>2- Types, structures, and functions of the joints</li> <li>3- Anatomical structure and function of the musculoskeletal system, arteries, nerves, and related adjacencies</li> <li>4- Dominant myotome of muscles and joints, sensory innervation of different areas of the limbs</li> <li>5- Applied, surface, clinical, and radiological anatomy of the musculoskeletal system</li> <li>6- Development of the musculoskeletal system</li> <li>7- The vertebrae</li> </ol> <p><b>The Psychomotor Domain:</b></p> <p>The students are expected to be able to:</p> <ol style="list-style-type: none"> <li>1- identify the bones of different parts of the limbs and their clinically important features in the skeleton;</li> <li>2- identify the bones of different parts of the limbs and their clinically important features in radiological imaging;</li> <li>3- identify the clinically important skeletal parts on a living person and cadaver;</li> <li>4- identify and know the function of the clinically important muscles on a living person (accessible muscles), cadaver, and moulages;</li> <li>5- perform movements of the limbs in different joints on a living person;</li> <li>6- identify clinically important sensory denervation in the limbs of a living person or cadaver;</li> <li>7- identify and spot clinically important superficial vessels in the limbs on the cadaver and moulages; and</li> <li>8- measure the common arterial pulses in different areas of the body on a living person.</li> </ol>
<p><b>Course Description</b></p>	<p>This integrated course is a part of the Basic Sciences educational program, intended to teach medical students the principles and concepts related to the regional boundaries, structure, proximity, surface, and clinical anatomy of the musculoskeletal system such that the students are prepared to understand and analyze the functions and disorders of this system.</p>
<p><b>Essential Course Content</b></p>	<ol style="list-style-type: none"> <li>1- The vertebrae</li> <li>2- Osteology of the upper limb</li> <li>3- Scapula, borders of the axilla and its contents</li> </ol>



	4- Anterior and posterior regions of the arm and the cubital fossa 5- Anterior and posterior regions of the forearm 6- The hand 7- The surface, clinical, and radiological anatomy of joints 8- Osteology of the lower limb 9- Anterior and inner thigh 10- Gluteal region and posterior thigh 11- Popliteal fossa and posterior leg 12- Legs and feet 13- Development of the musculoskeletal system
Notes	<p>* It is necessary that emphasis be placed on the affective domain in all courses of anatomical sciences.</p> <p>** If this course is offered prior to Cardiovascular System and Respiratory System courses, it is necessary that the topic 'diaphragm' be covered.</p>

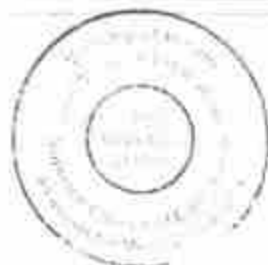
Course Code	103		
Course Name	Anatomy of the Head and Neck		
Course Phase	Basic Sciences		
Prerequisite Courses	Introduction to Anatomical Sciences		
Course Type	Theoretical	Practical	Total
Credit Hours	20	17	37
General Objectives	<p><b>The Cognitive Domain:</b></p> <p>The Cognitive Domain</p> <p>The Affective Domain*</p> <p>The Psychomotor Domain</p> <p>At the end of this course, the students should be able to identify the importance of surface and radiological findings related to their normal and clinical conditions as well as the following:</p> <ol style="list-style-type: none"> <li>1- Structural and anatomical components of cranial and facial bones</li> <li>2- Anatomical structure, position, and proximity of neck contents</li> <li>3- Manner of blood supply and nerve innervation of the neck region</li> <li>4- Anatomical structure, position, the proximity of face, viscera, and cavities</li> <li>5- Development of different parts of the head and neck and their developmental abnormalities</li> </ol> <p><b>The Psychomotor Domain:</b></p> <p>The students are also expected to be able to:</p>		





	<ol style="list-style-type: none"> <li>1- identify the important clinical and superficial signs related to each bone.</li> <li>2- identify the clinically important parts of the neck region along with the relevant arteries and nerves on the cadaver and moulage.</li> <li>3- identify the clinically important parts of the face, viscera, and cavities along with the relevant arteries and nerves on the cadaver and moulage.</li> <li>4- recognize the clinically important parts of the skull and face in radiological stereotypes.</li> </ol>
<b>Course Description</b>	<p>This integrated course is part of the Basic Sciences educational program, intended to teach medical students the principles and concepts of the anatomical musculoskeletal structure, relationships, and natural development of head and neck, such that the students are prepared to understand and analyze head and neck disorders. This course also examines the surface and radiological anatomy of the head and neck structures.</p>
<b>Essential Course Contents</b>	<ol style="list-style-type: none"> <li>1- Examination of cranial bones</li> <li>2- Examination of facial bones</li> <li>3- Skull bones and growth and development neonatal skull</li> <li>4- Surface elements and neck fascia</li> <li>5- Posterior triangle of the neck</li> <li>6- Anterior triangle of the neck</li> <li>7- Facial and parotid region</li> <li>8- Temporal and infratemporal cavities</li> <li>9- Development of arches, and pharyngeal pouches and clefts</li> <li>10- Development of face, tongue, and teeth</li> <li>11- Clinical, functional and radiological anatomy of head and neck</li> </ol>
<b>Notes</b>	<p>* It is necessary that emphasis be placed on the affective domain in all courses of anatomical sciences.</p>

<b>Course Code</b>	104		
<b>Course Name</b>	Anatomy of the Cardiovascular System		
<b>Course Level</b>	Basic Sciences		
<b>Prerequisite Courses</b>	Introduction to the Anatomical Sciences		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	17	16	33
<b>General Objectives</b>	<p><b>The Cognitive Domain:</b></p>		
The Cognitive Domain			



<p>The Affective Domain</p> <p>The Psychomotor Domain</p>	<p>At the end of this course, the students are expected to recognize the importance of surface and radiological findings under normal and clinical conditions and be familiar with the following:</p> <ol style="list-style-type: none"> <li>1- The structure of the chest wall, including bones, muscles, arteries, and nerves</li> <li>2- The definition, divisions, and contents of the mediastinum</li> <li>3- The anatomical structure and position of the heart and its relationships</li> <li>4- The general anatomy of the circulatory system</li> <li>5- The microscopic structure of cardiovascular, lymphatic, and immune systems</li> <li>6- The microscopic differences of various parts of cardiovascular, lymphatic and immune systems</li> <li>7- The development of the cardiovascular system</li> <li>8- The development of arterial and venous systems during the embryonic period and after birth</li> <li>9- The developmental abnormalities of the cardiovascular system</li> </ol> <p><b>The Psychomotor Domain:</b></p> <p>The students should also be able to:</p> <ol style="list-style-type: none"> <li>1- identify the chest wall, ribs, and sternum on the living body and moulages</li> <li>2- identify the important muscles, arteries, and nerves of the chest wall on the cadaver and moulages</li> <li>3- identify the clinically important divisions and contents of the mediastinum in the cadaver and moulages</li> <li>4- locate the surfaces, sides, and different parts of the heart in the cadaver and moulages</li> <li>5- identify the major circulatory vessels in the cadaver and moulages</li> <li>6- recognize the clinically important microscopic structure of the heart, arteries, and lymphatic organs under a microscope</li> <li>7- show the surface anatomy of the heart (sides, valves, and the auscultation points) and the arteries on the living body or cadaver</li> </ol>
<p><b>Course Description</b></p>	<p>This integrated course is part of the Basic Sciences educational program, intended to teach medical students the principles and concepts of structure (at both microscopic and macroscopic levels), relationships, and the physiological development of the heart and the circulatory system, such that the students are prepared to understand and analyze the disorders of cardiovascular system. This course also examines the surface and radiological anatomy of the heart and the circulatory system.</p>
<p><b>Essential Course Content</b></p>	<ol style="list-style-type: none"> <li>1- Ribs and sternum **</li> <li>2- Muscles, arteries, and nerves of the thoracic wall</li> <li>3- Superior mediastinum</li> </ol>



	4- Middle mediastinum 5- Posterior mediastinum 6- Major vessels of the circulatory system 7- Histology of the heart and blood vessels 8- Histology of the lymphatic system 9- Development of the heart-forming region, heart tubes, and the heart 10- Development of arterial and venous systems 11- Clinical, functional, and radiological anatomy of the cardiovascular system
Notes	<p>* It is necessary that emphasis be placed on the affective domain in all courses of anatomical sciences.</p> <p>** If this course is offered prior to Musculoskeletal System and Respiratory System courses, it is necessary that the topic 'diaphragm' be covered.</p>

Course Code	105		
Course Name	Anatomy of Respiratory System		
Course Level	Basic Sciences		
Prerequisite Course	Introduction to Anatomical Sciences		
Course Type	Theoretical	Practical	Total
Credit Hours	8 hours	8 hours	16 hours
General Objectives	<p><b>The Cognitive Domain:</b></p> <p>At the end of this course, the students are expected recognize the importance of surface and radiological findings under normal and clinical conditions and be familiar with the following:</p> <ol style="list-style-type: none"> <li>1- Pleural cavity and its recesses, anatomical structure, position and relationships of the respiratory system (nose, pharynx, larynx, trachea, bronchial tree, and lungs)</li> <li>2- Histological structures of different sections of the respiratory system</li> <li>3- Development of different sections of the respiratory system</li> <li>4- Developmental abnormalities of the respiratory system</li> </ol> <p><b>The Psychomotor Domain:</b></p> <p>The students should also be able to:</p>		
The Cognitive Domain			
The Affective Domain*			
The Psychomotor Domain			



	<ol style="list-style-type: none"> <li>1- identify different sections of the respiratory system [nose, pharynx, larynx and lungs] and its pleural cavity and recesses on the cadaver and moulages</li> <li>2- recognize different sections of the respiratory system and the related vessels and nerves in pneumonographs</li> <li>3- recognize histological structures of the respiratory system under a microscope</li> <li>4- identify surface anatomy of lungs and pleura on the living body or the cadaver</li> </ol>
<b>Course Description</b>	<p>This integrated course is a part of the Basic Sciences educational program, intended to teach medical students the principles and concepts of the structure [both at macroscopic and microscopic levels], relationships, and physiologic development of the respiratory system, such that the students are prepared to understand and analyze disorders of the respiratory system. This course also deals with the surface and radiological anatomy of the respiratory system.</p>
<b>Essential Course Content *</b>	<ol style="list-style-type: none"> <li>1- Anatomic structures and relationships of nose, pharynx, larynx, and trachea</li> <li>2- Anatomical structure and relationships of the lung and pleura **</li> <li>3- Histology of the respiratory system [trachea, branching of the bronchial tree and lungs]</li> <li>4- Development of the respiratory system</li> <li>5- Practical and radiologic anatomy of respiratory system</li> </ol>
<b>Notes</b>	<p>* It is necessary that emphasis be placed on the affective domain in all courses of anatomical sciences.</p> <p>** If this course is offered prior to Musculoskeletal System and Cardiovascular System courses, it is necessary that the topic 'diaphragm' be covered.</p>

<b>Course Code</b>	106		
<b>Course Name</b>	Anatomy of the Gastrointestinal System		
<b>Course Level</b>	Basic Sciences		
<b>Prerequisite Course</b>	Introduction to Anatomical Sciences		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	26 hours	17 hours	43 hours
<b>General Objectives</b>			



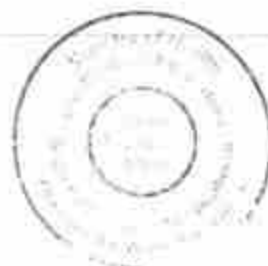


<p>The Cognitive Domain</p> <p>The Affective Domain*</p> <p>The Psychomotor Domain</p>	<p><b>The Cognitive Domain:</b></p> <p>At the end of this course, the students are expected to recognize the importance of surface and radiological findings under normal and clinical conditions and be familiar with the following:</p> <ol style="list-style-type: none"> <li>1- Oral cavity and its contents, a general description of the pharynx, esophagus and its important clinical relationships, tissue structure and the development of these organs, surface signs and the nine regions of the abdomen</li> <li>2- The structure of the anterior abdominal wall (muscle, vessels, and nerves) and the inguinal canal</li> <li>3- Peritoneum, peritoneal spaces, gutters, and the clinically important pouches</li> <li>4- Anatomical structure, position, and clinically important relationships of the abdominal viscera (gastrointestinal tract and related glands)</li> <li>5- Blood supply procedure, innervation and lymphatic drainage of clinically important abdominal organs (gastrointestinal tract and related glands)</li> <li>6- Microscopic structure of clinically important parts of the gastrointestinal tract and related glands</li> <li>7- Microscopic differences of clinically important parts of the gastrointestinal tract and related glands</li> <li>8- Development of clinically important parts of the gastrointestinal tract and related glands</li> <li>9- Developmental abnormalities of the digestive system</li> </ol> <p><b>The Psychomotor Domain:</b></p> <p>The students should also be able to:</p> <ol style="list-style-type: none"> <li>1- know the oral cavity and its contents, a general description of the pharynx, esophagus and its clinically important relationships, tissue structure and formation of these organs, surface signs, the nine regions of the abdomen and the surface position of each in a living person</li> <li>2- identify the peritoneal cavity and its contents in the cadaver and moulages</li> <li>3- identify the clinically important parts of the gastrointestinal tract and related glands along with the corresponding vessels and nerves in the cadaver and moulages</li> <li>4- distinguish the clinically important parts of the gastrointestinal tract and related glands in pneumonographs</li> <li>5- recognize the histological structure of clinically important parts of the gastrointestinal tract and related glands under a microscope and distinguish them</li> </ol>
<p><b>Course Description</b></p>	<p>This integrated course is part of the Basic Sciences educational program, intended to teach medical students the principles and concepts of the structure (at both microscopic and macroscopic levels), relationships, and the natural development of the gastrointestinal system, such that the students are prepared to understand and</p>

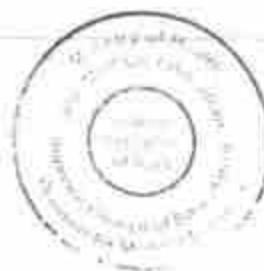


	analyze the disorders of the gastrointestinal system. This course also examines the surface and radiological anatomy of the gastrointestinal system.
<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- Anatomy of the oral cavity and salivary glands</li> <li>2- Histology of the oral cavity and salivary glands</li> <li>3- Pharynx and esophagus (Anatomy)</li> <li>4- Histology of pharynx and esophagus</li> <li>5- Abdominal wall and inguinal canal**</li> <li>6- Peritoneum</li> <li>7- Stomach and small intestine (Anatomy)</li> <li>8- Stomach (Histology)</li> <li>9- Large intestine, rectum, and the anal canal (Anatomy)</li> <li>10- Small and large intestines (Histology)</li> <li>11- Rectum and anal canal (Histology)</li> <li>12- Vessels, lymph, and nerves of the gastrointestinal system</li> <li>13- Liver, gallbladder, spleen, and pancreas (Anatomy and Histology)</li> <li>14- Gastrointestinal embryology</li> <li>15- Clinical, radiological, and functional anatomy</li> </ol>
<b>Notes</b>	<p>* It is necessary that emphasis be placed on the affective domain in all courses of anatomical sciences.</p> <p>**The topic of abdominal wall and inguinal canal can be taught in the Musculoskeletal System course.</p>

<b>Course Code</b>	107		
<b>Course Name</b>	Anatomy of the Endocrine System		
<b>Course Level</b>	Basic Sciences		
<b>Prerequisite Course</b>	Introduction to Anatomical Sciences		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	4 hours	6 hours	10 hours
<b>General Objectives</b>	<p><b>The Cognitive Domain:</b></p> <p>The Cognitive Domain</p> <p>The Affective Domain*</p> <p>The Psychomotor Domain</p> <p>At the end of this course, the students are expected to recognize the importance of surface and radiological findings under normal and clinical conditions and be familiar with the following:</p>		

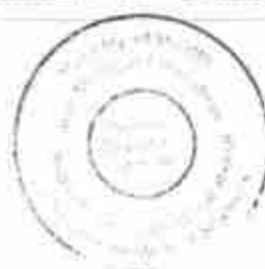


	<ol style="list-style-type: none"> <li>1- Important clinical anatomy and relationships of the hypothalamus, hypophysis, adrenal, pancreas, thyroid, and parathyroid glands</li> <li>2- Important clinical vessels and nerves of the hypothalamus, hypophysis, adrenal, pancreas, thyroid, and parathyroid glands</li> <li>3- Important clinical microscopic structure of hypothalamus, hypophysis, adrenal, pancreas, thyroid, and parathyroid glands</li> <li>4- The development of the hypothalamus, hypophysis, adrenal, pancreas, thyroid, and parathyroid glands</li> <li>5- Congenital abnormalities of the endocrine system</li> </ol> <p><b>The Psychomotor Domain</b></p> <p>The students should also be able to:</p> <ol style="list-style-type: none"> <li>1- locate the hypothalamus, hypophysis, adrenal, pancreas, thyroid, and parathyroid in the cadaver and moulages</li> <li>2- identify the surface indications of the endocrine system in a living person and moulages</li> <li>3- locate the endocrine glands in pneumonographs</li> <li>4- recognize the histological structure of the hypothalamus, hypophysis, adrenal, pancreas, thyroid, and parathyroid glands under a microscope</li> </ol>
<b>Course Description</b>	<p>This integrated course is part of the Basic Sciences educational program, intended to teach medical students the principles and concepts of the structure (at both microscopic and macroscopic levels), relationships, and the natural development of the endocrine glands, such that the students are prepared to understand and analyze the disorders of the endocrine system. This course also examines the surface and radiological anatomy of the endocrine system.</p>
<b>Essential Course Content*</b>	<ol style="list-style-type: none"> <li>1- Anatomy of the hypothalamus, hypophysis, adrenal, pancreas, thyroid, and parathyroid glands</li> <li>2- Histology of the hypothalamus, hypophysis, adrenal, pancreas, thyroid, and parathyroid glands</li> <li>3- The development of the hypothalamus, hypophysis, adrenal, pancreas, thyroid, and parathyroid glands</li> <li>4- Clinical, functional, and radiological anatomy of the endocrine glands</li> </ol>
<b>Notes</b>	<p>* It is necessary that emphasis be placed on the affective domain in all courses of anatomical sciences.</p>



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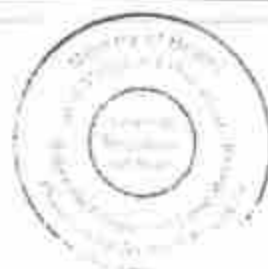
<b>Course Code</b>	108		
<b>Course Name</b>	Anatomy of the Nervous System		
<b>Course Level</b>	Basic Sciences		
<b>Prerequisite Course</b>	Introduction to Anatomical Sciences		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	25 hours	14 hours	39 hours
<b>General Objectives</b>	<p><b>The Cognitive Domain:</b></p> <p>At the end of this course, the students are expected to recognize the importance of surface and radiological findings under normal and clinical conditions and be familiar with the following:</p> <ol style="list-style-type: none"> <li>1- Classifications of the nervous system</li> <li>2- Normal functions of neurons and glial cells</li> <li>3- Macroscopic appearance, structure, and functions of the gray and white matter of the spinal cord</li> <li>4- Parts of a spinal nerve and neural networks</li> <li>5- Macroscopic appearance, important clinical structures, and functions of the nuclei and spinal tracts in the medulla, pons and midbrain</li> <li>6- Important anatomical structure and functions of cerebellum, diencephalon, and brain cortex</li> <li>7- Important anatomical structure and functions of the basal nuclei, limbic system, and reticular formation</li> <li>8- The structure of the clinically important meninges and vessels of the brain</li> <li>9- Histological structures of clinically important parts of the central nervous system</li> <li>10- Development of the clinically important parts of the central nervous system</li> <li>11- Developmental abnormalities of the nervous system</li> </ol> <p><b>The Psychomotor Domain:</b></p> <p>The students should also be able to:</p> <ol style="list-style-type: none"> <li>1- recognize the clinically important relations of the spinal cord with the vertebral column in longitudinal and transverse sections of pneumonographs</li> <li>2- locate the clinically important neural dermatomes in a living body</li> <li>3- identify the spinal cord and related meninges on the cadaver and moulages</li> <li>4- identify the clinically important parts of the nervous system (including the brain stem, diencephalon, and cerebellar hemispheres) on the cadaver and moulages</li> <li>5- identify the vessels and meninges of the brain as well as the important exit locations of the cranial nerves on the cadaver and moulages</li> <li>6- recognize the clinically important parts of the nervous system, vessels, and</li> </ol>		



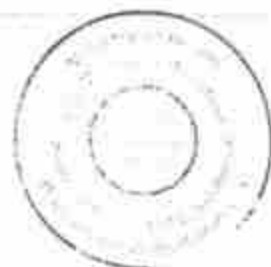


	related nerves in pneumonographs 7- recognize the histological structures of clinically important parts of the nervous system under a microscope
<b>Course Description</b>	This integrated course is part of Basic Sciences educational program, intended to teach medical students the principles and concepts of the structure (at both microscopic and macroscopic levels), relationships and physiological development of the central nervous system, such that the students are prepared to understand and analyze the disorders of central nervous system. This course also deals with the surface and radiological anatomy of the central nervous system.
<b>Essential Course Content*</b>	<ol style="list-style-type: none"> <li>1- Classification of the nervous system, vertebral canal, appearance and internal structure of the spinal cord</li> <li>2- Nervous Pathways</li> <li>3- Medulla, pons, and midbrain</li> <li>4- Cerebellum</li> <li>5- Diencephalon</li> <li>6- Cerebral hemispheres</li> <li>7- White matter connections and basal nuclei</li> <li>8- Limbic system and reticular formation</li> <li>9- Brain vessels and meninges</li> <li>10- Autonomic nervous system</li> <li>11- The structure of cranial nerves</li> <li>12- Development of the nervous system</li> <li>13- Histology of the Central nervous system</li> <li>14- Functional and radiological anatomy and of the brain and spinal cord (development of vessels, brain meninges, and venous sinuses of the cranium)</li> </ol>
<b>Notes</b>	* It is necessary that emphasis be placed on the affective domain in all courses of anatomical sciences.

<b>Course Code</b>	109		
<b>Course Name</b>	Anatomy of the Special Senses		
<b>Course Level</b>	Basic Sciences		
<b>Prerequisite Course</b>	Introduction to Anatomical Sciences		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	14 hours	4 hours	18 hours
<b>General Objectives</b>	<b>The Cognitive Domain:</b>		

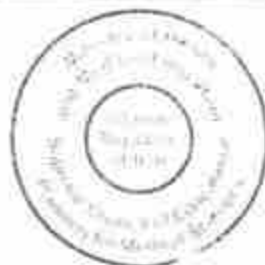


<p>The Cognitive Domain</p> <p>The Affective Domain*</p> <p>The Psychomotor Domain</p>	<p>At the end of this course, the students are expected to recognize the importance of surface and radiological findings under normal and clinical conditions and be familiar with the following:</p> <ol style="list-style-type: none"> <li>1- Anatomy of the orbit, the eyeball and appendices to the visual system</li> <li>2- Blood vessels and nerves of the eye and appendices to the visual system</li> <li>3- Anatomical structures of the outer ear, middle ear, and inner ear</li> <li>4- The surface and radiological anatomy of the visual and hearing-balance systems</li> <li>5- The microscopic anatomy of the eye and appendices to the visual system</li> <li>6- The microscopic anatomy of the ear</li> <li>7- The development of the various segments of the visual system</li> <li>8- The development of the various segments of the hearing-balance system</li> <li>9- Congenital abnormalities of the visual and hearing-balance systems</li> </ol> <p><b>The Psychomotor Domain:</b></p> <p>The students should also be able to:</p> <ol style="list-style-type: none"> <li>1- identify the clinically important parts of the visual system (the orbit, the eyeball and appendices) on a cadaver and moulages</li> <li>2- identify the clinically important parts of the hearing-balance system (the outer ear middle ear and inner ear) in a cadaver and moulages</li> <li>3- identify the surface indications of the clinically important parts of the visual and hearing-balance systems in a living person and moulages</li> <li>4- recognize the surface indications of the clinically important parts of these two systems in pneumonographs</li> <li>5- identify eye movements in a living person and determine their neural-muscular connections</li> <li>6- recognize the histological structure of the various parts of the visual and hearing-balance systems under a microscope</li> </ol>
	<p>This integrated course is part of the Basic Sciences educational program, intended to teach medical students the principles and concepts of the structure (at both microscopic and macroscopic levels), relationships, and the natural development of the special senses (vision, hearing, and balance), such that the students are prepared understand and analyze the disorders of the system. This course also examines the surface and radiological anatomy of the special senses.</p>
<p><b>Essential Course Content*</b></p>	<ol style="list-style-type: none"> <li>1- Anatomy of the orbit, the eyeball and appendices to the visual system</li> <li>2- Blood vessels and nerves of the eye and the visual system</li> <li>3- Outer ear, middle ear, and inner ear</li> <li>4- Histology of the ear and the eye</li> </ol>



	5- Development of the visual system 6- Development of the hearing system 7- Clinical and radiological anatomy of the ear and the eye 8- Neural pathways of the hearing and visual systems
Notes	* It is necessary that emphasis be placed on the affective domain in all courses of anatomical sciences.

Course Code	110		
Course Name	Anatomy of the Urogenital System		
Course Level	Basic Sciences		
Prerequisite Courses	Introduction to the Anatomical Sciences		
Course Type	Theoretical	Practical	Total
Credit Hours	14	8	22
General Objectives	<p><b>The Cognitive Domain:</b></p> <p>At the end of this course, the students are expected to recognize the importance of surface and radiological findings under normal and clinical conditions and be familiar with the following:</p> <ol style="list-style-type: none"> <li>1- The structures of the pelvis, including clinically important bones, joints, muscles, vessels and nerves</li> <li>2- Pelvic dimensions and measurement methods and differences between male and female pelvises</li> <li>3- Anatomical structures, position, and relationships of the clinically important parts of the male reproductive system (internal and external structures)</li> <li>4- Anatomical structures, position, and relationships of the clinically important parts of the female reproductive system (internal and external structures)</li> <li>5- Blood supply process, innervation and lymph drainage of clinically important parts of the male and female reproductive systems</li> <li>6- Dimensions and contents of the perineum</li> <li>7- Surface and radiological anatomy of male and female reproductive systems</li> <li>8- Microscopic structure of clinically important parts of male and female reproductive systems</li> <li>9- Microscopic differences in clinically important parts of male and female reproductive systems</li> <li>10- Development of clinically important parts of male and female reproductive systems</li> <li>11- Developmental abnormalities of the urogenital system</li> </ol>		
The Cognitive Domain			
The Affective Domain			
The Psychomotor Domain			



	<p><b>The Psychomotor Domain:</b></p> <p>The students should also be able to:</p> <ol style="list-style-type: none"> <li>1- identify clinically important pelvic structures including bones, joints, muscles, arteries, and nerves in the cadaver and moulages</li> <li>2- measure the dimensions of the pelvis and distinguish male and female pelvises</li> <li>3- identify clinically important parts of the male reproductive system (internal and external structures) in the cadaver and moulages</li> <li>4- identify clinically important parts of the female reproductive system (internal and external structures) in the cadaver and moulages</li> <li>5- locate arteries, nerves, and clinically important relationships of the male and female reproductive systems in the cadaver and moulages</li> <li>6- Determine the dimensions and contents of the perineum in males and females and their differences in the cadaver</li> <li>7- recognize different parts of male and female reproductive systems in pneumonographs</li> <li>8- recognize the histological structure of different parts of male and female reproductive systems under a microscope</li> </ol>
<b>Course Description</b>	<p>This integrated course is part of the Basic Sciences educational program, intended to teach medical students the principles and concepts of the structure (at both microscopic and macroscopic levels), the relationships, and the natural development of the pelvis and reproductive system in males and females, such that the students are prepared to understand and analyze reproductive system disorders in men and women. This course also examines the surface and radiological anatomy of the male and female reproductive systems.</p>
<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- Anatomy of the pelvis</li> <li>2- Anatomy and histology of the kidney</li> <li>3- Anatomy and histology of the urethra, bladder, and ureter</li> <li>4- Embryology of the urogenital system</li> <li>5- Clinical, functional, and radiological anatomy of the urogenital system</li> <li>6- Anatomy and histology of testes, epididymis and ducts</li> <li>7- Anatomy and histology of prostate, seminal vesicles, and bulbourethral glands</li> <li>8- Anatomy and histology of ovaries, uterus, and fallopian tubes</li> <li>9- Anatomy of perineum and surface and deep perineal spaces</li> <li>10- Anatomy of the external reproductive organ/system of females and the vagina</li> </ol>
<b>Notes</b>	<p>* It is necessary that emphasis be placed on the affective domain in all courses of anatomical sciences.</p>

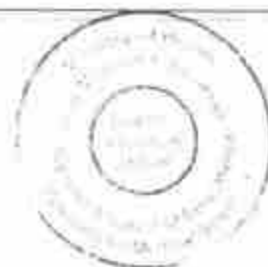




Physiology Courses:

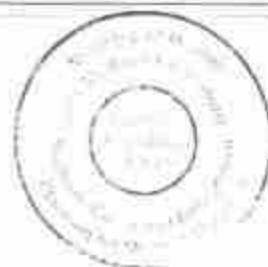
1. Cell Physiology
2. Cardiac Physiology
3. Physiology of Respiration
4. Nervous and Special Senses Physiology
5. Circulatory System Physiology
6. Gastrointestinal Physiology
7. Blood Physiology
8. Endocrine and Reproduction Physiology
9. Renal Physiology

Course Code	111		
Course Name	Cell Physiology		
Course Level	Basic Sciences		
Prerequisite Courses	NA		
Course Type	Theoretical	Practical	Total
Credit Hours	14	--	14
General Objectives	<p>In this course, the students are expected to learn the concepts, principles, and physiological mechanisms associated with cell function in each of the following and be able to identify them in normal and altered physiological processes:</p> <ol style="list-style-type: none"> <li>1- Physiology, cellular messages</li> <li>2- Cell membrane and its components, the passage of materials through the cell membrane</li> <li>3- Resting potential, action potential</li> <li>4- Skeletal muscle contraction, smooth muscle contraction</li> <li>5- The internal environment, homeostasis, and the role of different organs of the body in its creation</li> <li>6- The difference between the composition of intracellular and extracellular fluid and the reasons behind its formation</li> <li>7- Intracellular messages</li> <li>8- Components of cell membranes and their functions</li> <li>9- Methods of material transfer from cell membranes</li> <li>10- Membrane resting potential, action potential</li> <li>11- Absolute and relative refractory periods and the cause of their occurrence</li> <li>12- Skeletal muscle contraction</li> <li>13- Smooth muscle contraction and its differences with skeletal muscle</li> </ol>		
Course Description	<p>The main objective of this course is to learn general topics related to the structure and normal function of cells, resting and action potentials, muscle cell characteristics, and their physiological function.</p>		



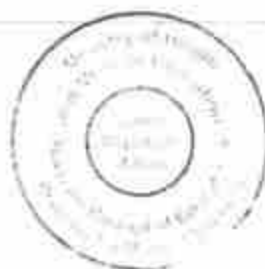
<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- Homeostasis and regulating mechanisms of the body</li> <li>2- Cell membrane and its components, transfer of materials from the membrane and its methods (diffusion, facilitated diffusion, active transfer, osmosis)</li> <li>3- Resting potential of the membrane and its physiological basis</li> <li>4- Action potential and its stages, and how it occurs and diffuses</li> <li>5- Physiological anatomy of skeletal muscles</li> <li>6- Muscle contraction and its mechanism</li> <li>7- Motor units and muscular tension, classification of motor unit types</li> <li>8- Nerve-muscle synapse</li> <li>9- The excitation-contraction coupling in skeletal muscles and its mechanism</li> <li>10- Smooth muscle and its types</li> <li>11- Mechanisms of contraction in smooth muscle and its comparison with skeletal muscles</li> <li>12- Membrane and action potentials in smooth muscles and the effect of hormonal and local factors on them</li> </ol>
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<b>Course Code</b>	112		
<b>Course Name</b>	Physiology of the Heart		
<b>Course Level</b>	Basic Sciences		
<b>Prerequisite Courses</b>	Cell Physiology		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	8	2	10
<b>General Objectives</b>	<p>In this course, students are expected to learn the concepts, principles, and physiological mechanisms associated with the heart function in each of the following and be able to identify them in normal and altered physiological processes:</p> <ol style="list-style-type: none"> <li>1- Heart, its cavities and layers</li> <li>2- Cardiac muscle, cardiac action potential, contraction of heart muscle cells</li> <li>3- Cardiac cycle and its stages</li> <li>4- Control of heart activity</li> <li>5- Electrocardiogram curve</li> <li>6- Circulation of blood in the heart in a cardiac cycle</li> <li>7- Physiological characteristics of the heart muscle and its differences with skeletal muscles</li> <li>8- Stages and mechanisms of myocardial contraction</li> <li>9- The action potential of the cardiomyocytes, its stages and differences with skeletal muscles</li> <li>10- Components of the excitatory-conductory system of the heart, heart rate control</li> </ol>		

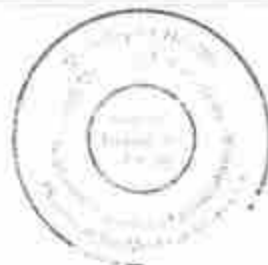


	<ul style="list-style-type: none"> <li>11- Cardiac cycle and stages</li> <li>12- Concepts of cardiac output, end-systolic volume, end-diastolic end volume, and stroke volume</li> <li>13- Pre-load, afterload, and its effect on cardiac output</li> <li>14- Sympathetic and parasympathetic systems in controlling heart function</li> <li>15- Electrocardiogram curve and its components</li> <li>16- Cardiac derivatives and how electrodes are connected</li> <li>17- Generation of electrocardiogram P, QRS, and T waves</li> </ul>
<b>Course Description</b>	<p>In this course, students will be familiar with the physiological structure of the heart and its components, the contraction mechanism in the heart muscle, cardiac output, the general principles of the electrocardiogram and its relationship with the heart cycle and abnormal changes in the electrocardiogram.</p>
<b>Essential Course Content</b>	<ul style="list-style-type: none"> <li>1- Physiological anatomy of the heart muscle</li> <li>2- Action potential in the heart muscle</li> <li>3- The mechanism of contraction in the heart muscle and the role of cardiac ions</li> <li>4- Cardiac cycle and its stages</li> <li>5- The relationship the electrocardiogram and cardiac sounds have with the cardiac cycle</li> <li>6- Cardiac output and its regulation, volume-pressure curve</li> <li>7- The effect of ion changes on heart function</li> <li>8- Cardiac excitatory-conductory system and cardiac signal transduction</li> <li>9- Sinoatrial node rhythmicity and its mechanism</li> <li>10- Rhythm control and conduction of the cardiac signal</li> <li>11- Normal electrocardiogram and its waves</li> <li>12- The relationship between the cardiac cycle and electrocardiogram</li> <li>13- Cardiac derivations</li> <li>14- Principles of vector analysis of the electrocardiogram and heart axis</li> <li>15- Electrocardiogram in different stages of the cardiac cycle</li> <li>16- Determining the electric axis of the heart based on the electrocardiogram</li> <li>17- Deviation of the heart axis in some diseases</li> <li>18- Cardiac lesions and their effect on the electrocardiogram</li> <li>19- Abnormal changes in electrocardiogram waves and the underlying reasons</li> </ul>

<b>Course Code</b>	113		
<b>Course Name</b>	Physiology of the Respiratory System		
<b>Course Level</b>	Basic Sciences		
<b>Prerequisite Courses</b>	Cell Physiology		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	10	4	14
<b>General Objectives</b>			



	<p>In this course, the students are expected to learn the concepts, principles and physiological mechanisms related to the physiology of the respiratory system in each of the following cases and be able to identify them in normal and altered physiological processes:</p> <ol style="list-style-type: none"> <li>1- Components of the respiratory system (airways and their divisions, air sacs and their cell types) and their functions</li> <li>2- Pulmonary ventilation</li> <li>3- Gas exchanges between the alveoli and the blood and between the blood and body cells</li> <li>4- Transfer of gases in the blood, respiratory centers and how respiration is regulated</li> <li>5- Pulmonary circulation and its differences with the systemic circulation</li> <li>6- Pleura and its role in the respiratory system</li> <li>7- Non-respiratory actions of the lungs</li> <li>8- Bronchial blood flow and its difference with the pulmonary blood flow</li> <li>9- Breathing cycle, inhaling and exhaling</li> <li>10- Changes in the intrapulmonary pressure and pleural pressure in a respiratory cycle</li> <li>11- Surfactant secretion and its role in reducing surface tension</li> <li>12- Tests related to the lung function, lung volumes and capacities</li> <li>13- Pulmonary ventilation, alveolar ventilation, their differences and estimation</li> <li>14- The ventilation to perfusion ratio and its role in arterial blood gas pressure</li> <li>15- Exchange of gases between the blood and alveoli</li> <li>16- Exchange of gases between blood and tissue cells</li> <li>17- Ways of oxygen and carbon dioxide transport in the blood</li> <li>18- Oxy-hemoglobin breakdown curve and its characteristics</li> <li>19- Respiratory control centers, and their role in regulating respiration</li> <li>20- Environmental chemical receptors and their role in regulating respiration</li> <li>21- Central chemical receptors and their role in regulating respiration</li> </ol>
<b>Course Description</b>	<p>Familiarity with the physiological anatomy of the respiratory system, pulmonary ventilation and its mechanism, gas exchange and transfer in the lungs and tissues, and the mechanisms of respiration regulation and respiratory centers is among the general objectives of this course.</p>
<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- Mechanics of lung ventilation</li> <li>2- Pleura, pleural effusion, and its changes in respiration</li> <li>3- Lung and chest compliance</li> <li>4- Pulmonary volumes and capacities</li> <li>5- Alveolar ventilation, the dead space</li> <li>6- Respiratory tract and its functions</li> <li>7- Cough reflex, sneezing, and speech</li> <li>8- Pulmonary circulation and its characteristics</li> <li>9- Lung edema and its mechanism</li> <li>10- Emission of gases in the alveoli and body tissues and the influential factors</li> <li>11- Ventilation to perfusion ratio and its changes</li> <li>12- The concept of shunt and physiological space</li> </ol>





	13- Oxygen transfer in the blood and the role of hemoglobin in it 14- Oxy-hemoglobin Decomposition curve and the influential factors 15- Carbon dioxide transfer in the blood 16- Carbon dioxide decomposition curve 17- Respiratory control
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Course Code	114		
Course Name	Physiology of the Nervous System and Special Senses		
Course Level	Basic Sciences		
Prerequisite Courses	Cell Physiology		
Course Type	Theoretical	Practical	Total
Credit Hours	24	4	28
General Objectives	<p>In this course, the students are expected to learn the concepts, principles and physiological mechanisms related to the physiology of special senses and nerves in each of the following and be able to identify them in normal and altered physiological processes:</p> <ol style="list-style-type: none"> <li>1- The structure of the nervous system, synapses, neurotransmitters</li> <li>2- The sensory system</li> <li>3- Types of senses and sensory pathways and sense perception</li> <li>4- The motor system</li> <li>5- Motor centers and how they control movement</li> <li>6- The transcendent functions of the brain, limbic system, speech, memory and sleep</li> <li>7- Structure and functions of the autonomous system</li> <li>8- Special senses</li> <li>9- Types of neurons</li> <li>10- Types of synapses, ionic events in synapses, synaptic transmission</li> <li>11- Neuron communities, synaptic plasticity</li> <li>12- Types of neurotransmitters</li> <li>13- Types of nerve fibers and their conduction speed</li> <li>14- Sensory receptors, their types and functions</li> <li>15- The concept of receptor potential of compromise and dissociation sensitivity</li> <li>16- Electrical events and the mechanism of receptor potential generation</li> <li>17- Pathways of sensory messages transmission to the central nervous system and their differences</li> <li>18- Pain, its types and neural pathways</li> <li>19- Recurrent or diffuse pain</li> <li>20- Pain suppression system in the brain and spine</li> <li>21- Heat receptors and its transmission path</li> <li>22- Spinal cord structure and organization to perform motor functions</li> <li>23- Reflexes and their types</li> <li>24- Different parts of the brainstem and the functions of its components and nuclei</li> <li>25- The role of atrium, utricle, saccule, and semicircular canals in balance</li> </ol>		

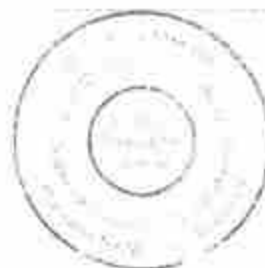


	<ul style="list-style-type: none"> <li>26- Cerebellar structure and its anatomical functional division</li> <li>27- Cerebellar neuronal circuit, and its disorders</li> <li>28- The structure of basal nuclei and their disorders</li> <li>29- Different regions of the motor cortex of the brain and their functions</li> <li>30- Movement pathways, the corticospinal pathway, the relationship between sensation and movement</li> <li>31- The limbic system and its different parts</li> <li>32- Areas related to speech and their functions</li> <li>33- Learning and memory</li> <li>34- Sleep, its types and characteristics</li> <li>35- Brain waves and their changes in different stages of sleep and wakefulness</li> <li>36- Physiological structure of the autonomic nervous system</li> <li>37- Sympathetic system pathways, neurotransmitters, and the functions of this system</li> <li>38- Parasympathetic system pathways, neurotransmitters, and the functions of this system</li> <li>39- Differences between sympathetic and parasympathetic systems and differences between autonomic system and somatic motor system</li> <li>40- Physiological structure of the eye, visual receptors and its pathways</li> <li>41- Physiological structure of the ear and its pathways</li> <li>42- Physiology of the senses of smell and taste and their sensory pathways</li> <li>43- Cerebrospinal fluid, blood-brain barrier and their roles</li> </ul>
<b>Course Description</b>	<p>Understanding the physiological anatomy of the nervous system, learning the physiology of sensation and movement, pathways and neural centers controlling and regulating them, sympathetic and parasympathetic systems and transcendental functions of the brain is among the general objectives of this course.</p>
<b>Essential Course Content</b>	<ul style="list-style-type: none"> <li>1- Familiarity with the physiological structure of the nervous system</li> <li>2- Functional levels of the central nervous system</li> <li>3- Types of synapses and neurotransmitters</li> <li>4- Types of nerve fibers and conduction and processing in them</li> <li>5- Conduction and processing of neural messages, spatial and temporal aggregation</li> <li>6- Somesthetic senses and their characteristics, sensory receptors</li> <li>7- The conduction pathways of sensory signals and their characteristics and related brain regions</li> <li>8- Physiology of pain and receptors and their pathways</li> <li>9- Heat receptors and its excitation mechanism</li> <li>10- Muscle receptors and their functions</li> <li>11- Different spinal reflexes and their role in controlling sensory muscles</li> <li>12- Motor cortices, pathways for transmitting motor messages</li> <li>13- Physiological anatomy of the cerebellum, its role in controlling movements</li> <li>14- Basal nuclei and their role in motion</li> <li>15- Different areas of the cerebral cortex and their role with respect to motor functions</li> <li>16- Limbic system and its role, the functions of hippocampus and amygdala</li> <li>17- Memory, its types and mechanisms</li> <li>18- Sleep and its types, brain waves and their changes during sleep and epilepsy</li> </ul>



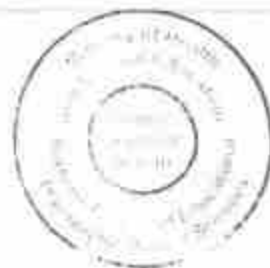
	19- The role of the sympathetic and parasympathetic systems in the body and its control and the role of the hypothalamus 20- Physiological anatomy of the eye, visual receptors and neural pathways 21- Physiological anatomy of the ear and auditory pathways 22- Taste and smell receptors and their neural pathways 23- Atrial sensations and their contribution to balance 24- Metabolism and the flow of blood to the brain and its regulation 25- Cerebrospinal fluid and its functions
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<b>Course Code</b>	115		
<b>Course Name</b>	Physiology of the Circulatory System		
<b>Course Level</b>	Basic Sciences		
<b>Prerequisite Courses</b>	Cell Physiology		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	19	4	23
<b>General Objectives</b>	<p>In this course, the students are expected to learn the concepts, principles and physiological mechanisms related to the physiology of the circulatory system in each of the following cases and be able to apply them in normal and altered physiological processes:</p> <ol style="list-style-type: none"> <li>1- Basic physical concepts of the circulatory and pulmonary systems</li> <li>2- The structure of the blood vessels, their similarities and differences</li> <li>3- Exchange of fluids and substances between blood and body cells</li> <li>4- The structure and functions of the lymphatic system</li> <li>5- Blood pressure, its influential factors and regulation</li> <li>6- Coronary blood circulation and its control mechanisms</li> <li>7- Systemic and pulmonary circulations, their components and differences</li> <li>8- Relationships between blood pressure, blood flow, and vascular resistance in relation to Ohm's and Poiseuille's laws</li> <li>9- Measuring blood flow and the difference between linear and tornado blood flows and their determination and differentiation</li> <li>10- Materials between plasma and interstitial fluid</li> <li>11- Capillary filtration and its influential factors in connection with Starling's law</li> <li>12- Lymphatic system, its structure and functions</li> <li>13- Blood pressure, mean arterial pressure, and pulse pressure and the factors influencing them</li> <li>14- Short-term and long-term local control of blood flow</li> <li>15- Neurological and hormonal control of blood flow</li> <li>16- Short-term and long-term regulation of blood pressure</li> <li>17- The role of kidneys and renin-angiotensin system in the long-term regulation of blood pressure</li> <li>18- Hormonal control of blood pressure and its role in regulating blood pressure</li> <li>19- Changes in coronary blood flow with changes in the heart cycle</li> </ol>		



	20- Neural and chemical control of coronary blood flow
<b>Course Description</b>	Understanding vascular structural physiology, hemodynamics, exchange of materials in the blood vessels, tissue blood flow and its regulation, blood pressure and its short- and long-term regulation mechanisms, and coronary blood flow physiology is among the objectives of this course.
<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- Physical components of the circulatory system and their characteristics</li> <li>2- Hemodynamics</li> <li>3- Vascular resistance and factors influencing it</li> <li>4- Vasodilation of blood vessels in the arterial and venous systems and the volume-pressure curve</li> <li>5- Pulse pressure and its abnormal forms</li> <li>6- Blood pressure measurement</li> <li>7- Veins and their functions</li> <li>8- The structure and role of capillaries</li> <li>9- Capillary filtration and factors affecting it</li> <li>10- Lymph, lymphatic system and their physiological roles</li> <li>11- Acute and chronic control of tissue blood flow and its regulation</li> <li>12- Factors affecting the blood pressure</li> <li>13- Short- and long-term regulation of blood pressure</li> <li>14- The role of kidneys in regulating blood pressure</li> <li>15- Primary and secondary hypertension</li> <li>16- Cardiac output and its regulation</li> <li>17- Cardiac output curve and factors affecting it</li> <li>18- Skeletal muscle blood flow and how to control it</li> <li>19- Coronary circulation and factors affecting it</li> <li>20- Definition of shock and its stages</li> <li>21- Types of shocks and their characteristics</li> </ol>

<b>Course Code</b>	116		
<b>Course Name</b>	Physiology of the Gastrointestinal System		
<b>Course Level</b>	Basic Sciences		
<b>Prerequisite Courses</b>	Cell Physiology		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	10	4	14
<b>General Objectives</b>	<p>In this course, the students are expected to learn the concepts, principles and physiological mechanisms related to the physiology of the gastrointestinal tract in each of the following cases, and be able to identify them in natural and altered physiological processes:</p>		

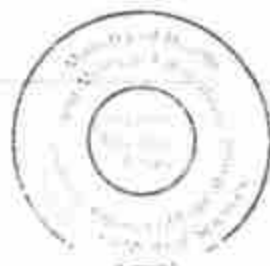




	<ol style="list-style-type: none"> <li>1- Structure and function of the digestive system</li> <li>2- Movements in the digestive system</li> <li>3- Gastrointestinal secretions and their functions</li> <li>4- Digestion process and absorption of substances in different parts of the gastrointestinal tract</li> <li>5- The functions of the bile, saliva, pancreas, and liver</li> <li>6- Nervous and hormonal control of the digestive system</li> <li>7- Ingestion and its stages</li> <li>8- Mixing and propulsive movements of the gastrointestinal tract and their roles</li> <li>9- Gastric movements and their role in digestion</li> <li>10- Migratory myoelectric complex and hunger contractions</li> <li>11- Mechanisms of regulating gastric emptying</li> <li>12- Types of small bowel movements, their role and their control mechanisms</li> <li>13- Movements of different parts of the large intestine, their characteristics and how to control them</li> <li>14- Defecation reflex</li> <li>15- Salivary glands, saliva composition, and regulation of the salivary secretions</li> <li>16- Types of gastric cells and their secretion type</li> <li>17- Mechanism of gastric acid production</li> <li>18- Mechanisms of regulating gastric secretion and their stages</li> <li>19- Pancreatic secretions, their effects and how to regulate them</li> <li>20- Bile and its role in digestion and absorption of fats</li> <li>21- Intestinal-hepatic circulation of the bile</li> <li>22- Small and large intestine secretions and their regulation</li> <li>23- Mechanisms of digestion and absorption of carbohydrates</li> <li>24- Digestion and absorption of proteins</li> <li>25- Digestion and absorption of fats in the gastrointestinal tract</li> <li>26- Reabsorption of water, sodium, calcium, iron, and vitamins in different parts of the gastrointestinal tract</li> <li>27- Short-term, medium-term, and long-term adjustment of nutrition</li> <li>28- The role of the liver in the metabolism of various substances</li> </ol>
<b>Course Description</b>	<p>Familiarity with the physiological anatomy of the digestive system, movements and secretions in different parts of the digestive system, the mechanism of absorption of substances in different parts of the gastrointestinal tract, and the role of salivary glands, bile, pancreas, and liver is among the general objectives of this course.</p>
<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- Functional anatomy of the digestive system</li> <li>2- Movements of different parts of the digestive system and its neurological and hormonal control</li> <li>3- Defecation reflex and its control</li> <li>4- Secretions of different parts of the digestive system and their regulation</li> <li>5- Bile and its role in digestion and absorption of substances</li> <li>6- Pancreatic secretions and their roles</li> <li>7- Digestion and absorption of carbohydrates, fats, and proteins</li> <li>8- The function of liver in the metabolism of various substances</li> </ol>



<b>Course Code</b>	117		
<b>Course Name</b>	Blood Physiology		
<b>Course Level</b>	Basic sciences		
<b>Prerequisite Courses</b>	Cell Physiology		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	5	2	7
<b>General Objectives</b>	<p>In this course, the students are expected to learn the concepts, principles and physiological mechanisms related to blood physiology in each of the following cases and be able to identify them in normal and altered physiological processes:</p> <ol style="list-style-type: none"> <li>1- Blood and its components, components of plasma and differences between plasma and serum</li> <li>2- Physiology of red blood cells, their synthesis and destruction, structure of hemoglobin and its synthesis, iron metabolism, anemia and polycythemia and their effects on the heart and circulatory system</li> <li>3- Physiology of white blood cells, types of white blood cells, characteristics and place of their synthesis and maturation, the role of neutrophils and tissue macrophages in the immune system</li> <li>4- Physiology of platelet, coagulation factors and blood coagulation mechanism, stages of homeostasis and the role of platelets in it</li> </ol>		
<b>Course Description</b>	Familiarity with the physiology of blood, red, white blood cells, and platelets and their functions and the mechanism of blood coagulation is among the general objectives of this course.		
<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- Red blood cells and their production and maturation, the role of erythropoietin, vitamin B12, and folic acid</li> <li>2- Hemoglobin formation</li> <li>3- Iron metabolism</li> <li>4- Anemia, its types and effects on the circulatory system</li> <li>5- Polycythemia and its effects on the circulatory system</li> <li>6- White blood cells and its types</li> <li>7- Reticuloendothelial system</li> <li>8- Inflammation and the role of white blood cells</li> <li>9- The function of basophils, eosinophils, and macrophages</li> <li>10- Platelets and their role in blood coagulation</li> <li>11- Mechanism of blood coagulation - internal and external pathways</li> <li>12- Blood coagulation test - blood coagulation disorders</li> </ol>		

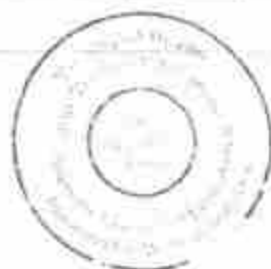


Course Code	118		
Course Name	Endocrine and Reproductive Physiology		
Course Level	Basic Sciences		
Prerequisite Courses	Cell Physiology		
Course Type	Theoretical	Practical	Total
Credit Hours	20	4	24
General Objectives	<p>In this course, the students are expected to learn the concepts, principles and physiological mechanisms related to the role of the glands and the reproductive system in each of the following cases and to be able to identify them in normal and altered physiological processes:</p> <ol style="list-style-type: none"> <li>1- The role of endocrine glands in homeostasis of the body, the structure of hormones, how they are synthesized and their mechanism of action</li> <li>2- Pituitary hormones and their control by the hypothalamus</li> <li>3- Thyroid hormones and their metabolic effects</li> <li>4- Adrenal cortex hormones and their metabolic effects</li> <li>5- Pancreatic hormones and their physiological effects</li> <li>6- Parathyroid hormone and mechanisms controlling calcium and phosphate in the extracellular fluid</li> <li>7- Sex hormones and their role in the body</li> </ol>		
Course Description	<p>Familiarizing the students with the physiology of hormones and their mechanism of action, hormones secreted by the pituitary gland, thyroid, adrenal pancreas, male and female gonads and hormones affecting calcium and phosphate metabolism is among the general objectives of this course.</p>		
Essential Course Content	<ol style="list-style-type: none"> <li>1- Mechanism of action of hormones</li> <li>2- Pituitary gland and its physiological relationship with the hypothalamus</li> <li>3- Physiological functions of the growth hormone and its regulation</li> <li>4- Posterior pituitary hormones and their physiological role</li> <li>5- Production and secretion of the thyroid hormones</li> <li>6- Physiological functions of the thyroid hormones and its regulation</li> <li>7- Physiological functions of the adrenal cortex hormones</li> <li>8- Insulin, its metabolic effects and regulation</li> <li>9- Glucagon and its physiological functions and regulation</li> <li>10- Calcium and phosphate metabolisms and their physiological role</li> <li>11- Bone and the mechanism of its formation and absorption</li> <li>12- Mechanism of action and role of parathormone hormones, vitamin D</li> <li>13- Physiological anatomy of the male genitals</li> <li>14- Testosterone, its regulation and physiological functions</li> <li>15- Physiological anatomy of the female genitals</li> </ol>		



	16- Physiological changes in the menstrual cycle 17- Physiological functions of estrogen and progesterone
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Course Code	119		
Course Name	Renal Physiology		
Course Level	Basic Sciences		
Prerequisite Courses	Cell Physiology		
Course Type	Theoretical	Practical	Total
Credit Hours	12	4	16
General Objectives	<p>In this course, students are expected to learn the concepts, principles, and physiological mechanisms associated with the kidney function in each of the following, and be able to identify them in normal and altered physiological processes:</p> <ol style="list-style-type: none"> <li>1- The structure of kidneys, nephrons, and the urinary system of the body</li> <li>2- Renal processes</li> <li>3- Glomerular filtration regulation and factors affecting it</li> <li>4- Reabsorption and secretion of substances in different parts of the nephron</li> <li>5- Neurological and hormonal control of the volumes and osmolality of body fluids</li> <li>6- Mechanisms of body pH regulation</li> <li>7- The concept of GFR self-regulation and its mechanisms</li> <li>8- Components of the juxtaglomerular apparatus and its role in GFR self-regulation</li> <li>9- Neurological and hormonal regulation of GFR</li> <li>10- Reabsorption and secretion of materials in the proximal tube</li> <li>11- Maximum transfer and renal threshold for glucose excretion</li> <li>12- Reabsorption and secretion of materials in the loop of Henle, distal tube, and collecting ducts</li> <li>13- Mechanism of urine concentration</li> <li>14- Influential factors in creating and maintaining osmolality above the kidney center</li> <li>15- The role of the sympathetic system in maintaining the volume of body fluids</li> <li>16- Mechanism of action of angiotensin II, aldosterone and ANP in regulating the body fluid volume</li> <li>17- The role of osmoreceptors in regulating the osmolality of extracellular fluids</li> <li>18- Mechanisms of pH regulation of the body fluids and the role of respiratory and renal systems</li> </ol>		
Course Description	Familiarity with nephron and its components, glomerular filtration and its regulation, reabsorption and secretion of substances in different parts of nephron.		





	Regulation of blood osmolality and renal control of the acid-base balance of the body is among the general objectives of this course.
<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- Body fluids and their classifications</li> <li>2- Osmosis, osmotic pressure, and osmolality of the body fluids</li> <li>3- The effect of hypo and hypernatremia on the regulation of the body fluid volume</li> <li>4- Edema, its causes, and factors affecting it</li> <li>5- Physiological anatomy of the kidneys, nephrons</li> <li>6- Urinary reflex and its control</li> <li>7- Glomerular filtration and factors affecting it</li> <li>8- Reabsorption of materials in different parts of the nephron in the proximal tubule, loop of Henle, distal tubule, and collecting ducts</li> <li>9- Renal clearance in estimating renal filtration and renal blood flow</li> <li>10- Renal mechanisms in dilute and concentrated urine excretion</li> <li>11- Control of osmolality and regulation of extracellular fluid sodium concentration</li> <li>12- Anti-urinary hormone, its role and factors affecting its secretion</li> <li>13- Regulation of extracellular potassium</li> <li>14- Control of calcium concentration and its renal absorption and secretion</li> <li>15- Definitions of the acid and base and body's defense mechanisms against their changes</li> <li>16- Respiratory control of acid-base disorders</li> <li>17- Renal control of acid-base disorders</li> </ol>

#### Courses in Medical Biochemistry:

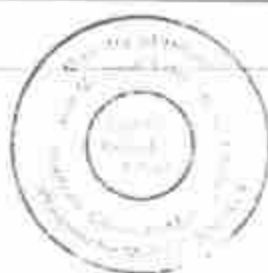
Cell and Molecular Biochemistry

Biochemistry

Hormones Biochemistry

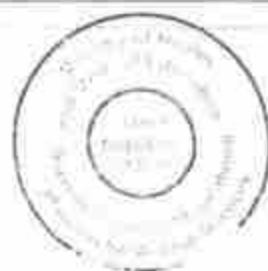
Renal Biochemistry

<b>Course Code</b>	120		
<b>Course Name</b>	Cell and Molecular Biochemistry		
<b>Course Level</b>	Basic Sciences		
<b>Prerequisite Courses</b>	Not Required		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	32	15	47
<b>General Objectives</b>	At the end of this course, the students are expected to be familiar with the clinical significance, structure, classification, properties, and function of biomolecules. These molecules include water and tampons, amino acids, carbohydrates, lipids,		

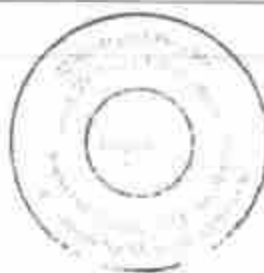


	proteins, enzymes, vitamins, and nucleotides. Students should also know the process of gene replication using nucleic acids.
<b>Course Description</b>	In this course, the students are familiarized with vital molecules so that they can learn the metabolism of these substances in the course Biochemistry. This set of structural and functional information is presented in a way that it can play a role in examining health and diseases.
<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- Water and tampons: Water structure, hydrogen bonds, Henderson-Hasselbalch equation, acid and base, definition of tampons, important tampons of the body, definition of acidosis and alkalosis and their clinical significance</li> <li>2- Amino acids and proteins: Structure of amino acids, their physicochemical properties, classification of amino acids, essential and non-essential amino acids, amino acid titration, primary, secondary, tertiary and quaternary structures of proteins, folding and degeneration of proteins, structure and function of myoglobin, hemoglobin, and collagen and their clinical significance</li> <li>3- Carbohydrates: Definition, carbohydrates' structure, their physicochemical properties, monosaccharide derivatives, disaccharides, homo-polysaccharides, hetero-polysaccharides, glycoproteins, and their clinical significance</li> <li>4- Lipids and lipoproteins: Structure, types, and physicochemical properties of fatty acids; types of lipids (triacylglycerol, esterified and free cholesterol, phospholipids, sphingolipids); liposomes, micelles, and emulsions; specific proteins (Apo lipoproteins); types of lipoproteins, and their clinical significance</li> <li>5- Enzymes: Definition, classification, structure, naming, active sites, mechanism of action of enzymes, determination of enzymatic activity, factors affecting enzymatic function, Michaelis Menton equation, types of enzyme inhibitors, isoenzymes, types of regular and irregular enzymatic reactions, regulation of action in enzymes and their clinical significance</li> <li>6- Vitamins: Definition, classification, structure of vitamins, role of coenzymes, water-soluble vitamins, fat-soluble vitamins, vitamin deficiency disorders and their clinical significance</li> <li>7- Nucleic acids: Nucleic acid constituents (DNA, RNA), nucleosides, nucleotides, the structure of DNA and its variants, the structure of RNA and its variants</li> </ol>

<b>Course Code</b>	121
<b>Course Name</b>	Biochemistry
<b>Course Level</b>	Basic Sciences
<b>Prerequisite Courses</b>	Cell and Molecular Biochemistry

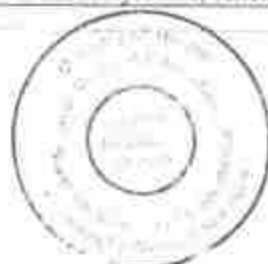


Course Type	Theoretical	Practical	Total
Credit Hours	22	15	37
General Objectives	At the end of this course, students are expected to be familiar with the importance of oxidative phosphorylation, the metabolic pathways of carbohydrates, lipids, amino acids, non-protein nitrogenous compounds, and clinical blood enzymes. The students should also get familiar with the quantitative and qualitative changes of molecules and metabolites in the clinical manifestations of various diseases associated with each metabolic pathway and the clinical importance of measuring blood enzymes and other body fluids, including blood. In this course, the students should understand the importance of the metabolism integrity of the three substances in physiological conditions.		
Course Description	In this course, students will get familiar with the importance of oxidative phosphorylation and the metabolic pathways of carbohydrates, lipids, amino acids, and non-protein nitrogenous compounds in physiological conditions, as well as the role of these pathways in associated diseases.		
Essential Course Content	<ol style="list-style-type: none"> <li>1- Oxidative phosphorylation: Laws of thermodynamics, free energy changes, reduction potential, electron transfer chain, chemiosmosis theory, and electron transfer chain inhibitors</li> <li>2- Carbohydrate metabolism: Digestion and absorption, the glycolysis pathway, pyruvate oxidation, Krebs cycle, gluconeogenesis, glycogenesis, glycogenolysis, fructose metabolism, and galactose metabolism</li> <li>3- Amino acids metabolism: Absorption and digestion, general catabolic reactions of amino acids, urea cycle, specific catabolic reactions of amino acids (aromatic, branched and sulfur amino acids), biosynthesis of non-essential amino acids, and biosynthesis of amino acid-derived compounds</li> <li>4- Clinical enzymology: Causes of increase and decrease in serum activity of intracellular enzymes, necessary criteria for clinical use of enzymes, clinical importance of enzymes (alkaline phosphatase, phosphatase acid, nucleotidase enzyme 5, gamma-glutamyl trans-peptidase, aminotransferases, lactate dehydrogenase, creatine phosphokinase, cholinesterase, aldolase, amylase, lipase)</li> <li>5- Metabolism of lipid and lipoproteins: Digestion and absorption of fats, chylomicron metabolism, VLDL metabolism, LDL metabolism, HDL metabolism, diseases of lipoprotein metabolic pathways, biosynthesis pathway of fatty acids, beta-oxidation of amino acids, cholesterol biosynthesis, and biosynthesis of ketone bodies</li> <li>6- Metabolism of nucleotides: De novo purine biosynthesis, purine biosynthesis salvage pathway, regulation of purine biosynthesis pathway, purine catabolism, purine metabolic pathway diseases, De novo pyrimidine pathway, pyrimidine biosynthesis salvage pathway, regulation of pyrimidine biosynthesis pathway, pyrimidine catabolism, and pyrimidine metabolic pathway diseases</li> <li>7- Metabolism of non-protein nitrogen compounds: Heme biosynthesis, diseases related to heme biosynthesis, porphyria, heme catabolism, and heme catabolism diseases</li> </ol>		



	8- Integrity of metabolic pathways: The importance of key and regulatory positions in metabolic pathways, the importance of different tissues in metabolic pathways, metabolic pathways in liver, metabolic pathways in adipose tissues, metabolic pathways in muscle tissues, postprandial metabolic pathways, metabolic pathways during fasting, and metabolic pathways after prolonged starvation
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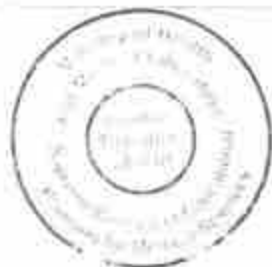
Course Code	122		
Course Name	Hormones Biochemistry		
Course Level	Basic Sciences		
Prerequisite Courses	1- Cell and Molecular Biochemistry 2- Biochemistry		
Course Type	Theoretical	Practical	Total
Credit Hours	12	--	12
General Objectives	<p>At the end of the course, the students are expected to be familiar with the importance of hypothalamic hormones, posterior and anterior pituitary hormones, pancreatic hormones, thyroid hormones, cortical and central adrenal hormones, calcium-regulating hormones, and sex hormones. At the end of this course, the students should know the importance of the integrity of the endocrine system as a coordinating apparatus and creator of homeostasis, and understand its role in controlling all exchanges and needs of the body.</p>		
Course Description	<p>In this course, the students will get familiar with the importance and role of each of the hypothalamic, posterior and anterior pituitary hormones, pancreatic hormones, thyroid hormones, cortical and central adrenal hormones, calcium-regulating hormones, and sex hormones in associated diseases.</p>		
Essential Course Content	<ol style="list-style-type: none"> <li>1- Introduction to hormones (generalities): Various classifications of hormones, chemical structure of hormones</li> <li>2- Hypothalamic and posterior and anterior pituitary hormones: Chemical structure of hormones secreted by the anterior pituitary; the role of hormones secreted by the anterior pituitary in the metabolism of proteins, fats and carbohydrates; the chemical structure of hormones secreted by the posterior pituitary gland; the role of hormones secreted by the posterior pituitary gland; diseases associated with hormones secreted by the anterior pituitary, and the synthesis of the growth hormone</li> <li>3- Pancreatic hormones: Endocrine hormones secreted by the Langerhans islands with an emphasis on insulin and glucagon; the chemical structure of insulin; the role of insulin in the metabolism of proteins, fats, and carbohydrates; and the function of somatostatin</li> <li>4- Thyroid hormones: Stages of the production and secretion of thyroid hormones; structure of thyroid hormones; synthesis mechanism of thyroid hormones; importance of converting thyroxine to triiodothyronine; functions</li> </ol>		





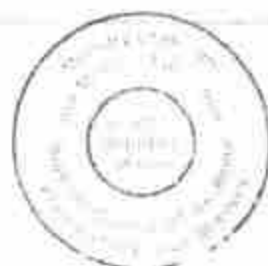
	<p>of thyroid hormone with an emphasis on cellular metabolic activity; and its effect on the metabolism of carbohydrates, fats, and proteins; factors regulating thyroid hormone secretion; feedback effects of thyroid hormone on the pituitary gland and hypothalamus; anti-thyroid substances and their mechanism of action; hyperthyroidism and hypothyroidism</p> <p>5- Cortical and central hormones of the adrenal gland (suprarenal glands): Types of mineralocorticoids and glucocorticoids of the adrenal cortex with an emphasis on aldosterone and cortisol, the chemical structure of cortical hormones of the adrenal gland, disorders related to cortical adrenal cortex hormones with an emphasis on adrenal insufficiency (Addison's disease) and hyperaldosteronism (Cushing's syndrome)</p> <p>6- Central adrenal hormones: Chemical structure of the adrenal central hormones; mechanism of action of adrenal central hormones; factors regulating the secretion of adrenal central hormones; function of adrenal central hormones; effect of cortisol on the metabolism of proteins, fats, and carbohydrates; regulation of adrenal hormones secretion</p> <p>7- Calcium-regulating hormones: The importance of calcium in the body and its amount, general calcium homeostasis, chemical structure of the calcium-regulating hormones (parathyroid hormone, calcitonin, and 1,25-dihydroxycholecalciferol), disorders related to calcium-regulating hormones (parathyroid hormone, calcitonin, and 1,25-d Hydroxycholecalciferol)</p> <p>8- Sex hormones: Androgens as hormones secreted by the testes, chemical structure of androgens, the biosynthesis and secretion of androgens, regulation of the synthesis and secretion of androgens, estrogens as hormones secreted by the ovaries, chemical structure of estrogens, the biosynthesis and secretion of estrogens, function of androgens, progesterin as hormones secreted by the ovaries, chemical structure of progesterins, the biosynthesis and secretion of progesterins, diseases associated with sex hormones</p>
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Course Code	123		
Course Name	Renal Biochemistry		
Course Level	Basic Sciences		
Prerequisite Courses	1- Cell and Molecular Biochemistry 2- Biochemistry		
Course Type	Theoretical	Practical	Total
Credit Hours	4	--	4
General Objectives	<p>At the end of this course, the students are expected to become familiar with the clinical importance of maintaining water balance, maintaining blood pH balance, and the function of the elements. These elements include major and trace elements. Also, students should know the disorders caused by water and sodium imbalance and be able to calculate the degree of water or sodium deficiency in patients. They should also get familiar with different acid-base disorders and how to diagnose the type of acid-base disorder from laboratory reports and ABG data. Students should know how to calculate osmolality and anion gap and use the data in identifying acid-base disorders. Students learn the importance and activity of around 25</p>		

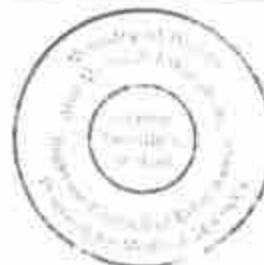


	elements along with disorders and diseases caused by their deficiency or poisoning with them.
<b>Course Description</b>	In this course, the students become familiar with water, sodium, and acid-base disorders in patients as well as their diagnosis method. They also learn how to interpret ABG. Also, they learn the importance of electrolytes and sodium and potassium elements (25 elements altogether), as well as disorders induced by their deficiency in the body.
<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- Water metabolism: Introduction and classification of major and trace elements, definition of electrolytes, the role of elements in determining the amount of plasma water and total body water, calculation of blood osmolality, regulation and maintenance of the balance between body water and plasma, water balance disorders, sodium balance disorders</li> <li>2- Adjusting blood pH: Types of buffers, locus of activity of different types of buffers, the role of different buffers in regulating blood pH, different acid-base disorders, and the subject of compensation</li> <li>3- ABGs: ABG arterial blood gases, diagnosis of acid-base disorders in patients using ABG results and through various examples, diagnosing the primary disorder and diagnosing the presence or absence of compensation and whether compensation is sufficient or not, calculating anion gap and delta gap, using anion gap and delta gap in diagnosing the cause and type of acid-base disorder, calculating the delta ratio, Davenport diagrams and their benefits in interpreting ABG results</li> <li>4- Other elements and minerals: Review of the Mendeleev table of elements with the major and trace elements, pointing out that both deficiency and abundance of each element can lead to disease, interactions between elements in the body, potassium and factors involved in maintaining its balance, briefly addressing 22 other elements and referring to the diseases caused by their deficiency or poisoning.</li> </ol>

<b>Course Code</b>	124		
<b>Course Name</b>	Medical Genetics		
<b>Course Level</b>	Basic Sciences / Clinical Preliminaries (according to the curriculum approved by the university)		
<b>Prerequisite Courses</b>	<ol style="list-style-type: none"> <li>1- Cell and molecular Biochemistry</li> <li>2- Cell Physiology</li> </ol>		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	34	--	34
<b>General Objectives</b>	In this course, the students are expected to develop a good understanding of the essential topics of medical genetics stated below, and getting aware of the main		

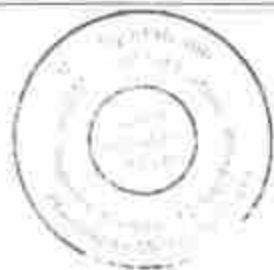


	<p>current techniques in medical and molecular genetics, they should be able to identify them in the natural processes of inheritance, common diseases, and congenital abnormalities.</p> <ol style="list-style-type: none"> <li>1- The strategic status of medical genetics in the health system</li> <li>2- Types of inheritance and their similarities and differences, as well as the ability to distinguish between them</li> <li>3- Important and common human diseases in each of the inheritance types discussed in medical genetics</li> <li>4- Types of congenital anomalies, teratogens and twins and their relationship with medical genetics</li> <li>5- Application of the most important available methods in genetic diagnosis before and after birth</li> <li>6- Epigenetics and human diseases</li> <li>7- Cytogenetic and molecular genetics in humans and their powerful methods in diagnosing human diseases</li> <li>8- Basics and cellular and molecular origins of genetic diseases in humans</li> <li>9- Principles of genetic counseling and its strategic position in determining risk and the inherited pattern of disease*</li> <li>10- Powerful methods of genetic engineering in medicine</li> <li>11- Powerful methods of gene therapy and its important technique</li> <li>12- Powerful methods of cancer genetics and important techniques of its diagnosis and treatment</li> <li>13- The status of pharmacogenetic and necessity of individual medicine</li> <li>14- Important genetic approaches and methods in the prevention, identification, and treatment of diseases</li> </ol>
<b>Course Description</b>	<p>Familiarity with cellular and molecular genetics; various hereditary patterns; the role and application of genetic counseling in identifying disease, determining hereditary patterns and risks; introducing powerful cellular and especially molecular methods in identifying, diagnosing, and preventing important genetic diseases; gene therapy, cancer genetics, epigenetics, and pharmacogenetics.</p>
<b>Essential Course Contents</b>	<ol style="list-style-type: none"> <li>1- History, position, importance, and applications of medical genetics and vision</li> <li>2- Clinical cytogenetic: Necessary preparations, procedures of chromosome abnormalities</li> <li>3- Molecular genetics and gene mutations, importance and applications</li> <li>4- Function / expression of genes and its regulation</li> <li>5- Principles of genetic counseling, analysis and application of genealogy in single gene diseases</li> <li>6- Single gene inheritance patterns in human diseases (Mendelian inheritance)</li> <li>7- Single gene inheritance patterns in human diseases (holandric inheritance)</li> <li>8- Multifactorial inheritance, cytoplasmic inheritance and immune inheritance</li> <li>9- Congenital anomalies, teratogens and twins</li> <li>10- Genetic engineering and its applications in medicine</li> <li>11- The latest molecular diagnosis techniques before and after birth</li> </ol>



	12- Epigenetics and human diseases 13- Gene therapy in humans, the main current methods and introducing important examples 14- Application of viral and non-viral vectors in gene therapy 15- Cancer genetics, current methods of gene therapy in cancer along with important examples 16- Pharmacogenetics and medicine based on personal characteristics (individualized medicine)
Notes:	<p>*An optional course of clinical genetics can be designed and held in centers that meet the requirements with the approval of the Genetics and General Medicine Boards. In this case, medical genetic counseling can be held as a workshop.</p> <p>**Genetics courses are removed from the Basic Sciences Comprehensive exam and placed in the comprehensive Final Exit Assessments.</p>

Course Code	125		
Course Name	General Principles of Nutrition		
Course Level	Basic Sciences / Clinical Preliminaries (according to the curriculum approved by the university)		
Prerequisite Courses	Cellular and Molecular Biochemistry		
Course Type	Theoretical	Practical	Total
Credit Hours	34	--	34
General Objectives	<p>At the end of this course, the students should understand the basic concepts of nutrition:</p> <ol style="list-style-type: none"> <li>1- General effects of nutrition on health</li> <li>2- Food groups of nutrients (macronutrients and micronutrients, including vitamins, minerals, food sources, and symptoms of their deficiency and toxicity)</li> <li>3- Generalities of nutrition in different population groups</li> <li>4- Adjusting nutritional recommendations in different people</li> </ol>		
Course Description	<p>In this course, the students get acquainted with the generalities of nutrition, nutritional characteristics of energy and food groups, and learn the general principles of nutrition in pregnant and lactating mothers, children and the elderly, so that they can make a nutritional evaluation based on these principles.</p>		



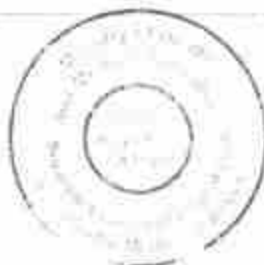


<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- Generalities of nutrition and health and nutritional recommendations</li> <li>2- Food groups</li> <li>3- Carbohydrates (sugars, dietary fiber, nutritional importance of different carbohydrates and the need for carbohydrates)</li> <li>4- Fats (nutritional importance different fats and the need for fats)</li> <li>5- Proteins (complete and incomplete proteins, quality of proteins, nitrogen balance, and the need for proteins)</li> <li>6- Energy</li> <li>7- Fat-soluble vitamins (food sources, deficiency, and toxicity)</li> <li>8- Water soluble vitamins (food sources, deficiency)</li> <li>9- Minerals and water (food resources, deficiency)</li> <li>10- Obesity and general malnutrition (diseases caused by malnutrition)</li> <li>11- Nutrition in pregnant and lactating mothers</li> <li>12- Nutrition in children</li> <li>13- Nutrition in the elderly</li> <li>14- evaluating the status of nutrition</li> <li>15- Principles of diet planning</li> </ol>
<b>Notes</b>	<p>This course can be offered either as a basic science course, or as a clinical preliminary course. The questions of this course will be eliminated from the Basic Sciences Comprehensive exam and will be included, instead, in the Final Exit Assessments.</p>

<b>Course Code</b>	126		
<b>Course Name</b>	Medical Physics		
<b>Course Level</b>	Basic Sciences / Clinical Preliminaries (according to the curriculum approved by the university)		
<b>Prerequisite Courses</b>	Not required		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	30	8	38
<b>General Objectives</b>	<ol style="list-style-type: none"> <li>1- Familiarity of medical students with the basics of physical imaging methods and measuring in vivo anatomical and physiological changes</li> <li>2- Familiarity with how common diagnostic imaging methods are selected for patients</li> <li>3- Familiarity with how the changes resulting from diseases are analyzed and interpreted using diagnostic devices</li> </ol>		
<b>Course Description</b>	<p>In this course, the students will get acquainted with physics and generalities of diagnostic methods and related devices so that, in the following stages of education, they can understand the algorithms for selecting and requesting diagnostic methods. especially imaging techniques for the patients, will be able to distinguish noise and</p>		



	imaging errors from disease and pathological changes after receiving the results or images of the patients.
<b>Essential Course Content</b>	<p>1- Physics of vision:</p> <ul style="list-style-type: none"> <li>- Importance and properties of visible light, infrared radiation, ultraviolet ray and their medical uses</li> <li>- Physical study of the eye, diagnosis and correction of spherical abnormalities</li> <li>- Basics of astigmatism physics and ways to correct it</li> <li>- Basics of retina profile physics, visual field, visual acuity, color vision, and ophthalmoscopy</li> <li>- Basics of the physics of binocular vision, hyperopia, understanding the protrusion of objects</li> <li>- Basics of the physics of common lens equipment used in medicine</li> <li>- Practical program</li> </ul> <p>2- Ultrasound waves and their medical uses</p> <ul style="list-style-type: none"> <li>- Production and properties of ultrasound waves</li> <li>- Chemical and biological properties of ultrasound waves</li> <li>- Application of ultrasound waves in medicine</li> <li>- Basics of the physics of common ultrasound equipment in medicine</li> <li>- Practical program</li> </ul> <p>3- Uses of frequency currents in medicine</p> <ul style="list-style-type: none"> <li>- Production and properties of high frequency currents</li> <li>- Physiological properties and applications of high frequency currents in medicine (electrical surgery, heat therapy)</li> <li>- The harmful effects of electricity on the body and protection techniques</li> <li>- Basics of Magnetic Resonance Imaging (MRI) (image formation mechanism)</li> <li>- Different contrasts in MRI</li> <li>- Diagnostic applications of MRI</li> <li>- Basics of the physics of the common equipment of high-frequency currents used in medicine</li> </ul> <p>4- Nuclear medicine</p> <ul style="list-style-type: none"> <li>- Structure of atoms and nuclear energy</li> <li>- Radioactivity and its properties (ionizing rays)</li> <li>- Natural radioactivity</li> <li>- Neutrons, artificial radioactivity</li> <li>- Detection and measurement of radioactivity</li> <li>- Labeled molecules and their medical applications</li> <li>- Applications of radioisotopes in diagnosis and treatment</li> <li>- Practical program</li> </ul> <p>5- Basics of the physics of radiology and radiotherapy</p> <ul style="list-style-type: none"> <li>- The nature and properties of X-ray in diagnosis and treatment</li> </ul>



	<ul style="list-style-type: none"> <li>- X-ray generators</li> <li>- X-ray absorption and measurement</li> <li>- Radiobiology</li> <li>- Protection and principles of X-ray and gamma radiation dosimetry</li> <li>- Practical program</li> </ul> <p>6- Applications of robotic in medicine</p>
Notes	<p>*This course can be offered either as a basic science course, or as a clinical preliminary course.</p> <p>**The questions of this course will be eliminated from the Basic Sciences Comprehensive exam of and will be included in the Final Exit Assessments.</p>

**Microbiology and Parasitology courses:**

Medical Bacteriology

Medical Parasitology

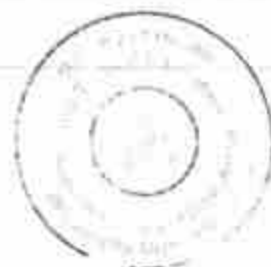
Medical Mycology

Medical Virology

Course Code	127		
Course Name	Medical Bacteriology		
Course Level	Basic Sciences		
Prerequisite Courses	Not required		
Course Type	Theoretical	Practical	Total
Credit Hours	41	20	61
General Objectives	<p><b>The Cognitive Objectives:</b></p> <p>By the end of this course, the learners are expected to have acquired the following skills:</p>		

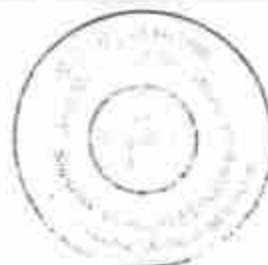


	<ol style="list-style-type: none"> <li>1- Identifying the habitat of microbes in nature, their naming and classification, and the differences between prokaryotic and eukaryotic cells</li> <li>2- Familiarity with the anatomical structure, biochemistry, metabolic properties, growth physiology, and genetic exchanges between microorganisms</li> <li>3- Identifying the mechanism of action and effects of various antimicrobial substances (antibiotics, etc.), chemicals and physical agents on microorganisms and mechanisms of drug resistance of pathogenic bacteria</li> <li>4- Understanding the concepts of natural microflora of the human body, nosocomial infections, mechanisms of creation of disease by microbes, transmission of infection, and the stability of pathogens in the body</li> <li>5- Familiarity with the classification of families and different genera of bacteria that cause disease in humans</li> <li>6- Identification of major pathogenicity indices and the formation mechanisms of infections caused by bacteria</li> <li>7- Identification of the methods sampling, time of sampling, and transporting the samples to laboratory for the detection of pathogenic bacteria</li> <li>8- Identification of contamination cases in laboratory test results</li> </ol> <p><b>The Psychomotor Objectives:</b></p> <p>At the end of this course, the students are expected to be able to:</p> <ol style="list-style-type: none"> <li>1- Prepare smears from the samples taken from pharynx, wounds, urine, and mucous membranes, and stain them using the Gram staining method.</li> <li>2- Culture clinical specimens taken from wounds, urine, feces, and mucous membranes.</li> <li>3- Perform the antibiogram test and interpret the results by selecting the appropriate antibiotics.</li> </ol>
<b>Course Description</b>	<p>In this course, the students will get familiar with the general concepts of bacteria and their classification, especially important human pathogenic bacteria; and based on this information, they will learn various aspects of bacterial infectious diseases in a practical way. By developing an awareness of the beneficial and harmful effects of microorganisms on human life, and getting familiar with various of pathogenic bacteria; classification; structure; growth physiology; metabolism; biochemical, genetics, antigenic and molecular properties; formation of diseases and their transmission, they will learn how to control, prevent, and eradicate bacterial diseases.</p>
<b>Notes</b>	



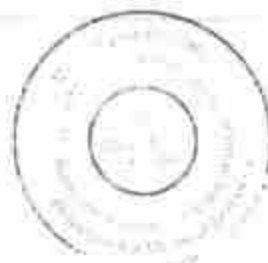


	See (below) the tables of theoretical topics of bacteriology and the essential content of practical activities of the bacteriological laboratory.
<b>*Theoretical Topics of Bacteriology</b>	
1-	Classification of microorganisms, anatomical and chemical structure of bacteria
2-	Growth physiology and metabolism of microorganisms
3-	Genetics of microorganisms
4-	Antibiotics (mechanism of action and classification)
5-	Mechanisms of resistance to antibiotics
6-	The effect of chemical and physical factors on microorganisms
7-	Microbiome, normal flora and probiotics, host-parasite relationship
8-	Mechanisms of disease formation by bacteria, types of infections (hospital-acquired and out-of-hospital infections)
9-	Gram positive cocci
10-	Gram negative cocci
11-	Corynebacteria, Listeria, Lactobacillus, Actinomyces, and Nocardia
12-	Enterobacteriaceae (Escherichia, Proteus, Enterobacter, Klebsiella, and Serachia)
13-	Enterobacteriaceae (Salmonella, Shigella, and Yersinia)
14-	Mycobacterium tuberculosis, Mycobacterium leprosy, and other mycobacteria
15-	Pseudomonas, Acinetobacter, and other non-fermenters
16-	Vibrionae, Campylobacter, and Helicobacter
17-	Bacillus (bacillus anthracis) and anaerobic gram-negative bacilli (bacterioids)
18-	Clostridium tetani and Clostridium butylinum, Clostridium perfringens and Clostridium difficile
19-	Brucella, Haemophilus, Chlamydia, and Mycoplasma
20-	Tribunama, Borrelia, Leptospira, Bordetella, and Legionella
<b>*Essential content of practical activities of the bacteriological laboratory</b>	
1-	Laboratory safety tips
2-	Clinical sampling methods



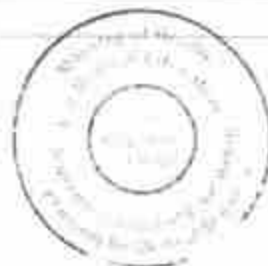
3-	Slide preparation, and gram staining and Giemsa and Wright
4-	Cultivation of selective gram-positive cocci and gram-negative bacilli
5-	Observing the stained smears of common diseases
6-	Laboratory diagnosis of common bacteria and interpretation of tests
7-	Interpretation of antibiogram samples

<b>Course Code</b>	128		
<b>Course Name</b>	Medical Parasitology		
<b>Course Level</b>	Basic Sciences		
<b>Prerequisite Course</b>	Not required		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	28 hours	12 hours	40 hours
<b>General Objectives</b>	<p>By the end of this course, the students are expected to be familiar with pathogenic parasitic agents, to recognize important pathogenic parasites belonging to protozoa and helminths groups, to know the morphology, lifecycle, modes of transmission, reservoirs, hosts, and the role of the arthropods as biological and mechanical carriers in the transmission, pathogenicity, and specific clinical signs of each. Students should become aware of the geographical distribution of each of the parasitic infections, their incidence and prevalence, especially in different regions of Iran, and should know the prevention and control methods for each of the parasitic diseases.</p>		
<b>Course Description</b>	<p>At the end of this course, the students will be familiar with etiological factors, life cycle, mode of transmission, pathogenesis, sampling methods, laboratory test types and diagnostic methods, and prevention and control methods of parasitic diseases (with reference to their clinical cases).</p>		
<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- Generalities of the medical parasitology</li> <li>2- Generalities of the helminthology</li> <li>3- Liver trematodes</li> <li>4- Pulmonary trematodes</li> <li>5- Intestinal trematodes</li> <li>6- Blood trematodes</li> <li>7- Intestinal Cestodes</li> <li>8- Diseases caused by larva of cestode</li> <li>9- Nematodes</li> <li>10- Blood and tissue nematodes</li> <li>11- Generalities of protozoa</li> <li>12- Factors causing blood-tissue protozoan diseases</li> </ol>		



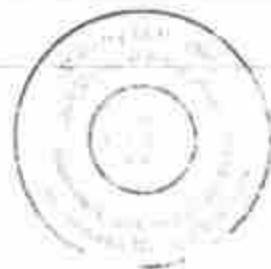
	<p>13- Factors causing intestinal-genital protozoan diseases</p> <p>14- Prevalent parasites such as: Toxoplasma, Leishmania, Malaria, Opportunistic protozoa and hydatid cysts</p> <p>15- Interpretations of the serological tests for various parasitic diseases</p> <p>16- Principles of sampling for parasites</p> <p>17- Generalities of arthropods</p> <p>18- Protective measures against various types of arthropods</p> <p><b>Topics of practical parasitology:</b></p> <p>1- Observation of the prepared smears of common parasites and their eggs under the microscope through case presentations</p> <p>2- Sampling methods and preparation of parasite smears and their microscopic examinations</p> <p>3- Interpretation of serological tests of parasitic diseases (Case presentation and real tests).</p>
Notes	

Course Code	129		
Course Name	Medical Mycology		
Course Level	Basic Sciences		
Prerequisite Course	Not required		
Course Type	Theoretical	Practical	Total
Credit Hours	15 hours	4 hours	19 hours
General Objectives	<p>At the end of this course, the students are expected to be able to identify important pathogenic fungi, and to recognize the various fungal infection-causing agents. Students should become aware of the geographical distribution of each fungal infection and the status of their incidence and prevalence especially in various regions of Iran. Also, they are expected to be able to diagnose various fungal diseases using slides, and recognize the methods of prevention and control of each fungal disease and explain them.</p>		
Course Description	<p>In this course, the students become familiar with etiological factors of fungal diseases. They will learn the modes of transmission, pathogenesis, and prognosis of each. Laboratory diagnosis, requesting test types, and familiarity with the principles of treatment with effective and common medications available in the country, and familiarity with methods of prevention and control of these diseases are among major educational topics in the Medical Mycology course.</p>		



<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- Generalities of medical mycology</li> <li>2- Factors causing superficial fungal diseases</li> <li>3- Factors causing skin fungal infections (cutaneous)</li> <li>4- Factors causing under-skin fungal diseases (subcutaneous)</li> <li>5- Factors causing systemic fungal pathogens including fungal infections in immunocompromised patients</li> <li>6- Molds, candida Albicans, Aspergillus, Mucor mycosis, Tinea and other prevalent cases</li> <li>7- Morphological and biological characteristics of the fungal agents</li> <li>8- Life cycle of the fungal agents, biological factors, environmental factors and other individual factors affecting their evolution</li> <li>9- The main reservoir, final and mediate hosts of each fungus, and the biological role of vectors in the development and evolution of fungal agents</li> <li>10- Epidemiological characteristics, geographical spread, clinical and pathological signs of fungal diseases</li> <li>11- Various laboratory diagnostic methods of fungal infections</li> <li>12- Principles of the treatment of fungal diseases and their sensitivity to common drugs</li> <li>13- Ways to control and prevent pathogenic fungal agents</li> </ol> <p><b>General practical topics:</b></p> <ul style="list-style-type: none"> <li>- Observing prepared slides of the common fungi under the microscope with clinical case presentations</li> <li>- Sampling, smear slide preparation using KOH method, microscopic examinations and sample detection for fungi.</li> </ul>
<b>Notes</b>	

<b>Course Code</b>	130		
<b>Course Name</b>	Medical Virology		
<b>Course Level</b>	Basic Sciences		
<b>Prerequisite Course</b>	Not required		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	17 hours	-	17 hours
<b>General Objectives</b>	<ol style="list-style-type: none"> <li>1- Familiarity with generalities of virology</li> <li>2- Recognizing the structure, characteristics, properties, and proliferation of pathogenic viruses in relation to clinical phenomena (symptoms, pathology, incidence and epidemiology) of viral infections in humans</li> </ol>		





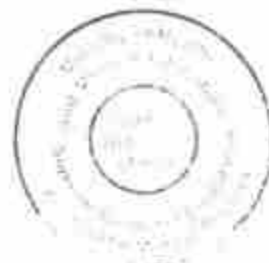
	3- Familiarity with different diagnostic methods and application of virologic methods for understanding clinical and epidemiological phenomena of viral infections
<b>Course Description</b>	This course is offered to familiarize the students with the generalities of virology, characteristics of pathogenic viruses, and methods of diagnosis and epidemiology of the viral infections in Iran.
<b>Essential Course Content</b>	<p><b>1- Generalities of virology</b></p> <ul style="list-style-type: none"> <li>- Introduction and history</li> <li>- Structure and molecular biology of viruses</li> <li>- Properties of viruses</li> <li>- Replication of viruses</li> <li>- Virus and host cell interactions</li> <li>- Laboratory methods for diagnosing viral diseases</li> <li>- Bacteriophages</li> </ul> <p><b>2- Systematic virology</b></p> <ul style="list-style-type: none"> <li>- Classification of viruses</li> <li>- Recognizing the characteristics and pathogenic role of DNA viruses in diseases</li> <li>- Recognizing the characteristics and pathogenic role of RNA viruses in diseases.</li> <li>- Common pathogenic viruses in body systems</li> <li>- The role of viruses in the formation of cancer</li> <li>- General mechanisms of the effects of drugs on viruses</li> </ul>
<b>Notes</b>	

#### Immunology courses:

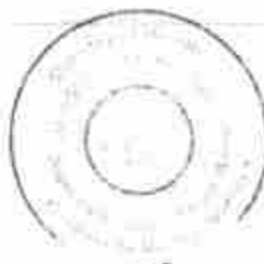
Medical Immunology

Clinical Immunology

<b>Course Code</b>	131		
<b>Course Name</b>	Medical Immunology		
<b>Course Level</b>	Basic Sciences/Clinical Preliminaries		
<b>Prerequisite Course</b>	Not required		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	30 hours	8 hours	38 hours



<b>General Objectives</b>	<p><b>The Cognitive Domain:</b></p> <p>At the end of this course, the students should become familiar with the basics of immunology, organs, molecules and cells involved in the immune system, and understand different mechanisms of the immune system in dealing with foreign agents. Also, they are expected to learn the immune responses to various diseases including infectious diseases, cancer, autoimmunity, and transplantation, and understand the immune mechanisms in identifying and diagnosing various diseases.</p> <p><b>The Psychomotor Domain:</b></p> <p>The students are expected be familiarized with the way immunological and serological diagnostic methods are administered and their application in diagnosing various diseases; analysis of immunological and serological tests (either positive or negative); performing various immunological and serological tests, including agglutination tests, perspiration, hemolysis, etc.</p>
<b>Course Description</b>	<p>This course is designed to familiarize students of medicine with the basic concepts of immunology, cells and molecules involved in the immune system, the role of immune system in various diseases and the function of different components of the immune system (innate immunity and acquired immunity), different effective immune cells including innate and adaptive immunity cells, B and T lymphocytes and how they respond to antigens, the phenomenon of tolerance and its role in autoimmune diseases, the way the immune system responds to pathogens, the function of the immune system in the case of transplantation, the way the immune system responds to cancer, the way the immune system responds to hypersensitivity and allergic reactions; using molecules, antibodies, and immune cells in the diagnosis and treatment of various diseases.</p> <p>In the practical part, this immunology course has been designed to familiarize medical students with the common serological diagnostic methods used to diagnose infectious (parasitic, bacterial, viral and fungal) diseases, blood groups, autoimmune diseases, cancer, etc. In this course, students perform simple serological laboratory procedures in the laboratory and observe the interpretations of test results. They are also introduced to more specialized tests and their applications in the diagnosis of diseases in a descriptive manner.</p>
<b>Essential Course Contents</b>	See the table of theoretical concepts in medical immunology.
<b>Notes</b>	The questions of this course will be removed from the Basic Sciences Comprehensive exam, and will be included in the Final Exit Assessments.
<b>Topics of the theoretical concepts in medical immunology</b>	
1- Generalities of the immune system: History, generalities of innate and adaptive immunity, generalities of humoral and cellular immunity, types of immunization and immunity	



2- Cells and tissues of the immune system, mucosal and skin immunology:

Cells: A reference to lymphocytes, monocytes, and granulocytes

Tissues: Central and peripheral lymphatic organs

Introduction to the anatomic and cellular structure of mucosal systems, familiarity with organized and dispersed mucosal lymph organs, the role of IgA in breast milk immunity

- 3- Introduction of antigens and their properties: Immunogen, hapten, tolerogen, allergen, superantigen and mitogen, thymus-dependent and -independent antigens
- 4- Familiarity with antibodies and their types: The structure of antibodies, types of immunoglobulins, functions of immunoglobulins
- 5- Innate immunity and inflammation: Detection procedure in innate immunity, cellular receptors of innate immunity, cells of the innate immunity, molecules of innate immunity, acute and chronic inflammation process
- 6- Complement system and its role in body defense: Ways of complement activation, complement functions, inhibitory receptors
- 7- Familiarity with MHC system and immunogenetics: Basics of MHC genetics and its circulation, the structure of MHC molecules, their maintenance method, their role in the immune system
- 8- The process of phagocytosis and presentation of antigens to T-cells: Phagocytosis, respiratory explosion, the process of antigen processing and presentation in endocytic and cytosolic pathways
- 9- Mechanisms of humoral immunity: An overview of evolution of B lymphocytes, activation of B lymphocytes, the role of T lymphocytes in the humoral immunity of antigen removal process in humoral responses
- 10- Mechanisms of immune cells: An overview of evolution of T lymphocyte, activation of T lymphocytes, different patterns of cellular immunity response, antigen removal process in cellular responses
- 11- Mechanisms of tolerance and autoimmunity: Types of tolerance (central and peripheral), central tolerance in T and B cells peripheral tolerance in T and B cells, mechanisms of tolerance failure and autoimmunity development
- 12- Cytokines

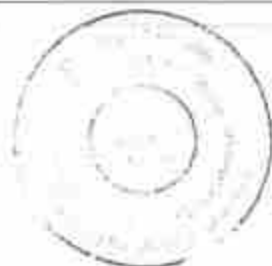
Topics of practical concepts in medical immunology

- 1- An introduction to serological methods and antigen and antibody reactions
- 2- Performing C-reactive protein (CRP) tests and familiarity with their applications and interpretations
- 3- Performing Rheumatoid arthritis latex (RA- Latex) tests, and familiarity with its applications and interpretations as well as its false positive and negative cases
- 4- Performing Widal and Wright tests and familiarity with their applications and interpretations, as well as their false positive and negative cases
- 5- Performing direct and indirect grouping ABO tests and familiarity with their application, performing Rh-du test and knowing its applications in blood transfusions
- 6- Demonstration of direct and indirect Coombs's tests and complete familiarity with their applications
- 7- Performing cross-matching tests (blood group compatibility) and familiarity with their interpretations and application, also considering the factors that are necessary in blood transfusions
- 8- Anti-CCP for arthritis rheumatoid
- 9- RPR for syphilis



Note: Tests for the diagnosis of various diseases based on active and passive agglutination, latex agglutination, flocculation ELISA should be explained theoretically and performed in practice.

<b>Course Code</b>	132		
<b>Course Name</b>	Clinical Immunology		
<b>Course Level</b>	Clinical Preliminaries		
<b>Prerequisite Course</b>	Medical Immunology		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	17 hours	-	17 hours
<b>General Objectives</b>	<ol style="list-style-type: none"> <li>1- Familiarity with the basics of applied immunology.</li> <li>2- Familiarity with the importance and applications of immunology in the treatment of various diseases.</li> <li>3- Familiarity with immunity cells and molecules that are currently being used in the diagnosis and treatment of various diseases</li> </ol>		
<b>Course Description</b>	<p>The immunology course is designed to familiarize the students of medicine with the importance and application of immunology the role of the immune system in various diseases, the immunopathogenesis of autoimmune diseases, immunopathogenesis of infectious diseases, immunopathogenesis of organ transplant rejection, immunopathogenesis of cancer and applications of immunologic factors in its treatment, immunopathogenesis of hypersensitivity and allergy, usage of molecules, antibodies, and cells of the immune system in the diagnosis and treatment of various diseases.</p>		
<b>Essential Course Content</b>	<p><b>Essential topics:</b></p> <ol style="list-style-type: none"> <li>1- Vaccination and immunization</li> <li>2- Allergies and immediate hypersensitivity, hypersensitivity types 2, 3, and 4</li> <li>3- Immunohematology</li> <li>4- Autoimmune diseases</li> <li>5- Cancer and common immunotherapy types</li> <li>6- Immune deficiency diseases</li> <li>7- Immune responses against bacteria, viruses, parasites, and fungi</li> </ol>		
<b>Notes</b>	<p><b>Optional (Non-Core) topics in immunology</b></p> <ol style="list-style-type: none"> <li>3- Immunology of nutrition and exercise *</li> <li>4- Psychoneuroimmunology*</li> <li>5- Elderly Immunology*</li> <li>6- Immunology and its types*</li> </ol>		





	7- Transplant immunology* 8- Pregnancy immunology*  *These topics can be offered in the General Medicine program as an optional course for 9 hours (0.5 credit) entitled as "Advanced Applied Immunology".
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#### Community Medicine and Health Sciences courses:

Principles of Health Services

Principles of Epidemiology

Medical Statistics

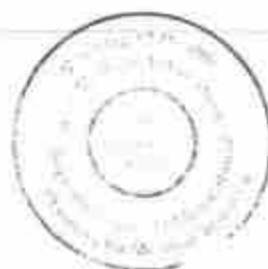
Research Methods and Evidence-Based Medicine

Epidemiology of Common Communicable Diseases of the Country

Epidemiology of Common Non-Communicable Diseases of the Country

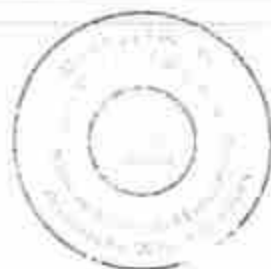
Principles of Demography and Family Health

Course Code	133		
Course Name	Principles of Health Services		
Course Level	Basic Sciences		
Prerequisite Course			
Course Type	Theoretical	Practical	Total
Credit Hours	26 hours	-	26 hours
General Objectives	<p>In this course, the students should become familiar with the generalities and history of health in Iran and the world, and the various systems of healthcare delivery in the world. They should be able to understand the concepts of health and disease, and recognize the threats to health and health transition around the world and in Iran. They are expected to get familiar with the concept of health for every individual as well as all levels of prevention and be able to use primary health care and manage clients and assess risks based on levels of prevention; also, they should get familiar with the role of national and international organizations in health development, get acquainted with the basic concepts of health education and health promotion and establish health communication and educate clients with respect to health services. They need to get acquainted with the goals of sustainable development and recognize the role of social elements affecting health so that they can use them in patient management. They should understand the importance of environmental health and occupational health and recognize their role in promoting public health. They should be familiarized with food hygiene and the role of nutrition in health and be able to apply its principles in related areas. Also, they should understand the importance of oral health, and the health technology assessment. They</p>		



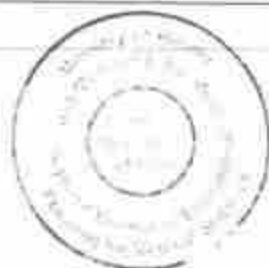
	are expected to be familiar with the immunization program and be able to guide its implementation.
<b>Course Description</b>	In this course, the students will be introduced to the basic and underlying principles of health so that they can practice as a general physician toward maintaining and promoting individual and public health.
<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- Principles and history of public health in Iran and the world. Evolution path including: Health for All (HFA), Millennium Development Goals (MDGs), Primary Health Care (PHC), Universal Health Coverage (UHC)</li> <li>2- Concepts of health and disease and levels of prevention</li> <li>3- Primary Health Care System 1 –(PHC1)</li> <li>4- Primary Health Care System 2 –(PHC2)</li> <li>5- Health image in the world and Iran based on indicators</li> <li>6- Local, national, and international health-related organizations</li> <li>7- Health-related environmental factors (air, water, solid waste and waste, food)</li> <li>8- Health-related social determinants*</li> <li>9- Health and safety of the workplace</li> <li>10- Principles and generalities of immunization</li> <li>11- Principles of health service management</li> <li>12- Health education and promotion</li> <li>13- Rights of recipients of healthcare services</li> </ol>
<b>Notes</b>	

<b>Course Code</b>	134		
<b>Course Name</b>	Principles of Epidemiology		
<b>Course Level</b>	Basic Sciences		
<b>Prerequisite Course</b>			
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	34 hours	-	34 hours
<b>General Objectives</b>	<p>The students are expected to achieve the following objectives after passing this course:</p> <ol style="list-style-type: none"> <li>1- Familiarity with the definition, usage, history, and concepts of epidemiology</li> <li>2- Understanding and applying the methods of disease transmission, diagnosis of an epidemic and its control</li> <li>3- Understanding the concepts of disease incidence, measures of health and disease, and the health care system</li> <li>4- Calculating and interpreting the measures of diseases</li> <li>5- Understanding the concept of natural history and prognosis of the diseases</li> <li>6- Identifying and applying the classification of studies in medical sciences research</li> </ol>		



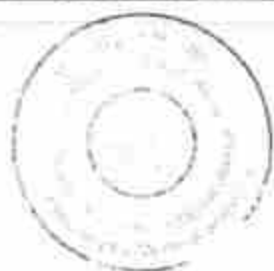
	7- Understanding and applying risk assessment 8- Understanding the difference between association, causation and Hill's criteria 9- Identifying the criteria of validity of diagnostics tests Calculating the reliability and validity of tests and establishing a relation between them and the principles of diseases screening
<b>Course Description</b>	In this course, the students will get acquainted with the basic and fundamental principles of epidemiology, so that they can practice as a general practitioner toward maintenance and promotion of individual and public health by recognizing the epidemiological image of diseases and indicators as well as their rates.
<b>Essential Course Content</b>	1- Introduction, history, and application of epidemiology 2- Transmission of diseases; epidemics and their control 3- Occurrence of diseases: Care and measures of the morbidity 4- Occurrence of diseases: Mortality and other health estimates 5- Natural history of disease and prognosis 6- Principles of cross-sectional and ecological studies 7- Principles of case-control and cohort studies 8- Risk assessment 9- Principles of interventional studies 10- Evaluation of diagnostic tests 11- Principles and applications of screening 12- Statistical association and causality
<b>Notes</b>	

<b>Course Code</b>	135		
<b>Course Name</b>	Medical Statistics		
<b>Course Level</b>	Clinical Sciences Preliminaries		
<b>Prerequisite Course</b>	Principles of Epidemiology		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	17 hours	-	17 hours
<b>General Objectives</b>	This course is designed for medical students to understand the basics of statistics, identify common terms and concepts and understand considerations related to statistical inferences. Therefore, performing detailed calculations and mastery over statistical techniques except for cases that are essential to achieve the objectives of this course are not among the objectives in this course.		
<b>Course Description</b>	In this course, the students will be introduced to the basic and fundamental principles of biostatistics so that they can practice as a general practitioner toward finding strategies for the maintenance and promotion of individual and public health by conducting various studies and evaluating the previous research.		



<b>Essential Course Content</b>	1- Data description, central and distribution indices 2- Probability, its types and applications in medicine 3- Normal distribution and its application in medical sciences 4- Binomial and Poisson distributions 5- Point and interval estimation (Confidence Interval) 6- Hypothesis testing and application of statistical software in it 7- Independent t-test and paired t-test and application of statistical software in them 8- Chi-square and correlation tests and application of statistical software in them
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<b>Course Code</b>	136		
<b>Course Name</b>	Research Methods and Evidence-Based Medicine		
<b>Course Level</b>	Clinical Sciences Preliminaries/ Clerkship		
<b>Prerequisite Course</b>	1- Principles of Epidemiology 2- Medical Statistics		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	7 hours	19 hours	26 hours
<b>General Objectives</b>	<p>At the end of this course, the students are expected to explain the framework of a research proposal, prepare a research proposal with all its steps, search for electronic health resources, and describe the general framework and method of writing a scientific article.</p> <p>Also, they should be able to describe the importance and status of the evidence-based medicine, turn clinical and other health-related questions into searchable and formulated questions, and search for the evidence based on the formulated questions. They should also be able to review and criticize a few medical articles in terms of statistics and research methods. They should recognize the principles of ethics in research and be able to apply them in research.</p>		
<b>Course Description</b>	<p>In this course, the students will learn how to conduct research, and search for medical articles and evidence-based medical methods, including criticism of evidence.</p>		
<b>Essential Course Content</b>	1- Selecting the title and statement of the research problem 2- Electronic search for medical resources (1) 3- Objectives, questions, hypothesis and types of variables 4- Population, samples and sampling methods 5- Qualitative research methods 6- Selecting research type 7- Methods of data collection and presentation 8- Ethics in research 9- Research management 10- Scientific methods of writing an article and publishing the result (optional)		

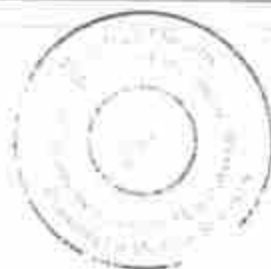




	11- Principles of evidence-based medicine 12- How to create a searchable question 13- Electronic search for medical resources (2) 14- Practical principles of criticizing articles and their application in medicine
Notes	

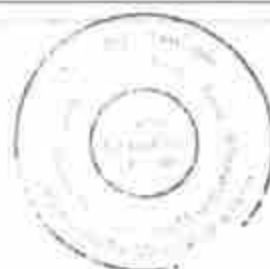
Course Code	137		
Course Name	Epidemiology of Common Communicable Diseases of the Country		
Course Level	Clinical Sciences Preliminaries/ Clerkship		
Prerequisite Course	Principles of Epidemiology		
Course Type	Theoretical	Practical	Total
Credit Hours	17 hours		17 hours
General Objectives	At the end of this course, the students are expected to be able to explain the epidemiology of the communicable diseases in Iran in terms of location and geographical distribution, individual characteristics, risk factors, and their prevention and control methods, and apply this data in clinical settings to determine the best method of prevention and their prognosis estimation.		
Course Description	In this course, the students will get acquainted with the epidemiology of common communicable diseases in the country so that they can practice as a medical doctor toward maintenance and promotion of the individual and public health.		
Essential Course Content	<ul style="list-style-type: none"><li>1- An introduction to the epidemiology of the communicable diseases, the principles of disease care and health care system</li><li>2- Sexually transmitted diseases</li><li>3- Acquired immune deficiency syndrome (AIDS)</li><li>4- Hepatitis</li><li>5- Vaccine-preventable diseases</li><li>6- Influenza and emerging and re-emerging diseases</li><li>7- Gastrointestinal infections (Salmonella, Shigella, Giardiasis, Amoebiasis, Toxoplasmosis and Cholera)</li><li>8- Tuberculosis and leprosy</li><li>9- Epidemiology of shared human-animal diseases (zoonotic diseases)</li><li>10- Vector-borne diseases (Malaria and Leishmaniasis)</li><li>11- Nosocomial diseases and antimicrobial resistance (AMR).</li></ul>		
Notes	offered at the same time with or close to the clerkship course of infectious diseases.		

Course Code	138
Course Name	Epidemiology of Common Non-Communicable Diseases of the Country



<b>Course Level</b>	Clinical Sciences Preliminaries / Clerkship		
<b>Prerequisite Course</b>	Principles of Epidemiology		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	17 hours		17 hours
<b>General Objectives</b>	<p>At the end of this course, the students are expected to explain the epidemiology of the non-communicable diseases in Iran in terms of location and geographical distribution, individual characteristics, risk factors, and prevention and control methods, and apply this data in clinical settings to determine the best method of prevention and prognosis estimation.</p>		
<b>Course Description</b>	<p>In this course, the students will get acquainted with the epidemiology of common non-communicable diseases in the country so that they can practice as a medical doctor toward the maintenance and promotion of individual and public health.</p>		
<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- Introduction to epidemiology of non-communicable diseases, principles of disease care and care system</li> <li>2- Epidemiology of atherosclerosis and hypertension</li> <li>3- Epidemiology of diabetes, obesity, and hyperlipidemia</li> <li>4- Epidemiology of injuries and accidents</li> <li>5- Epidemiology of malignancies (cancers of the breast, lung, stomach, prostate, esophagus, colon, and skin)</li> <li>6- Epidemiology of mental disorders (depression, anxiety, suicide, domestic violence, etc.) and addiction</li> <li>7- Epidemiology of iron deficiency anemia and thyroid diseases</li> </ol>		

<b>Course Code</b>	139		
<b>Course Name</b>	Principles of Demography and Family Health		
<b>Course Level</b>	Clerkship		
<b>Prerequisite Course</b>	Principles of Public Health Services		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	34 hours		34 hours
<b>General Objectives</b>	<p>At the end of this course, the students are expected to understand the evolution and the demographic indicators of Iran and the World, and describe the concepts of sustainable development and demographic policies. They should be able to explain the principles of family health and fertility, and describe care programs in this area, describe the national health child program and the health programs of schools, adolescents and young people, the middle aged and the elderly, and finally understand the importance of mental health and explain its plans.</p>		

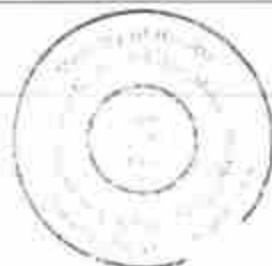


<b>Course Description</b>	In this course, the students will get acquainted with the basic principles of demography and family health so that they can practice as a medical doctor to maintain and promote the individual and community health.		
<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- Population, sustainable development and population policies.</li> <li>2- Principles of family health.</li> <li>3- Principles of the reproductive health and demographic indicators.</li> <li>4- Pre-conception health and counseling.</li> <li>5- Pregnancy, perinatal and postpartum cares.</li> <li>6- Birth spacing and its methods.</li> <li>7- Healthy and high risk infant.</li> <li>8- Promoting breastfeeding</li> <li>9- Physical development of the child from birth to the end of puberty (indicators and assessment methods)</li> <li>10- Comprehensive early childhood development and screening for developmental disorders.</li> <li>11- National Healthy Child program (1), health care and immunization</li> <li>12- National Healthy Child program (2), health promotion</li> <li>13- Students health and school health*</li> <li>14- Adolescent and young adult health*</li> <li>15- Health of the Middle-aged (men and women) *</li> <li>16- Elderly health*</li> <li>17- Mental health</li> <li>18- Violence and social injuries (this topic can be included in any age group)</li> </ol>		
<b>Notes</b>	<p>*Social Determinants of Health (SDH) and Sustainable Development Goals (SDG) from the annual report of the World Health Organization (WHO).</p> <p>**It is recommended that this course be offered simultaneously with the medical clerkship as the theoretical section of Community/Family Medicine.</p>		

<b>Course Code</b>	140		
<b>Course Name</b>	Health Psychology		
<b>Course Level</b>	Basic Sciences / Introduction to Clinical Sciences		
<b>Prerequisite Course</b>			
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	34 hours		34 hours



<b>General Objectives</b>	<p>At the end of this course, the students should:</p> <ol style="list-style-type: none"> <li>1- Know different areas of psychology.</li> <li>2- Be able to define the relationship of human characteristics to the promotion of physical and mental health while getting familiar with general psychological characteristics of human beings, including intelligence, personality, memory, cognition, emotions and learning.</li> <li>3- Reach a comprehensive understanding of the role of psychological factors in promoting health, improving quality of life and preventing physical and mental disorders.</li> </ol>
<b>Course Description</b>	<p>By using the concepts of this course, the students will be able to achieve a broad picture of the relationship between mind and body, and consider the role of psychological factors in preventing the incidence and accelerating the treatment process in their clinical practice.</p>
<b>Essential Course Contents</b>	<ol style="list-style-type: none"> <li>1- Psychology, medicine and health*</li> <li>2- Brain, cognition, emotion and behavior.</li> <li>3- Mental development.</li> <li>4- Health and behavior.</li> <li>5- Motivation, emotion and health.</li> <li>6- Memory, learning and health.</li> <li>7- Stress, immunology and health.</li> <li>8- Mental disorders.</li> <li>9- Rehabilitation and psychological interventions.</li> <li>10- Personality and health.</li> <li>11- Addiction: pathology and complications.</li> <li>12- Suicide: etiology and complications.</li> <li>13- Intelligence.</li> <li>14- Psychometrics**</li> </ol>
<b>Notes</b>	<p>*Emphasis on health dimensions including physical, mental, social, spiritual health and Self/Psychology of Self.</p> <p>**Familiarity with the application of psychometric tests in medicine, including tests:</p> <p>General Health Questionnaire (GHQ)</p> <p>Minnesota - Multiphasic - Personality - Inventory (MMPI)</p> <p>Mindful Cognitive Movement Therapy (MCMT 1)</p>





**Medical Etiquette and Professional Conduct Courses:**

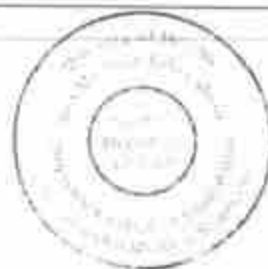
Professional Etiquette and Conduct 1

Professional Etiquette and Conduct 2

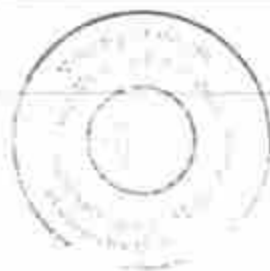
Professional Etiquette and Conduct 3

Professional Etiquette and Conduct 4

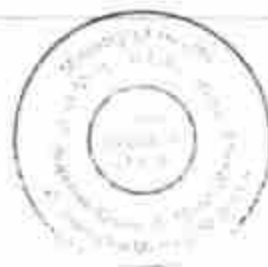
Course Code	141		
Course Name	Professional Etiquette and Conduct 1		
Course Level	Basic Sciences		
Prerequisite Course	Not required		
Course Type	Theoretical	Practical	Total
Credit Hours		17 hours	17 hours
General Objectives	<p><b>The Cognitive Domain Objectives:</b></p> <p>By the end of this course, the students are expected to have familiar with:</p> <ul style="list-style-type: none"> <li>- the set of competencies expected from general medicine students</li> <li>- ethical concepts and principles of professional behavior in medicine</li> <li>- the basic principles of learning in medicine and effective planning for practicing them</li> <li>- the basic knowledge of interpersonal communication skills to establish effective communication with teachers, staff, family and friends</li> </ul> <p><b>The Affective Domain Objectives:</b></p> <p>The students are also expected to:</p> <ul style="list-style-type: none"> <li>- feel responsible for acquiring the expected competencies during their studies and feel obliged to acquire them</li> <li>- pay attention to the special professional status and moral sensitivities in the field of medicine</li> <li>- perform all educational affairs, including assigned tasks and duties in a regular and timely manner</li> <li>- use study skills and time management skills (such as time management, learning style and study management) in setting up their educational activities</li> </ul> <p><b>The Psychomotor Domain Objectives:</b></p> <p>Also, they should:</p> <ul style="list-style-type: none"> <li>- observe the principles of professional behavior in their performance and have behavior and appearance commensurate with the dignity of a medical student</li> <li>- be able to communicate properly with professors, educational and administrative officials and staff</li> <li>- have an effective and intimate expression in interpersonal relationships</li> <li>- be able to establish proper verbal communication and eye contact</li> <li>- be able to listen actively</li> <li>- present an effective planning for learning using the principles of study skills and time management</li> </ul>		



<b>Course Description</b>	<p>Medical Etiquette (1) is considered as part of the longitudinal theme of the professional etiquette in the curriculum of General Medicine, and can be organized and offered in one semester.</p> <p>The course, which is organized in the form of a 0.5-credit workshop (17 hours), describes the key etiquettes and skills that a physician in the medical profession should show. This course begins with an introduction to the competencies of the general medicine course and a description of its importance during the course of study, and continues with a general overview of the basic skills of professional behavior, communication skills and effective learning that a medical student has to learn upon entering the medical profession. By the end of the course, the students are expected to be familiar with these principles and acquire sufficient knowledge and skill to apply them.</p> <p>This course can be presented in the form of several workshops during the semester. To ensure the effectiveness of the course, it is necessary for the university to consider appropriate procedures and tools to evaluate the students' use of the materials learned in workshops.</p>
<b>Essential Course Content</b>	<ul style="list-style-type: none"> <li>- Introducing the competencies expected of a general practitioner</li> <li>- Principles of professional behavior in medicine (1):             <ul style="list-style-type: none"> <li>- Explaining the importance of the student's role as a medical student, and reviewing the principles of professional behavior in medicine</li> </ul> </li> <li>- Interpersonal communication skills (1):             <ul style="list-style-type: none"> <li>- Communication components and barriers to communication</li> <li>- Principles of effective communication (active listening and self-representation techniques)</li> <li>- Using body language (application of nonverbal techniques in communication)</li> </ul> </li> <li>- Basic principles of learning in medicine:             <ul style="list-style-type: none"> <li>- Study skills</li> <li>- Time management skills</li> </ul> </li> </ul>
<b>Notes</b>	<p>*This course is considered as part of the longitudinal theme of the professional etiquette in the curriculum of general medicine. Hence, the evaluation result is reported in a qualitative manner (with four degrees of "above expectations", "acceptable", "with advice to exercise further effort in the next courses of medical etiquette", and "unacceptable"). The first three cases are accepted and in the fourth case, the student fails and has to take the course again.</p> <p>**This course is not included in the comprehensive exam.</p> <p>***The topics suggested for this course should be considered as recommendations, and the university curriculum committee can change these topics up to 40% if necessary.</p>

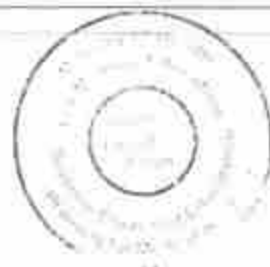


Course Code	142		
Course Name	Professional Etiquette and Conduct 2		
Course Level	Basic Sciences		
Prerequisite Course	-		
Course Type	Theoretical	Practical	Total
Credit Hours		17 hours	17 hours
General Objectives	<p><b>The Cognitive Domain Objectives:</b></p> <p>By the end of this course, the students are expected to:</p> <ul style="list-style-type: none"> <li>- be familiar with the general principles of teamwork, conflict resolution techniques and empathy</li> <li>- explain the steps of reflection and its function in analyzing experiences</li> <li>- be familiar with the general principles of scientific thinking and be able to differentiate thinking standards from each other</li> </ul> <p><b>The Affective Domain Objectives:</b></p> <p>The students are also expected to:</p> <ul style="list-style-type: none"> <li>- show interest in doing group activities and teamwork</li> <li>- implement reflective approaches in personal and professional life</li> <li>- pay attention to thinking and reflection on gained experiences and trying to improve their performance in the face of problems</li> <li>- commit themselves to self-directed learning and keeping their knowledge and skills up to date</li> <li>- adhere to the principles of effective goal setting and planning (such as time management, management of learning and study process) in organizing their educational activities</li> </ul> <p><b>The Psychomotor Domain Objectives:</b></p> <p>Also, they should:</p> <ul style="list-style-type: none"> <li>- be able to work within a team with other students as a team member and to have effective cooperation</li> <li>- apply reflective techniques in their personal and professional life experiences</li> <li>- find solutions for interpersonal conflicts</li> <li>- criticize presented materials and their related intellectual components according to the standards of thinking</li> <li>- identify their educational needs and provide a suitable plan to improve their own learning by evaluating and analyzing their performance</li> </ul>		
Course Description	<p>This course, which is designed in the form of a 0.5-unit workshop (17 hours) including "teamwork and group work workshop" and "reflection and analysis of experiences", describes the key etiquettes and skills that a physician should have in the field of medicine. This course begins by introducing the general principles of teamwork and conflict resolution techniques and applying empathy skills in comparison with sympathy, and continues by presenting generalities related to basic personal development skills, including the steps of an effective reflection and identifying and controlling stress. Finally, considering the need to promote students' practical reflection in studying and learning medicine, various propositions of thinking and reasoning are reviewed along with introducing the components and standards of</p>		



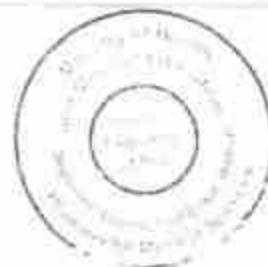
	thinking. At the end of the course, the students are expected to be familiar with these principles and acquire sufficient knowledge and skills to apply them.
<b>Essential Course Content</b>	<ul style="list-style-type: none"> <li>- Interpersonal communication skills (2):             <ul style="list-style-type: none"> <li>- Principles of teamwork</li> <li>- Conflict resolution techniques</li> </ul> </li> <li>- Basic principles of personal development (1):             <ul style="list-style-type: none"> <li>- Managing one's learning through planning</li> <li>- Rethinking skills through reflecting on experiences</li> </ul> </li> <li>- Basic skills of scientific thinking:             <ul style="list-style-type: none"> <li>- Components of thinking</li> <li>- Various propositions of thinking</li> <li>- Standards of thinking</li> </ul> </li> </ul>
<b>Notes</b>	<p>This course is considered as part of the longitudinal theme of the professional etiquettes in the curriculum of general medicine. Hence, the evaluation result is reported qualitatively (with four degrees of "above the expected level", "acceptable", "with a reminder to the student to make more effort in later courses of medical etiquette", and "unacceptable". The first three cases are accepted and in the fourth case, the student fails the course and has to take it again.</p> <p><b>**This course is not included in the comprehensive exam.</b></p> <p><b>***The topics presented for this course are only suggested ones and the university curriculum committee can change these topics up to 40% if necessary.</b></p>

<b>Course Code</b>	143		
<b>Course Name</b>	Professional Etiquette and Conduct 3		
<b>Course Level</b>	Basic Sciences		
<b>Prerequisite Course</b>	Not required		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>		17 hours	17 hours
<b>General Objectives</b>	<p><b>The Cognitive Domain Objectives:</b></p> <p>By the end of this course, the students are expected to:</p> <ul style="list-style-type: none"> <li>- be familiar with the terms and conditions of the clinical setting</li> <li>- be familiar with the performance of healthcare team members and their role in inter-professional cooperation</li> <li>- be aware of the professional position of a doctor in the society and healthcare system, and be able to describe the structure, hierarchy, and responsibilities of each of the components of the national healthcare network</li> <li>- be able to explain argumentative and cognitive errors</li> <li>- differentiate general principles of empathy from sympathy</li> <li>- be familiar with the professional ethics charter in clinical settings</li> </ul>		



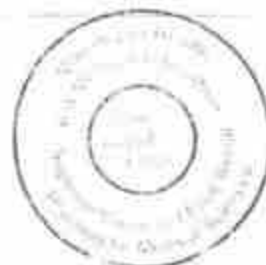


	<p><b>The Affective Domain Objectives:</b></p> <p>The students are also expected to:</p> <ul style="list-style-type: none"> <li>- adhere to honesty and maintaining dignity of the medical profession in virtual settings</li> <li>- pay attention to identifying and controlling cognitive mistakes and errors of the mind</li> <li>- care for empathetic communication with friends and family, and in dealing with patients and their families</li> </ul> <p><b>The Psychomotor Domain Objectives:</b></p> <p>Also, they should:</p> <ul style="list-style-type: none"> <li>- Observing the principles of professional behavior in their practice in virtual settings</li> <li>- Have an appropriate manner and appearance in clinical settings and (including early clinical exposure) in addition to the academic context.</li> <li>- Develop an ability to apply the skill of empathy.</li> <li>- Show a logical argumentation and speech even with regard to errors in argumentation, fallacy, and cognitive errors.</li> </ul>
<b>Course Description</b>	<p>This course consists of 0,5 credit hours (17 hours) of practical content and is designed as workshops on "Cognitive errors and medical errors" and "Early clinical exposure"; it deals with and describes key skills and etiquette that a general doctor should have. This course provides an opportunity for medical students of basic sciences to familiarize with clinical settings by early clinical exposure, and introduces the role and practice of treatment team members in their interprofessional collaboration. Also, the health system structure and a doctor's role are described. Finally, due to the necessity of establishing a relationship with empathy rather than sympathy, it is expected that opportunities are provided for practicing empathy skills. Finally, a review of the generalities of the most common cognitive and argumentative errors are made with the intention of promoting the students' skills in appropriate argumentation. At the end of the course, the students are expected to get acquainted with these principles and to gain adequate knowledge and skills to use them.</p>
<b>Essential Course Content</b>	<ul style="list-style-type: none"> <li>- Familiarity with clinical settings (Early clinical exposure) (1)</li> <li>- Familiarity with the role of the treatment team members and principles of interprofessional collaboration.</li> <li>- Familiarity with the role of medical profession in the society and health care system.</li> <li>- Basic skills in scientific thinking (2) <ul style="list-style-type: none"> <li>o Identifying and controlling cognitive and argumentative errors.</li> </ul> </li> <li>- Interpersonal communication skills (2) <ul style="list-style-type: none"> <li>o Empathy</li> </ul> </li> <li>- Principles of professional behavior in medicine (2) <ul style="list-style-type: none"> <li>o Principles of professional ethics in virtual settings</li> </ul> </li> </ul>
<b>Notes</b>	<p>This course is considered as part of the longitudinal theme of the professional etiquettes in the curriculum of general medicine. Hence, the evaluation result is reported qualitatively (with four degrees of "above the expected level", "acceptable",</p>



	<p>"with a reminder to the student to make more effort in later courses of medical etiquette", and "unacceptable". The first three cases are accepted and in the fourth case, the student fails the course and has to take it again.</p> <p><b>**This course is not included in the comprehensive exam.</b></p> <p><b>***The topics presented for this course are only suggested ones and the university curriculum committee can change these topics up to 40% if necessary.</b></p> <p>This course is not included in the comprehensive exam. The topics presented in this course are only suggested and the university curriculum committee can change these topics up to 40% if necessary.</p>
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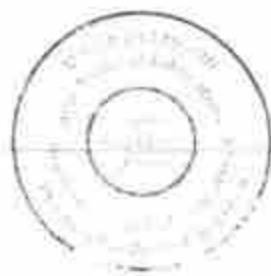
<b>Course Code</b>	144		
<b>Course Name</b>	Professional Etiquette and Conduct 4		
<b>Course Level</b>	Basic Sciences		
<b>Prerequisite Course</b>			
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>		17 hours	17 hours
<b>General Objectives</b>	<p><b>The Cognitive domain objectives:</b></p> <ul style="list-style-type: none"> <li>- Familiarity with the medical students' responsibilities and roles in the treatment team.</li> <li>- Recognizing the signs and situations leading to anger.</li> <li>- Listing the signs of anxiety and describing the coping mechanisms against stress.</li> <li>- Familiarity with the concepts, principles and general methods and the use of counselling in medicine and patient education.</li> <li>- Explain the appropriate principles of presenting effective lectures.</li> <li>- Familiarity with the appropriate principles of audio and visual instruments (including PowerPoint).</li> <li>- Describing the correct principles of providing feedback.</li> </ul> <p><b>The Affective objectives:</b></p> <ul style="list-style-type: none"> <li>- Adhere to behaviors that reflect the honesty and dignity of the medical profession.</li> <li>- Emphasize the importance of professional behavior in clinical settings.</li> <li>- Show responsibility towards a moral approach to patients and their families as well as their professional interactions.</li> </ul> <p><b>The Psychomotor objectives:</b></p> <ul style="list-style-type: none"> <li>- Applying the anger suppression strategies adaptive strategies under certain circumstances.</li> <li>- Recognizing stressful situations and properly face them using principles of stress management skills.</li> <li>- Successfully presenting lectures using proper techniques of expression in front of students.</li> <li>- Using principles of scientific design, prepare audiovisual content for presentations.</li> <li>- Applying strategies for providing effective feedback under certain circumstances.</li> </ul>		



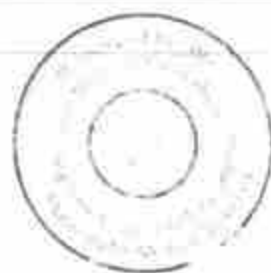
<b>Course Description</b>	<p>This course consists of 0.5 credit hours (17 hours) of practical content and is designed as workshops on "Anger control and stress management" and "Principles of lecturing and expressing techniques"; it deals with and describes key skills and etiquette that a general doctor should have. This course provides an opportunity for medical students to familiarize with the expected role of a clinical stage student of medicine as a treatment team member, and discusses and emphasizes the ethical principles in clinical settings. The course introduces skills of stress management and anger control in the likely situations. Due to the necessity of acquiring skills in effective lecturing for medical students, the course will include principles of expressing techniques, designing PowerPoint slides and provision of effective feedback. At the end of the course, the students are expected to get acquainted with these principles and to gain adequate knowledge and skills to use them.</p>
<b>Essential Course Content</b>	<ul style="list-style-type: none"> <li>- Familiarity with clinical settings (Early clinical exposure 2)</li> <li>- Basic principles of personal development 2</li> <li>- Anger and anger management</li> <li>- Stress management</li> <li>- Familiarity with effective feedback provision</li> <li>- Counselling:</li> <li>- Familiarity with concepts, rules and goals of counseling and patient education</li> <li>- The process of counselling</li> <li>- Essential capabilities and skills in counselling, the professional role of the physician in counseling and patient education</li> <li>- Familiarity with the principles of scientific presentation (effective lecturing)</li> <li>- Principles of preparing slides in PowerPoint</li> <li>- Techniques of expressing skills and effective lecturing</li> <li>- Principles of professional conduct in medicine (2):</li> <li>- Sticking to professional ethics in clinical environment (professional ethics charter), observation, case discussion, and limited research</li> </ul>
<b>Notes</b>	<p>This course is intended as part of the longitudinal theme of the professional etiquette in the general medicine curriculum. Hence, the evaluation result is reported to be qualitative (with four degrees "more than expected", "acceptable", "with a reminder to the student to have more effort in later courses of medical etiquette", and "unacceptable").</p> <p>The first three cases are accepted and the fourth case is rejected and the student has to take the course again.</p> <p>This course is not included in the comprehensive exam. The topics presented in this course are only suggested and the university curriculum committee can change these topics up to 40% if necessary.</p>

**English for Specific Purposes:**

English for Medical Purposes 1  
English for Medical Purposes 2



<b>Course Code</b>	145		
<b>Course Name</b>	English for Medical Purposes I		
<b>Course Level</b>	Basic Sciences		
<b>Prerequisite Course</b>	General English Language		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	51 hours	-	51 hours
<b>General Objectives</b>	<p>At the end of this course, the students should be able to read and understand English medical texts, understand academic/medical terms and vocabulary, speak fluently about medical topics in practice and grasp what others are saying about medical topics at an appropriate pace. Also, they are expected to understand the importance of English in extracurricular tasks at a given time and in a team work (as an affective domain objective).</p>		
<b>Course Description</b>	<p>Due to the growing need of medical students and graduates to read medical books and articles in order to increase and update their medical knowledge and conduct research on various topics related to this field, this course is intended to increase their competence and performance in the reading and comprehension of medical texts. For this purpose, most of the class time (about two thirds) is devoted to teaching techniques related to reading and comprehending texts.</p> <p>In this course, the students' need to speak English in face-to-face and virtual settings are also considered. Therefore, part of the class time is dedicated to practicing and developing aural and oral techniques. In this regard, the language class should be held in English. In addition, each student will be required to deliver at least a 5 minute lecture in class.</p>		
<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- Physiology of human body</li> <li>2- Anatomy of human body</li> <li>3- Molecular change</li> <li>4- Traditional medicine</li> <li>5- Hepatitis</li> <li>6- Surgery</li> <li>7- Ebola</li> <li>8- Cardiovascular system (1)</li> <li>9- Cardiovascular system (2)</li> <li>10- HIV AIDS</li> <li>11- Cancer</li> <li>12- Diagnosis</li> <li>13- Epidemiology (1)</li> <li>14- Epidemiology (2)</li> <li>15- Public health (1)</li> <li>16- Public health (2)</li> <li>17- Pain (1)</li> <li>18- Pain (2)</li> <li>19- Medical terminology (1)</li> <li>20- Medical terminology (2)</li> </ol>		
<b>Notes</b>	<p>The language classes must be conducted in English. During the semester, a variety of texts related to topics that students deal with in both Basic Sciences and Clinical Practice presented to improve their reading comprehension and conversational skills.</p>		





<b>Course Code</b>	146		
<b>Course Name</b>	English for Medical Purposes 2		
<b>Course Level</b>	Basic Sciences		
<b>Prerequisite Course</b>	English for Special Purposes 1		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	51 hours	-	51 hours
<b>General Objectives</b>	At the end of English for Medical Purpose 2, medical students should be able to easily read and comprehend English medical texts with a higher level of difficulty; and in line with English for Medical Purposes 1, they are expected to understand and use more medical terms and vocabulary, speak fluently about medical topics and have gained a better understanding of medical discourse. Students also need to be able to apply language skills in group activities (focusing on medical topics).		
<b>Course Description</b>	*In this course (continuing and completing the objectives of English for Medical Purposes 1), the students' abilities to read, speak and listen are strengthened, so that they can easily search for required topics from specialized English sources and present the results in English.		
<b>Essential Course Content</b>	1- Emergency medicine 2- Sports medicine 3- Space medicine 4- Immunology 5- Nervous system 6- Digestive system 7- Pulmonary system 8- Psychiatry 9- Nutrition 10- Translation 11- Medical ethics 12- E-Medicine 13- Infectious disease 14- Hospital acquired infection (Nosocomial)		
<b>Notes</b>	*In this course, different specialized medical texts with further diversity and higher levels of difficulty are used for instruction.		

#### Pathology Course:

##### General Pathology:

General Pathology and Cell Damage  
Pathology of Inflammation, Tissue Repair, and Hemodynamic Disorders  
Pathology of Human Immunologic Disorders  
Pathology of Neoplasia  
Pathology of Genetic Disorders and Childhood Diseases  
Pathology of Environmental, Nutritional, and Infectious Diseases

##### Practical Pathology

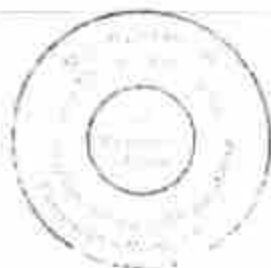


## Clinical Pathology

### Specific Pathology

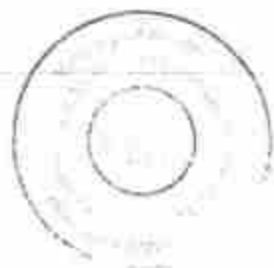
Pathology of Cardiovascular System  
Pathology of Respiratory System  
Pathology of the Kidney and Upper Urinary Tract  
Pathology of Gastrointestinal System  
Pathology of Liver and Biliary Ducts  
Pathology of Genitals, Lower Urinary Tract and Breasts  
Pathology of the Hematologic and Endocrine Disorders  
Pathology of Skin, Bones, Soft Tissues, and Joints  
Pathology of Central and Peripheral Nervous System

Course Code	147		
Course Name	General Pathology and Cell Damage		
Course Level	Basic Sciences / Introduction to Clinical Sciences		
Prerequisite Course	Introduction to the Anatomical Sciences		
Course Type	Theoretical	Practical	Total
Credit Hours	9 hours	-	9
General Objectives	In this course, the students should become familiar with general pathology and pathological manifestations of cell damage, recognize the cell death, and be able to use them to diagnose the clinical phenomena of hemodynamic disorders, human immunologic disorders, tumors, genetic disorders, and the environmental, nutritional and infectious disorders		
Course Description	In this course, the process of cell damage, cell death, inflammation and tissue repair are presented.		
Essential Course Content	<p><b><u>General Pathology (1 hour)</u></b></p> <ul style="list-style-type: none"><li>- Definition of pathology</li><li>- History of pathology</li><li>- Definition of disease</li><li>- Important points related to disease (definition, etiology, clinical manifestations, etc.)</li><li>- Defense mechanisms of the human body in various diseases</li><li>- Manifestations of the human body in various diseases</li><li>- Methods of diagnosing diseases</li><li>- The role of the laboratory in the diagnosis, treatment and follow-up of diseases.</li></ul> <p><b><u>Cell damage, death and adaptation (8 hours)</u></b></p> <ul style="list-style-type: none"><li>- Cellular and tissue responses to tissue damage agents</li><li>- Cellular and tissue adaptation (hypertrophy-hyperplasia-atrophy-metaplasia)</li><li>- Cell damage and, cellular and tissue death: causes, factors, tissues changes and examples of it (types of necrosis and apoptosis)</li><li>- Intracellular and tissue accumulations (calcium deposition, accumulation of fat, protein, glycogen and various pigments and amyloidosis)</li></ul>		



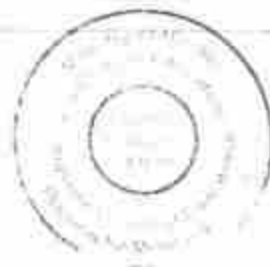
	<ul style="list-style-type: none"> <li>- The aging process</li> <li>- Clinically important tips for cellular damage, causes, factors, and examples</li> </ul>
Notes	

Course Code	148		
Course Name	Pathology of Inflammation, Tissue Repair, and Hemodynamic Disorders		
Course level	Basic Sciences / Introduction to Clinical Sciences		
Prerequisite Course	General Pathology and Cell Damage		
Course Type	Theoretical	Practical	Total
Credit Hours	10 hours	-	10 hours
General Objectives	In this course, the students should know the inflammation and tissue repair changes to use them in the clinical phenomena of hemodynamic disorders, immune disorders, tumors, genetic disorders, environmental diseases, malnutrition, and infection.		
Course Description	In this course, inflammatory changes and tissue repair processes are taught. In this course, inflammation and tissue repair are instructed on the basis of cell damage and cell death.		
Essential Course Content	<b>Inflammation and tissue repair (6 hours)</b> <ul style="list-style-type: none"><li>- General and important points about inflammation and inflammatory phenomena in the human body</li><li>- Types of inflammation and its taxonomy</li><li>- Tissue changes during inflammation</li><li>- Inflammation mechanism</li><li>- Effects and consequences of various types of inflammation in the human body</li><li>- Tissue repair, its mechanism, results, and its importance</li><li>- Important clinical points related to inflammation and tissue repair and examples of them</li></ul> <b>Hemodynamics (4 hours)</b> <ul style="list-style-type: none"><li>- General and important points about blood circulation and fluids in the body</li><li>- Hyperemia</li><li>- Edema</li><li>- Bleeding</li><li>- Hemostasis</li><li>- Thrombus</li><li>- Emboli</li><li>- Infarction</li><li>- Shock</li><li>- Clinically important points related to each of the hemodynamic disorders and examples of them</li></ul>		
Notes	Pathology education can be organized and integrated into independent instructional packages while preserving the topics, content, and credit hours approved for the university curriculum.		



Course Code	149		
Course Name	Pathology of Human Immunologic Disorders		
Course Level	Basic Sciences / Introduction to Clinical Sciences		
Prerequisite Course	Medical Immunology, Pathology of Inflammation, and Tissue Repair		
Course Type	Theoretical	Practical	Total
Credit Hours	8 hours	-	8 hours
General Objectives	In this course, the students should be well acquainted with immune system disorders in the human body and be able to use them to understand the clinical phenomena associated with them.		
Course Description	In this course, human immunologic disorders are instructed on the basis of the processes of cell damage, cell death, inflammation, and tissue repair, and the pathological manifestations of hemodynamic disorders.		
Essential Course Content	<b>Immune system disorders in the human body</b> <ul style="list-style-type: none"><li>- General knowledge of the immune system and how it works, its monitoring and care of the human body</li><li>- Injuries caused by dysfunction of the immune system</li><li>- Hypersensitivity, causes, types, and damages caused by it</li><li>- Autoimmunity, causes, types, and damages caused by it</li><li>- Impaired immune system (immunodeficiency), causes, types, and injuries</li><li>- Tissue transplantation, definition, types, and mechanisms of graft rejection</li><li>- Amyloidosis</li><li>- Important clinical tips and examples related to any of the disorders of the human immune system</li></ul>		
Notes	Pathology education can be organized and integrated into independent instructional packages while preserving the topics, content, and credit hours approved for the university curriculum.		

Course Code	150		
Course Name	Pathology of Neoplasia		
Course Level	Basic Sciences/Introduction to Clinical Sciences		
Prerequisite Course	Pathology of Inflammation and Tissue Repair		
Course Type	Theoretical	Practical	Total
Credit Hours	10 hours	-	10 hours
General Objectives	In this course, the students should be familiar with tumors and neoplastic changes.		
Course Description	In this course, tumors and neoplastic changes are instructed on the basis of the processes of cell damage, cell death, inflammation, and tissue repair as well as the pathological manifestations of hemodynamic disorders and immune disorders in the human body.		
Essential Course Content	<ul style="list-style-type: none"><li>- How to name tumors</li><li>- Characteristics of benign and malignant neoplasms</li><li>- Different stages of carcinogenesis and hallmarks</li></ul>		

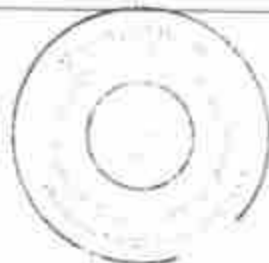




	<ul style="list-style-type: none"> <li>- Etiology of cancers</li> <li>- Host response to tumor</li> <li>- Clinical perspectives on neoplasms</li> </ul>
Notes	Pathology education can be organized and integrated into independent instructional packages while preserving the topics, content, and credit hours approved for the university curriculum.

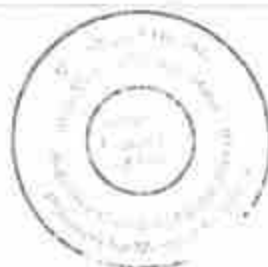
Course Code	151		
Course Name	Pathology of Genetic Disorders and Childhood Diseases		
Course Level	Basic Sciences / Introduction to Clinical Sciences		
Prerequisite Course	Pathology of Inflammation and Tissue Repair		
Course Type	Theoretical	Practical	Total
Credit Hours	8 hours	-	8 hours
General Objectives	In this course, the students are expected to understand the pathology of genetic disorders and childhood diseases.		
Course Description	In this course, genetic disorders and childhood diseases are taught.		
Essential Course Content	<ul style="list-style-type: none"><li>- The nature of genetic disorders in humans</li><li>- Mendelian disorders</li><li>- Multigenic diseases</li><li>- Cytogenetic diseases</li><li>- Single gene diseases with atypical inheritance</li><li>- Childhood diseases, including congenital anomalies</li><li>- Perinatal infections</li><li>- Respiratory Distress Syndrome (RDS)</li><li>- Sudden Infant Death Syndrome</li><li>- Fetal hydrops</li><li>- Tumor and tumor-like lesions in children</li><li>- Molecular diagnosis of genetic diseases</li></ul>		
Notes	Pathology courses can be organized and integrated as independent instructional packages while maintaining the topics, content, and credit hours approved in the university curriculum.		

Course Code	152		
Course Name	Pathology of Environmental, Nutritional, and Infectious Diseases		
Course Level	Basic Sciences / Introduction to the Clinical Sciences		
Prerequisite Course	Pathology of Inflammation and Tissue Repair		
Course Type	Theoretical	Practical	Total
Credit Hours	6 hours	-	6 hours
General Objectives	In this course, the students are expected to understand the pathology of diseases caused by environmental factors, malnutrition, and infection.		
Course Description			



	In this course, genetic disorders, and diseases caused by the environment, malnutrition, and infections are taught.
<b>Essential Course Content</b>	<p><b>Diseases caused by the Environment and Malnutrition (4 hours)</b></p> <ul style="list-style-type: none"> <li>- Harmful and toxic physical and chemical agents</li> <li>- Environmental pollutants</li> <li>- Tobacco</li> <li>- Alcohol</li> <li>- Drug abuse</li> <li>- Injury by physical blows</li> <li>- Nutritional diseases (including malnutrition, vitamin deficiency, obesity, overeating, and anorexia nervosa)</li> </ul> <p><b>Infectious diseases (2 hours)</b></p> <ul style="list-style-type: none"> <li>- General principles of microbial pathogenesis</li> <li>- Specific techniques for identifying infectious agents</li> <li>- New and emerging infectious agents</li> <li>- Bioterrorism agents</li> <li>- Mechanism of viral and bacterial damage</li> <li>- Microbial immune evasion</li> <li>- The extent of the inflammatory response to infectious agents</li> </ul>
<b>Notes</b>	Pathology education can be organized and integrated into the university curriculum as independent instructional packages while preserving the topics, content, and credit hours approved.

Course Code	153		
Course Name	Practical Pathology		
Course Level	Basic Sciences / Introduction to the Clinical Sciences		
Prerequisite Course	General Pathology Courses (prerequisite or concurrent)		
Course Type	Theoretical	Practical	Total
Credit Hours	-	34	34
General Objectives	<ul style="list-style-type: none"><li>- Familiarity with the pathology laboratory, its procedures, reception and preparation of samples, responding and archiving</li><li>- Identifying the types of samples tested, sampling techniques and sample evaluation in the pathology laboratory</li><li>- Knowing appropriate ways of transferring different types of clinical samples to the pathology laboratory</li><li>- The clinical physician's ability to communicate with the laboratory</li></ul>		
Course Description	This course includes the principles, procedures and general correct clinical practice in the pathology laboratory and identification of the main types of clinical specimens in particular.		
Essential Course Content	<ul style="list-style-type: none"><li>- Familiarity with the pathology laboratory, its procedures, reception and preparation of samples, responding and archiving</li><li>- Sampling methods and evaluation of samples in the pathology laboratory</li><li>- The appropriate way of transferring various types of clinical samples to the pathology laboratory and the clinical physician's relationship with the laboratory</li><li>- Identifying various samples being tested, including slides for:<ul style="list-style-type: none"><li>1- Squamous metaplasia</li><li>2- Acute purulent inflammation with caseous necrosis</li></ul></li></ul>		



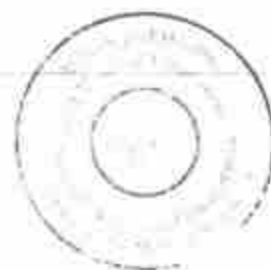
	3- Chronic non-specific inflammation 4- Granulomatous inflammation with caseous necrosis (tuberculosis) 5- Coagulation necrosis 6- Fat accumulation in the liver 7- Accumulation of melanin 8- Calcification 9- Xanthelasma (aggregation) 10- Wound and granulomatous tissue 11- Scar or keloid 12- Tissue hyperemia 13- Thrombus 14- Infarction 15- Allergic inflammation 16- Amyloid deposition 17- Adenomas 18- Papilloma 19- Osteochondroma 20- Lipoma 21- Adenocarcinoma 22- Squamous cell carcinoma 23- Sarcoma 24- Lymphoma 25- Teratoma (three layers of the fetus) 26- Plasmacytoma 27- Polyps 28- Dysplasia and carcinoma in situ 29- Metastasis 30- Cystic lesions 31- Hydatid cyst 32- Pap smear 33- An immunohistochemical sample 34- A cytology sample 35- A parasitic disease (Aspergillosis, Mucormycosis, Leishmania, or ...) 36- Other group slides
Notes	

Course Code	154		
Course Name	Clinical Pathology		
Course Level	Introduction to Clinical Sciences/Clinical Clerkship		
Prerequisite Course	1-General Pathology Courses    2-Practical Pathology		
Course Type	Theoretical	Practical	Total
Credit Hours	16 hours	2 hours	18 hours
General Objectives	<p>The purpose this course is to familiarize students with the process of working in clinical laboratories to better understand their future role as a general practitioner at various stages of the process, i.e., the pre-analytical stage (collecting samples and sending them to the laboratory), the analytical stage (the testing process) and post-analytic stage (interpretation of results). In addition, the procedure of ordering a test should be done in accordance with clinical suspicion and observing economic efficiency and status, and a suitable sample should be sent to the laboratory and students should be able to interpret test results along with other paraclinical and clinical findings of the patient and, only if necessary, request repetitions or additional tests and be able to cooperate, coordinate and</p>		
Cognitive Domain			
Affective Domain			
Psychomotor Domain			



	interact better with the laboratory for the optimal use of the laboratory in the process of diagnosis and treatment.
<b>Course Description</b>	In this course, students are introduced to the process of working in clinical laboratories so that they can fulfill their role as a general practitioner in different stages of this process, i.e. the pre-analytical stage (collecting samples and sending them to the laboratory), the analytical stage (the testing process) and the post-analytical stage (interpretation of results) in the future.
<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- Familiarity with different parts of the laboratory, sample reception process, laboratory work, preparation of the sample, and reporting the results by mentioning the role of the clinical physician in accelerating and improving the reporting process</li> <li>2- The correct way of requesting various types of samples in accordance with clinical suspicion, patient status and economic efficiency.</li> <li>3- Proper guidance of the patient to correctly perform the test and preparation of the patient for proper sampling and testing</li> <li>4- Appropriate method of transferring various types of samples to the laboratory and the role of different factors at this stage</li> <li>5- Bases of common laboratory methods, factors affecting them and limitations of each method in interpreting and synchronizing them with clinical symptoms</li> <li>6- Interpretation of laboratory results according to the definitions of test changes, reference intervals, sensitivity, specificity, and the predictive values of positive and negative results of the tests</li> <li>7- How to request complementary and additional tests if clinical findings are different or inconsistent with a patient's previous tests and their interpretation</li> <li>8- Blood usage management, blood compatibility tests including blood grouping, antibody screening and cross-matching, as well as laboratory control of blood transfusion complications</li> <li>9- Requesting and interpreting biochemistry and urinary tests</li> <li>10- Requesting and interpreting infectious and parasitic tests</li> <li>11- Requesting and interpreting hormonal, immunological and serological tests</li> <li>12- Requesting and interpreting hematology tests.</li> <li>13- Familiarity with health assessment tests (Checkup)</li> <li>14- Familiarity with tests related to follow-up of diseases, especially tumor markers</li> <li>15- Familiarity with screening and point of care tests</li> <li>16- Clinical examples, and laboratory challenges, especially with an emphasis on problems with interpreting tests and further interaction between clinics and the laboratory</li> </ol>
<b>Notes</b>	*This course can be presented as a workshop in the clerkship stage.

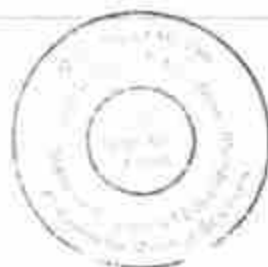
<b>Course Code</b>	155		
<b>Course Name</b>	Pathology of the Cardiovascular System		
<b>Course Level</b>	Introduction to Clinical Sciences		
<b>Prerequisite Course</b>	General Pathology		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	6 hours	2 hours	8 hours
<b>General Objectives</b>			





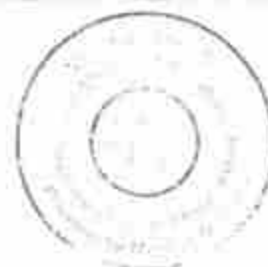
	In this course, the students should become familiar with common diseases and tumors of the cardiovascular system and be able to diagnose the patient's disease based on their knowledge.
<b>Course Description</b>	In this course, the etiology, pathogenesis, morphology and clinical manifestations of common diseases and cardiovascular tumors are taught.
<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- Structure and function of blood vessels</li> <li>2- Vascular tumors and types of vasculitis</li> <li>3- Atherosclerosis</li> <li>4- Clinical consequences of atherosclerosis</li> <li>5- Aneurysms</li> <li>6- Ischemic heart disease and congestive heart failure</li> <li>7- Endocarditis, myocarditis, and pericarditis</li> <li>8- Cardiac tumors</li> </ol> <p>Essential slides for the practical section:</p> <ol style="list-style-type: none"> <li>1- Cardiac myoma</li> <li>2- One of the common types of hemangiomas</li> <li>3- One of the common types of vasculitis</li> <li>4- Atherosclerosis</li> </ol>
<b>Notes</b>	Pathology education can be organized and integrated into the university curriculum as independent instructional packages while preserving the topics, content, and credit hours approved.

Course Code	156		
Course Name	Pathology of the Respiratory System		
Course Level	Introduction to Clinical Sciences		
Prerequisite Course	General Pathology		
Course Type	Theoretical	Practical	Total
Credit Hours	6 hours	2 hours	8 hours
General Objectives	In this course, the students should become familiar with common diseases and tumors of the respiratory system and be able to diagnose the patient's disease based on their knowledge.		
Course Description	In this course, the etiology, pathogenesis, morphology, clinical manifestations of common respiratory diseases and respiratory tumors are taught.		
Essential Course Content	<ul style="list-style-type: none"><li>- Atelectasis</li><li>- Acute lung injury</li><li>- Obstructive lung diseases</li><li>- Chronic interstitial diseases</li><li>- Vascular diseases</li><li>- Lung infections</li><li>- Lung tumors</li><li>- Pleural lesions</li><li>- Upper respiratory tract lesions</li></ul>		



	<p>Essential slides for practical section:</p> <p>Lung:</p> <ol style="list-style-type: none"> <li>1- Lung tuberculosis</li> <li>2- Hydatid cyst</li> <li>3- Small cell carcinoma</li> <li>4- Other lung carcinomas such as adenocarcinoma or SCC</li> </ol> <p>Nose:</p> <ol style="list-style-type: none"> <li>1- Nasal polyp</li> <li>2- A fungal lesion such as Aspergillus or Mucormycosis</li> </ol>
Notes	Pathology education can be organized and integrated into the university curriculum as independent instructional packages while preserving the topics, content, and credit hours approved.

Course Code	157		
Course Name	Pathology of the Kidney and Upper Urinary Tract		
Course level	Introduction to Clinical Sciences		
Prerequisite Course	General Pathology		
Course Type	Theoretical	Practical	Total
Credit Hours	6 hours	2 hours	8 hours
General Objectives	In this course, the students should become familiar with common diseases and tumors of the kidneys and urinary tract and be able to diagnose the patient's disease based on their knowledge.		
Course Description	In this course, the etiology, pathogenesis, morphology, clinical manifestations of common kidney and urogenital diseases and tumors are taught.		
Essential Course Content	<div>1- Clinical manifestations of kidney diseases</div> <div>2- Glomerular diseases and their mechanism</div> <div>3- Nephrotic syndrome</div> <div>4- Nephritic syndrome</div> <div>5- IgA Nephropathy</div> <div>6- Hereditary nephritis</div> <div>7- Rapidly progressive glomerulonephritis</div> <div>8- Tubular diseases – interstitial</div> <div>9- Interstitial tubular nephritis</div> <div>10- Kidney vascular diseases (Arterionephrosclerosis, malignant hypertension)</div> <div>11- Chronic kidney disease</div> <div>12- Cystic kidney diseases</div> <div>13- Tumors</div> <div>Essential slides for the practical section:</div> <div>1- Chronic pyelonephritis</div> <div>2- One type of glomerulonephritis</div> <div>3- Kidney amyloidosis</div>		



	4- Kidney carcinoma 5- Nephroblastoma
Notes	Pathology education can be organized and integrated into the university curriculum as independent instructional packages while preserving the topics, content, and credit hours approved.

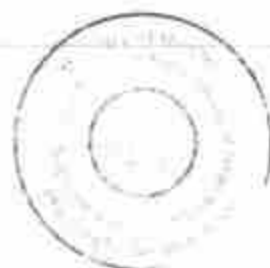
Course Code	158		
Course Name	Pathology of the Gastrointestinal System		
Course Level	Introduction to Clinical Sciences		
Prerequisite Course	General Pathology		
Course Type	Theoretical	Practical	Total
Credit Hours	8 hours	4 hours	12 hours
General Objectives	In this course, the students should become familiar with common diseases and tumors of the gastrointestinal tract and be able to diagnose the patient's disease based on their knowledge.		
Course Description	In this course, the etiology, pathogenesis, morphology, and clinical manifestations of common gastrointestinal diseases and tumors are taught.		
Essential Course Content	<div>1- Lesions of the oral cavity (leukoplakia, benign and malignant tumors, benign and malignant lesions of the salivary glands)</div> <div>2- Esophagus (esophageal varices, esophagitis, esophageal reflux, Barrett's esophagus, esophageal tumors)</div> <div>3- Stomach (inflammatory diseases of the stomach, neoplastic diseases)</div> <div>4- Small and large intestines (Hirschsprung, diarrheal diseases, inflammatory diseases of the intestine, colon polyps, colon tumors)</div> <div>5- Appendix</div> <div>Essential slides of the practical section:</div> <div>The salivary gland:</div> <div>1- Pleomorphic adenoma</div> <div>2- Cystic adenoid carcinoma</div> <div>Esophagus: SCC</div> <div>Stomach:</div> <div>1- A type of gastritis, preferably with Helicobacter pylori infection</div> <div>2- Common gastric adenocarcinoma</div> <div>3- Carcinoma with Signet Ring</div> <div>4- GIST</div> <div>Intestine:</div> <div>1- Celiac disease</div> <div>2- One of the IBD types</div> <div>3- Colon adenomatous polyp</div> <div>4- Intestinal carcinoma</div> <div>5- Intestinal carcinoid</div> <div>6- Intestinal lymphoma</div>		
Notes			



	Pathology education can be organized and integrated into the university curriculum as independent instructional packages while preserving the topics, content, and credit hours approved.
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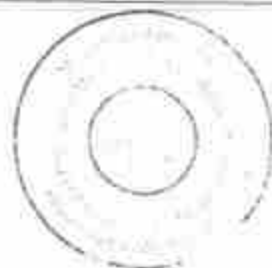
Course Code	159		
Course Name	Pathology of the Liver and Biliary Ducts		
Course Level	Introduction to Clinical Sciences		
Prerequisite Course	General Pathology		
Course Type	Theoretical	Practical	Total
Credit Hours	6 hours	2 hours	8 hours
General Objectives	In this course, the students should become familiar with common diseases and tumors of the liver and biliary ducts and be able to diagnose the patients' disease based on their knowledge.		
Course Description	In this course, the etiology, pathogenesis, morphology, and clinical manifestations of common diseases and tumors of the liver and biliary ducts are taught.		
Essential Course Content	<div>1- Liver failure</div> <div>2- Jaundice and cholestasis</div> <div>3- Cirrhosis</div> <div>4- Portal hypertension</div> <div>5- Acute and chronic hepatitis</div> <div>6- Viral hepatitis</div> <div>7- Alcoholic and non-alcoholic fatty liver</div> <div>8- Cholestatic diseases (PBC, PSC)</div> <div>9- Hereditary metabolic diseases</div> <div>10- Hepatic abscess</div> <div>11- Tumors and nodules of the liver</div> <div>12- Gallbladder diseases</div> <div>13- Gallbladder cancer</div> <div>14- Exocrine lesions of pancreas (pancreatitis, pancreatic neoplasms)</div> <div>Essential slides of the practical section:</div> <div>1- One type of hepatitis</div> <div>2- Fat accumulation</div> <div>3- Cirrhosis</div> <div>4- Hepatocellular carcinoma</div> <div>5- Metastasis to the liver</div>		
Notes	Pathology education can be organized and integrated into the university curriculum as independent instructional packages while preserving the topics, content, and credit hours approved.		

Course Code	160		
Course Name	Pathology of the Genitals, Lower Urinary Tract and Breast		
Course Level	Introduction to Clinical Sciences		
Prerequisite Course	General Pathology		
Course Type	Theoretical	Practical	Total
Credit Hours	10 hours	4 hours	14 hours
General Objectives			



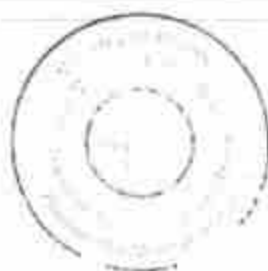


	In this course, the students should become familiar with common diseases and tumors of the male genital and lower urinary tract, and female genitalia, and be able to diagnose the patient's disease based on their knowledge.
<b>Course Description</b>	In this course, the etiology, pathogenesis, morphology, and clinical manifestations of common diseases and tumors of the male genital tract and lower urinary tract, female genitalia, and breasts are taught.
<b>Essential Course Content</b>	<p><b>1) Male genitalia and lower urinary tract (2 hours)</b></p> <ul style="list-style-type: none"> <li>- Penis (inflammatory lesions, neoplasms)</li> <li>- Scrotum, testes, and epididymis</li> <li>- Prostate</li> <li>- Ureter, urethra, and bladder</li> <li>- Pathology of sexually transmitted diseases</li> </ul> <p><b>2) Female genitalia (6 hours)</b></p> <ul style="list-style-type: none"> <li>- Vulva (inflammatory lesions, non-neoplastic lesions, tumors)</li> <li>- Vagina (inflammatory lesions of the vagina, malignant tumors, SCC, adenocarcinoma, botryoid sarcoma)</li> <li>- Cervix (inflammatory lesions of the cervix, cervical neoplasia, invasive cervical cancer, endocervical polyp)</li> <li>- Uterine body (endometritis, adenomyosis, endometriosis, AUB, proliferative lesions of the endometrium and myometrium, endometrial hyperplasia, endometrial carcinoma, endometrial polyps, leiomyoma, leiomyosarcoma)</li> <li>- Ovaries (follicular and ovarian cysts, polycystic ovaries, ovarian tumors, surface epithelial tumors, serous tumors, mucinous tumors, endometrioid tumors)</li> <li>- Pregnancy diseases (placental inflammations and infections, ectopic pregnancy, trophoblastic disease)</li> <li>- Pre-eclampsia/Eclampsia</li> </ul> <p><b>3) Breast diseases (2 hours)</b></p> <ul style="list-style-type: none"> <li>- Fibrocystic changes</li> <li>- Inflammatory processes</li> <li>- Tumors</li> <li>- Breast lesions in men</li> </ul> <p>Essential slides of the practical pathology session:</p> <p>Bladder:</p> <ul style="list-style-type: none"> <li>- TCC</li> </ul> <p>Testicles:</p> <ol style="list-style-type: none"> <li>1- Testicular atrophy</li> <li>2- Seminoma</li> <li>3- Non-seminoma tumor</li> </ol> <p>Prostate:</p>



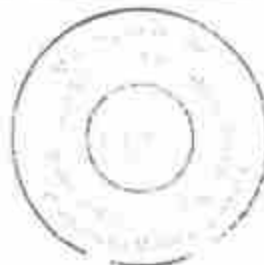
	1- Prostate hyperplasia 2- Prostate adenocarcinoma  Uterus and placenta:  1- Endometrial hyperplasia 2- Uterine myoma 3- Uterine adenocarcinoma 4- Hydatiform mole  Cervix:  1- Inflammation with squamous metaplasia 2- Cervical dysplasia 3- Cervical polyp 4- SCC 5- Pap smear  Ovary  1- Serous and mucinous cysts 2- One type of ovarian carcinoma 3- Ovarian teratoma  Thyroid  1- Nodular goiter 2- Hashimoto's disease 3- Thyroid adenoma 4- Papillary carcinoma 5- Medullary carcinoma  Breast  1- Fibrocystic disease 2- Fibroadenoma 3- Typical ductal carcinoma 4- Typical lobular carcinoma
Notes	Pathology education can be organized and integrated into the university curriculum as independent instructional packages while preserving the topics, content, and credit hours approved.

Course Code	161		
Course Name	Pathology of the Hematologic and Endocrine Disorders		
Course Level	Introduction to Clinical Sciences		
Prerequisite Course	General Pathology		
Course Type	Theoretical	Practical	Total
Credit Hours	10 hours	2 hours	12 hours
General Objectives	In this course, the students should become familiar with common diseases and tumors of the endocrine system and breasts and be able to diagnose the patients' disease based on their knowledge.		

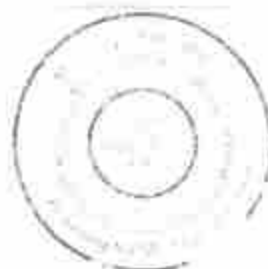


<b>Course Description</b>	In this course, the etiology, pathogenesis, morphology, and the clinical manifestations of common diseases and tumors of the endocrine system and breasts are taught.
<b>Essential Course Content</b>	<p><b>Endocrine Glands (4 hours)</b></p> <ol style="list-style-type: none"> <li>1- Pituitary gland</li> <li>2- Thyroid</li> <li>3- Parathyroid gland</li> <li>4- Endocrine pancreas</li> <li>5- Adrenal cortex</li> <li>6- Adrenal medulla</li> </ol> <p><b>Hematologic diseases (6 hours)</b></p> <ol style="list-style-type: none"> <li>1- Erythrocyte disorders (types of anemia)</li> <li>2- White blood cell disorders (neoplastic lesions)</li> <li>3- Disorders related to spleen and thymus (splenomegaly, benign and malignant lesions of thymus)</li> </ol> <p>Essential slides for the practical section:</p> <p>Adrenal:</p> <ol style="list-style-type: none"> <li>1- Pheochromocytoma</li> <li>2- Neuroblastoma</li> </ol> <p>Lymph node:</p> <ol style="list-style-type: none"> <li>1- Tuberculosis</li> <li>2- One type of Hodgkin's lymphoma</li> <li>3- One type of non-Hodgkin's lymphoma</li> </ol> <p>Bone marrow:</p> <ol style="list-style-type: none"> <li>1- One type of acute leukemia</li> <li>2- One type of chronic leukemia</li> <li>3- Multiple myelomas</li> </ol>
<b>Notes</b>	Pathology education can be organized and integrated into the university curriculum as independent instructional packages while preserving the topics, content, and credit hours approved.

Course Code	162		
Course Name	Pathology of the Skin, Bones, Soft Tissues, and Joints		
Course level	Introduction to Clinical Sciences		
Prerequisite Course	General Pathology		
Course Type	Theoretical	Practical	Total
Credit Hours	8 hours	4 hours	12 hours
General Objectives			



	In this course, the students should become familiar with common diseases and tumors of the skin, bones, soft tissues and joints, and be able to diagnose the patients' disease based on their knowledge.
<b>Course Description</b>	In this course, the etiology, pathogenesis, morphology, and the clinical manifestations of common diseases and tumors of the skin, bones, soft tissues, and joints are taught.
<b>Essential Course Content</b>	<p><b>Pathology of the skin diseases</b></p> <ul style="list-style-type: none"> <li>- Acute and chronic inflammatory dermatosis</li> <li>- Vesiculobullous diseases (pemphigus, pemphigoid)</li> <li>- Herpetiform dermatitis</li> <li>- Benign and malignant skin lesions</li> </ul> <p><b>Bone diseases</b></p> <ul style="list-style-type: none"> <li>- Congenital disorders of the bone and cartilage</li> <li>- Acquired bone diseases</li> <li>- Osteomyelitis</li> <li>- Bone tumors</li> </ul> <p><b>Joint diseases</b></p> <ul style="list-style-type: none"> <li>- Arthritis</li> <li>- Joint tumors and quasi-tumor lesions</li> </ul> <p><b>Soft tissue diseases</b></p> <ul style="list-style-type: none"> <li>- Soft tissue tumors and their types</li> </ul> <p>Essential slides for the practical section:</p> <p><b>Skin:</b></p> <ol style="list-style-type: none"> <li>1- One of the common inflammatory diseases such as lichen planus or psoriasis</li> <li>2- A vesicular lesion like pemphigus</li> <li>3- Warts</li> <li>4- Seborrheic keratosis</li> <li>5- Melanocytic nevus</li> <li>6- Melanoma</li> <li>7- BCC</li> <li>8- SCC</li> </ol> <p><b>Bone:</b></p> <ol style="list-style-type: none"> <li>1- Chondroma and chondrosarcoma</li> <li>2- Osteochondroma</li> <li>3- Osteosarcoma</li> <li>4- Ewing sarcoma</li> </ol> <p><b>Soft tissue:</b></p> <ol style="list-style-type: none"> <li>1- One type of benign tumors such as lipoma or fibroma</li> <li>2- Schwannoma</li> <li>3- Fibromatosis</li> <li>4- One of the typical types of sarcomas</li> </ol>
<b>Notes</b>	Pathology education can be organized and integrated into the university curriculum as independent instructional packages while preserving the topics, content, and credit hours approved.

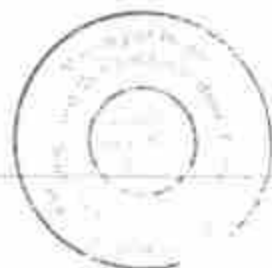




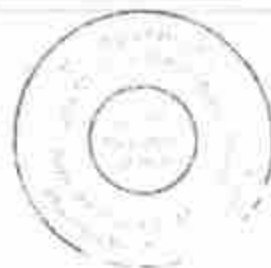
Course Code	163		
Course Name	Pathology of the Central and Peripheral Nervous System		
Course Level	Introduction to Clinical Sciences		
Prerequisite Course	General Pathology		
Course Type	Theoretical	Practical	Total
Credit Hours	8 hours	2 hours	10 hours
General Objectives	In this course, the students should become familiar with common diseases and tumors of the central and peripheral nervous system and be able to diagnose the patients' disease based on this knowledge.		
Course Description	In this course the etiology, pathology, morphology and clinical manifestations of common diseases and tumors of the central and peripheral nervous system are taught.		
Essential Course Content	<ol style="list-style-type: none"> <li>1- Nervous system damage</li> <li>2- Cerebrovascular disease</li> <li>3- Nervous system infections</li> <li>4- Primary myelin disease</li> <li>5- Neurodegenerative diseases</li> <li>6- Tumors</li> <li>7- Familial tumor syndromes</li> <li>8- Peripheral nerve disorders</li> <li>9- Nerve and muscle function injury</li> <li>10- Benign and malignant tumors of peripheral nerves</li> <li>11- Musculoskeletal disorders</li> </ol> <p>Essential slides for the practical section:</p> <ol style="list-style-type: none"> <li>1- Astrocytoma</li> <li>2- Meningioma</li> <li>3- Ependymoma</li> </ol>		
Notes	Pathology education can be organized and integrated into the university curriculum as independent instructional packages while preserving the topics, content, and credit hours approved.		

#### Medical Pharmacology Courses:

Basic Principles of Medical Pharmacology  
 Cardiovascular and Pulmonary Pharmacology  
 Pharmacology of Antimicrobial Drugs  
 Gastrointestinal, Hematologic and Rheumatologic Pharmacology  
 Pharmacology of Endocrine Drugs  
 Neuropharmacology



<b>Course Code</b>	164		
<b>Course Name</b>	Basic Principles of Medical Pharmacology		
<b>Course Level</b>	Basic Sciences / Introduction to Clinical Sciences		
<b>Prerequisite Course</b>	Biochemistry, Physiology, Anatomy of the Nervous System		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	17 hours	-	17 hours
<b>General Objectives</b>	At the end of this course, the students should acquire knowledge and understanding of each of the basic concepts in pharmacology and be able to relate these concepts to the pharmacological effects of drugs and the use of specific drugs in pharmacology of systems.		
<b>Course Description</b>	In this course, the students will be introduced to the basics and concepts of pharmacology, including the kinetics and dynamics of drugs, and as an introduction to the pharmacology of systems, they will be familiarized with the drugs of the autonomic system.		
<b>Essential Course Content</b>	<p><b>Introduction to Pharmacology:</b></p> <ul style="list-style-type: none"> <li>- Definition of pharmacology</li> <li>- Information sources in pharmacology and pharmaceutical information</li> <li>- Nature and characteristics of drugs (molecular size and weight, drug junctions)</li> <li>- Principles of pharmacodynamics (receptors and other drug binding sites)</li> <li>- Principles of pharmacokinetics (familiarity with absorption, distribution, metabolism, and disposal)</li> <li>- The process of production and approval of new drugs (safety and efficacy, animal experiments, clinical trials, drug exclusiveness, new drugs, rules and regulations related to drugs orphan drugs)</li> </ul> <p><b>Pharmacokinetics:</b></p> <ul style="list-style-type: none"> <li>- Effective drug concentration</li> <li>- Distribution volume, clearance, and half-life</li> <li>- Bioavailability</li> <li>- Drug excretion</li> <li>- Rational regimen for prescribing drugs</li> <li>- Therapeutic range, dosage adjustment in cases of excretion disorders</li> <li>- Metabolism of drugs (types, indicators of determining the speed of metabolism, the correct method of consumption and comparison between solid and liquid drug forms)</li> <li>- Injectable products, inhaled products, topical products (skin, eye, nose, ear, rectal, vaginal, etc.)</li> <li>- Other methods</li> </ul> <p><b>Pharmacodynamics:</b></p> <ul style="list-style-type: none"> <li>- Definition of drug receptor and effector</li> <li>- The nature of the receptors</li> </ul>		



- Other drug sites
- Interactions of drugs with the receptors
- Classification of drugs based on their effect on receptors
- Definition and comparison of drugs in terms of intrinsic activity and affinity
- Quantitative comparison criteria (ED50, potency, efficacy)
- Graded dose-response curves
- Definition and comparison of agonists, antagonists, partial agonists, inverse agonists, competitive and non-competitive antagonists, pharmacological, chemical and physiological antagonists
- Quantal dose-response curves
- Criteria for comparing the safety of drugs (LD50, TD50, therapeutic index, certain safety factors)
- Receptor modifications
- Interpersonal changes and types of this change in response to medication
- Acceptance of treatment (adherence, compliance, and concordance)
- Tolerance and tachyphylaxis
- Therapeutic and adverse drug effects (side effects, toxicity, idiosyncrasy, tolerance, accumulation, allergy, etc.)
- Pharmacovigilance and pharmacogenetics

#### **Basics of the Autonomic Nervous System:**

- Comparison of the autonomic system with sensory and motor nerves
- Classification of autonomic nerves (neural ganglia, preganglionic and postganglionic fibers, etc.)
- Message transmission in cholinergic and adrenergic nerves (storage, release, and termination of the effect)
- Introducing general mechanisms of action of drugs affecting the production, storage, release, and termination of the effect of parasympathetic and sympathetic systems
- Various cholinergic and adrenergic receptors and their distribution and function in different tissues
- The effects of parasympathetic and sympathetic systems stimulation on body organs and their mutual effects
- Locations and the modifications of the autonomic nervous system
- Accompanying or auxiliary transmitters (co-transmitters)
- Details of the function of the autonomic cardiovascular nerves in regulating mean arterial pressure, in the eye, and in the intestine (as important examples)

#### **Cholinergic Receptor Stimulants and Anticholinesterases:**

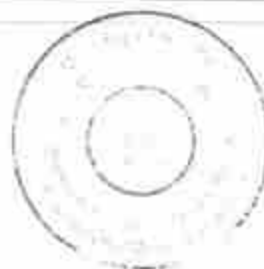
- Classification of cholinergic drugs (cholinomimetics)
- Main clinical applications of direct-acting parasympathetic drugs (such as bethanechol, pilocarpine, and cevimeline)

Indirect-acting cholinergic drugs including classifications, clinical applications, adverse effects and toxicity, precautions

- Differences of these drugs (such as edrophonium, physostigmine, tacrine, rivastigmine, etc.)
- Available pharmaceutical products from this group of drugs

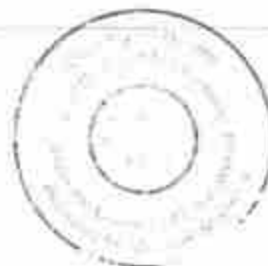
#### **Antagonists of Muscarinic Receptors and Nicotine Cholinergic Receptors:**

- Classification
- Clinical applications



	<ul style="list-style-type: none"> <li>- Adverse effects</li> <li>- Toxicity</li> <li>- Precautions</li> <li>- Differences of these drugs</li> <li>- Pharmaceutical products from this group of drugs</li> </ul> <p><b>Sympathomimetic Drugs:</b></p> <ul style="list-style-type: none"> <li>- Classification</li> <li>- Clinical applications</li> <li>- Adverse effects</li> <li>- Toxicity</li> <li>- Precautions</li> <li>- Differences between these drugs</li> <li>- Pharmaceutical products available from this group of drugs</li> </ul> <p><b>Sympathetic Receptor Blockers:</b></p> <ul style="list-style-type: none"> <li>- Classification</li> <li>- Clinical applications</li> <li>- Adverse effects</li> <li>- Toxicity</li> <li>- Precautions</li> <li>- Differences between these drugs</li> <li>- Pharmaceutical products available from this group of drugs</li> </ul>
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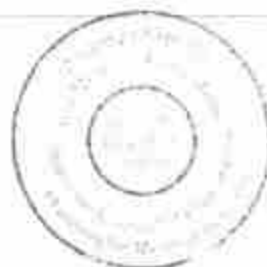
Course Code	165		
Course Name	Cardiovascular and Pulmonary Pharmacology		
Course Level	Introduction to Clinical Sciences / Clinical Clerkship		
Prerequisite Course	Basic Principles of Medical Pharmacology		
Course Type	Theoretical	Practical	Total
Credit Hours	10 hours	-	10 hours
General Objectives	<p>At the end of this course, the students are expected to be able to:</p> <ol style="list-style-type: none"><li>1- describe the drug categories used in common diseases of the cardiovascular system and lungs (in accordance with the course content) and explain the pharmacological properties (absorption process, distribution, metabolism, excretion, and the effects of the drug on various organs of the body) of the top drugs, or most commonly used drugs of each category</li><li>2- pay attention to the serious effects and important side effects of the drugs used in common diseases of the cardiovascular system and lungs</li><li>3- note the importance of studying the latest instructions and evidence regarding use before prescription of drugs, considering the speed of scientific developments and findings of clinical trials with respect to introducing new drugs and determining the applications or side effects of cardiovascular and respiratory drugs.</li></ol>		
Course Description	<p>In this course, the students will become familiar with drug categories used in common diseases of the cardiovascular system and lungs and pharmacokinetic and</p>		





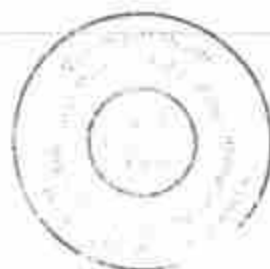
	pharmacodynamic properties of these drugs, and see examples of changes in guidelines for the use of these drugs resulting from new evidence provided in clinical trials.
<b>Essential Course Content</b>	<p>Drug categories used in hypertension and widely used drugs from each category:</p> <ul style="list-style-type: none"> <li>- Vasodilators and treatment of angina</li> <li>- Effective medications in heart failure</li> <li>- Antiarrhythmic drugs</li> <li>- Diuretics (Carbonic anhydrase inhibitors, thiazides, diuretics affecting the Loop of Henle, etc.)</li> <li>- Drugs used in the treatment of hyperlipidemia</li> <li>- Bronchodilators and other drugs used in asthma, allergic rhinitis, and cough</li> </ul>

Course Code	166		
Course Name	Pharmacology of Antimicrobial Drugs		
Course level	Introduction to Clinical Sciences / Clinical Clerkship		
Prerequisite Course	Basic Principles of Medical Pharmacology		
Course Type	Theoretical	Practical	Total
Credit Hours	10 hours	-	10 hours
General Objectives	<p>At the end of this course, the students are expected to be able to:</p> <ol style="list-style-type: none"><li>1- describe the drug categories effective in treating infectious diseases (in accordance with the course content) and the pharmacological characteristics (absorption process, distribution, metabolism, excretion, and effects of the drug on different organs of the body) of the top drugs, or the most commonly used medications of each category</li><li>2- pay attention to the serious effects and important side effects of effective drugs used for infectious diseases</li><li>3- note the importance of reading the latest guidelines and evidence for use before prescription of drug, considering the speed of scientific developments and findings of clinical trials on introducing new drugs and determining the uses or side effects of drugs affecting infectious agents.</li></ol>		
Course Description	<p>In this course, the students will be introduced to drug categories affecting infectious diseases and their pharmacokinetic and pharmacodynamic properties, and will see examples of changes in relevant guidelines for using these drugs, resulting from new evidence provided by clinical trials.</p>		
Essential Course Content	<ul style="list-style-type: none"><li>- Penicillin and cephalosporins</li><li>- Aminoglycosides</li><li>- Sulfonamides and trimethoprim</li><li>- Fluoroquinolones</li><li>- Chloramphenicol, tetracyclines, and macrolides</li><li>- Antimycobacterial drugs</li><li>- Antiviral drugs</li><li>- Anti-protozoan and anti-helminthic drugs</li><li>- Miscellaneous drugs and topical disinfectants</li></ul>		



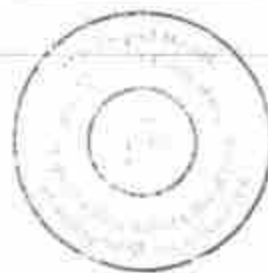
<b>Course Code</b>	167		
<b>Course Name</b>	Gastrointestinal, Hematologic and Rheumatologic Pharmacology		
<b>Course Level</b>	Introduction to Clinical Sciences / Clinical Clerkship		
<b>Prerequisite Course</b>	Basic Principles of Medical Pharmacology		
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	10 hours	-	10 hours
<b>General Objectives</b>	<p>At the end of this course, the students are expected to be able to:</p> <ol style="list-style-type: none"> <li>1- describe the drug categories used in common diseases of the gastrointestinal tract, blood, and connective tissue (in accordance with the course content) and describe the pharmacological properties (absorption process, metabolism, excretion, and the effects of the drug on different organs of the body) of the top drugs, or the most commonly used medications of each category</li> <li>2- pay attention to the serious effects and important side effects of drugs used to treat common diseases of the gastrointestinal tract, blood, and connective tissue</li> <li>3- note the importance of reading the latest guidelines and evidence for use before prescription of drugs, considering the speed of scientific developments and findings of clinical trials on introducing new drugs and determining the uses or side effects of gastrointestinal drugs, hematology, and rheumatology</li> </ol>		
<b>Course Description</b>	<p>In this course, the students will become familiar with drug categories used to treat common diseases of the gastrointestinal system, blood, and connective tissue and their pharmacokinetic and pharmacodynamic properties, and will see examples of changes in the relevant guidelines for the use of these drugs, resulting from new evidence provided by clinical trials.</p>		
<b>Essential Course Content</b>	<ul style="list-style-type: none"> <li>- Drugs used for the treatment of peptic diseases</li> <li>- Gastrointestinal stimulants, effective drugs in the treatment of constipation, antidiarrheal drugs</li> <li>- Antiemetic drugs</li> <li>- Drugs used in blood coagulation disorders</li> <li>- Drugs for anemia</li> <li>- General concepts of chemotherapy</li> <li>- Non-steroidal anti-inflammatory drugs (NSAIDs), anti-rheumatic drugs, non-opioid analgesics, and anti-gout drugs</li> </ul>		

<b>Course Code</b>	168	
<b>Course Name</b>	Pharmacology of Endocrine Drugs	
<b>Course Level</b>	Clinical Preparation / Clinical Clerkship	
<b>Prerequisite Courses</b>	Basic Principles of Medical Pharmacology	
<b>Course Type</b>	Theoretical	Practical
<b>Credit Hours</b>	9 hours	
<b>General Objectives</b>		



	<p>At the end of this course, the students are expected to be able to:</p> <ol style="list-style-type: none"> <li>1- describe the drug categories affecting the endocrine system (in accordance with to the course content) and their pharmacological properties (absorption process, distribution, metabolism, excretion, and the effects of drugs on different parts of the body) of the top drugs, or the most commonly used medications of each category</li> <li>2- pay attention to the serious effects and important side effects of drugs affecting the endocrine system</li> <li>3- note the importance of reading the latest guidelines and evidence on use before prescription of drugs, considering the speed of scientific developments and findings of clinical trials on the introduction of new drugs and determining the uses or side effects of drugs affecting the endocrine system.</li> </ol>
<b>Course Description</b>	<p>In this course, the students will be introduced to the drug categories affecting the endocrine system, their pharmacokinetic and pharmacodynamic properties, and will see examples of changes in the guidelines for the use of these drugs, resulting from new evidence provided by clinical trials.</p>
<b>Essential Course Content</b>	<ul style="list-style-type: none"> <li>- Hypothalamic and pituitary hormones (analogs and antagonists)</li> <li>- Thyroid hormones and antithyroid drugs</li> <li>- Corticosteroids and their antagonists</li> <li>- Drugs related to sex hormones and hormonal contraceptives</li> <li>- Pancreatic hormones and diabetic drugs</li> <li>- Drugs affecting bone mineral homeostasis</li> </ul>

<b>Course Code</b>	169	
<b>Course Name</b>	Neuropharmacology	
<b>Course Level</b>	Introduction to Clinical Sciences /Clinical Clerkship	
<b>Prerequisite Courses</b>	Basic Principles of Medical Pharmacology	
<b>Course Type</b>	Theoretical	Practical
<b>Credit Hours</b>	12 hours	
<b>General Objectives</b>	<p>At the end of this course, the students are expected to be able to:</p> <ol style="list-style-type: none"> <li>1- describe the drug categories affecting the nervous system (in accordance with the course content) and their pharmacological properties (absorption process, distribution, metabolism, excretion, and the effects of drugs on different parts of the body) of the top drugs, or the most commonly used medications of each category</li> </ol>	



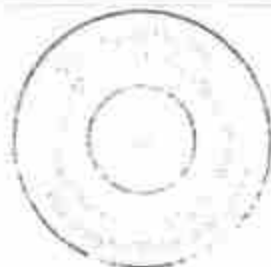
	<p>2- pay attention to the serious effects and important side effects of drugs affecting the nervous system.</p> <p>3- note the importance of reading the latest guidelines and evidence on use before prescription of drugs, considering the speed of scientific developments and findings of clinical trials on the introduction of new drugs and determining the uses or side effects of drugs affecting the nervous system.</p>
<b>Course Description</b>	In this course, the students will be introduced to the drug categories affecting the nervous system, their pharmacokinetic and pharmacodynamic properties, and will see examples of changes in the guidelines for the use of these drugs, resulting from new evidence provided by clinical trials.
<b>Essential Course Content</b>	<p><b>1- Drugs Affecting the Nerves:</b></p> <ul style="list-style-type: none"> <li>- Antiepileptic drugs</li> <li>- General anesthetic drugs</li> <li>- Topical anesthetic drugs</li> <li>- Skeletal muscle relaxants</li> <li>- Drugs effective in Parkinson's disease and other movement disorders</li> <li>- Opioids</li> </ul> <p><b>2- Drugs Affecting the Psychiatric Disorders:</b></p> <ul style="list-style-type: none"> <li>- Sedatives-Hypnotics</li> <li>- Antipsychotics and lithium</li> <li>- Antidepressants drugs</li> </ul>

#### History Taking and Physical Examination Courses:

To be flexible in arranging the courses of history and physical examinations, these courses are organized in the form of two theoretical and two clerkship courses. It is recommended that the theoretical training and clerkship courses be presented simultaneously if possible.

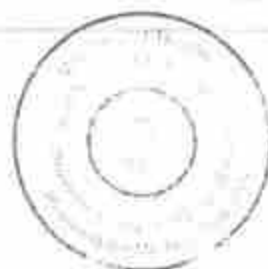
- 1- History Taking and Physical Examination 1 (Theory)
- 2- History Taking and Physical Examination 1 (Clerkship)
- 3- History Taking and Physical Examination 2 (Theory)
- 4- History Taking and Physical Examination 2 (Clerkship)

<b>Course Code</b>	170	<b>Course Type</b>	Theoretical
<b>Course Name</b>	History Taking and Physical Examination 1 (Theory)	<b>Hours</b>	17 hours
<b>Course Level</b>	Introduction to Clinical Sciences	<b>Credit hours</b>	1
<b>Prerequisite Courses</b>			
<b>General Objectives</b>			



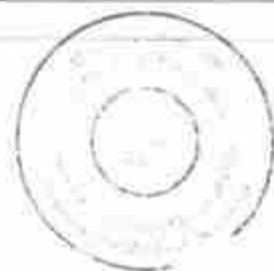


	<p>At the end of this course, the students are expected to:</p> <ol style="list-style-type: none"> <li>1- explain the importance and steps of establishing a constructive professional relationship with the patient and apply it in practice</li> <li>2- explain the role and position of history and clinical examination in clinical reasoning, decision shaping, and patient care decision making</li> <li>3- explain the relationship between the stages of history and clinical examination with the stages of clinical reasoning (data collection, weighting, decision shaping and decision making)</li> <li>4- explain the general principles of history taking in special situations (patients with special problems, elderly patients, children, and the disabled)</li> <li>5- explain and apply the principles and rules of documenting patients' history</li> <li>6- explain and apply the general principles of brief and complete patient introduction</li> </ol>
<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- The role and status of the patient's history in decision shaping and decision making in patient care</li> <li>2- Principles of clinical reasoning (data collection, weighting, decision shaping, and decision making)</li> <li>3- General principles of taking a patient's history</li> <li>4- General principles of communication skills</li> <li>5- General principles of history taking under special circumstances:             <ol style="list-style-type: none"> <li>a- Patients with eye and vision problems</li> <li>b- Patients with ear, nose and throat problems and deafness</li> <li>c- Patients with skin problems</li> <li>d- Patients with musculoskeletal problems</li> <li>e- Patients with neurologic problems</li> <li>f- Patients with physical injuries</li> <li>g- Patients with psychiatric problems</li> </ol> </li> <li>6- General principles of history taking under special general conditions:             <ol style="list-style-type: none"> <li>a- The elderly</li> <li>b- Infants</li> <li>c- Children</li> <li>d- The Disabled</li> </ol> </li> <li>7- General principles of documenting a history: Hx writing (complete &amp; brief)</li> <li>8- General principles of patient presentation (complete &amp; brief)</li> </ol>
<b>Course Description</b>	<p>In this course, the students should achieve the specified goals by attending the class, the skill lab, workshops, and doing individual and group assignments.</p>
<b>Instructional Activities</b>	<p>Learning activities in this course should include a balanced combination of theoretical instruction, individual study and group discussion, and doing other learning tasks. It is recommended that the practical part of this course be presented simultaneously with the theoretical part and through small group activities in the skill lab or in a controlled clinical environment under direct supervision of faculty members or trained instructors.</p>



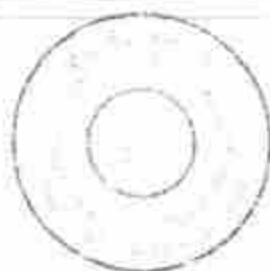
	The timing and combination of these activities and required settings for each activity (including the classroom, the skill lab, and clinical fields) will be determined by each medical school in the study guide based on the standards announced by the Secretariat of the Council for Undergraduate Medical Education.
<b>Notes</b>	<p>*Due to varying circumstances of education in different medical schools, it is necessary for each medical school to provide the learners with a study guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as with the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education.</p> <p>**The amount and delivery of classes should not interfere with the students' clinical practice.</p> <p>*** The methods, the syllabus and the students' assessments must be determined, announced, and implemented by the educational department based on appropriate scientific principles. The medical schools are responsible for the approval, monitoring the implementation, and evaluation of the syllabus.</p>

<b>Course Code</b>	171		
<b>Course Name</b>	History Taking and Physical Examination I (Clerkship)	<b>Course Type</b>	Clerkship
<b>Course Level</b>	Introduction to Clinical Sciences	<b>Course duration</b>	51 hours
<b>Prerequisite Courses</b>		<b>Credit Hours</b>	1 Credit hour
<b>General Objectives</b>	<p>At the end of this course, the students are expected to:</p> <ol style="list-style-type: none"> <li>1- establish a constructive professional relationship with the simulated patient</li> <li>2- In the face of a standardized patient sample, take the patient's history as much as expected of a third-year medical student</li> <li>3- show clinical reasoning when taking a history</li> <li>4- take a sample biography of a pseudo-patient or a patient with special conditions (e.g. a patient with special problems, the elderly, children, and the disabled)</li> <li>5- record a sample history based on relevant rules they have learned</li> <li>6- conduct a sample patient presentation both briefly and completely</li> </ol>		
<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- The role and position of the patient's history in practical decision shaping and decision making in patient care</li> <li>2- Principles of clinical reasoning (data collection, weighting, decision shaping, and decision making)</li> <li>3- General principles of history taking</li> <li>4- General principles of communication skills</li> <li>5- General principles of history taking under special circumstances:               <ol style="list-style-type: none"> <li>a- Patients with eye and vision problems</li> <li>b- Patients with ear, nose and throat problems and deafness</li> <li>c- Patients with skin problems</li> <li>d- Patients with musculoskeletal problems</li> <li>e- Patients with neurologic problems</li> <li>f- Patients with physical injuries</li> <li>g- Patients with psychiatric problems</li> </ol> </li> </ol>		

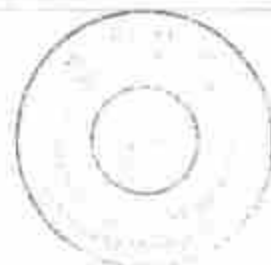


	<p>6- General principles of history taking under special general conditions:</p> <ul style="list-style-type: none"> <li>a- The elderly</li> <li>b- Infants</li> <li>c- Children</li> <li>d- The disabled</li> </ul> <p>7- General principles of documenting a history: Hx writing (complete and brief)</p> <p>8- General principles of patient presentation (complete and brief)</p>
<b>Course Description</b>	In this course, the students should achieve the specified goals by attending the class, the skill lab, and workshops, and doing individual and group assignments.
<b>Instructional Activities</b>	<p>Learning activities in this course should include a balanced combination of theoretical instruction, individual study and group discussion, and doing other learning tasks. It is recommended that the practical part of this course be presented simultaneously with the theoretical part and through small group activities in the skill lab or in a controlled clinical environment under direct supervision of faculty members or trained instructors.</p> <p>The timing and combination of these activities and required settings for each activity (including the classroom, the skill lab, and controlled clinical environments) will be determined by each medical school in the study guide based on the standards introduced by the Secretariat of the General Medical Education Council.</p>
<b>Notes</b>	<p>*Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education.</p> <p>**The time and presentation mode of classes should be selected in a way that they do not to interfere with the student's clinical practice.</p> <p>*** The methods, the syllabus and the students' evaluation must be determined, announced, and implemented by the educational department based on appropriate scientific principles. The medical schools re responsible for program approval, monitoring its implementation and its evaluation.</p>

<b>Course Code</b>	172		
<b>Course Name</b>	History Taking and Physical Examination 2 (Theory)	<b>Course Type</b>	Theoretical
<b>Course Level</b>	Introduction to Clinical Sciences	<b>Course duration</b>	17 hours
<b>Prerequisite Courses</b>		<b>Credit Hours</b>	1 Credit hour
<b>General Objectives</b>	<p>At the end of this course, the students are expected to:</p> <p>A- describe and apply the following:</p>		



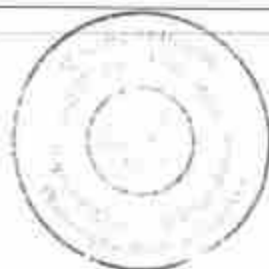
	<ol style="list-style-type: none"> <li>1- The role and position of clinical examination in clinical reasoning</li> <li>2- General principles of physical examination</li> <li>3- General principles of examination related to vital signs</li> <li>4- General principles of examination related to the patient's appearance and skin findings:</li> </ol> <ul style="list-style-type: none"> <li>- General appearance</li> <li>- Skin manifestations</li> </ul> <ol style="list-style-type: none"> <li>5- General principles of head and neck examination</li> <li>6- General principles of eye examination</li> <li>7- General principles of ear, nose, and throat examination</li> <li>8- General principles of heart examination – normal sounds and murmurs</li> <li>9- General principles of respiratory system examination</li> <li>10- General principles of abdominal and rectal examination</li> <li>11- General principles of joints, muscles, and rheumatologic examination</li> <li>12- General principles of breast examination</li> <li>13- General principles of gynecologic and obstetric examination</li> <li>14- General principles of urologic examination</li> </ol> <p>B- recognize and observe cultural, moral, and religious considerations regarding the examination of specific areas of the body</p>
<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- The role and position of clinical examination in clinical reasoning</li> <li>2- General principles of physical examination</li> <li>3- General principles of examination related to vital signs.</li> <li>4- General principles of examination related to the patient's appearance and skin findings:</li> </ol> <ul style="list-style-type: none"> <li>- General appearance</li> <li>- Skin manifestations</li> </ul> <ol style="list-style-type: none"> <li>5- General principles of head and neck examination</li> <li>6- General principles of eye examination</li> <li>7- General principles of ear, nose, and throat examination</li> <li>8- General principles of heart examination - normal vs. murmurs</li> <li>9- General principles of respiratory system examination</li> <li>10- General principles of abdominal and rectal examination</li> <li>11- General principles of joints, muscles, and rheumatologic examination</li> <li>12- General principles of breast examination</li> <li>13- General principles of gynecologic and obstetric examination</li> <li>14- General principles of urologic examination</li> <li>15- Cultural, moral, and religious considerations regarding the examination of specific areas of the body</li> </ol>
<b>Course Description</b>	<p>In this course, the students should achieve the specified goals by attending the class, the skill lab, and workshops, and doing individual and group assignments.</p>
<b>Instructional Activities</b>	<p>Learning activities in this course should include a balanced combination of theoretical instruction, individual study and group discussion, and doing other learning tasks. It is recommended that the practical part of this course be presented simultaneously with the theoretical part and through small group activities in the skill lab or in a controlled clinical environment under direct supervision of faculty members or trained instructors.</p> <p>The timing and combination of these activities and required settings for each activity (including the classroom, the skill lab, and controlled clinical environments) will be determined by each medical school in the study guide based on the standards introduced by the Secretariat of the General Medical Education Council.</p>





<b>Necessary Notes</b>	<p><b>*Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education.</b></p> <p><b>**The methods, the syllabus and the students' evaluation must be determined, announced, and implemented by the educational department based on appropriate scientific principles. The medical schools are responsible for program approval, monitoring its implementation and its evaluation.</b></p>
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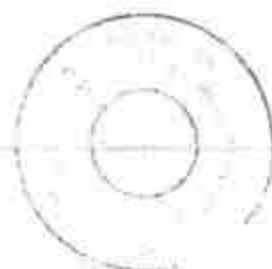
<b>Course Code</b>	173		
<b>Course Name</b>	History Taking and Physical Examination 2 (Clerkship)	<b>Course Type</b>	Clerkship
<b>Course Level</b>	Introduction to Clinical Sciences	<b>Course duration</b>	51 hours
<b>Prerequisite Courses</b>		<b>Credit Hours</b>	1 Credit hour
<b>General Objectives</b>	<p>At the end of this course, the students are expected to:</p> <p>A- perform the physical examination of the following systems and organs on a moulage or a simulated patient (as demanded):</p> <ol style="list-style-type: none"> <li>1- Vital signs</li> <li>2- General appearance and skin manifestations</li> <li>3- Head and neck</li> <li>4- Eye</li> <li>5- Ear, Nose, and Throat (ENT)</li> <li>6- Heart- normal vs. murmurs</li> <li>7- Respiratory system</li> <li>8- Abdomen and rectum</li> <li>9- Joints, muscles, and rheumatology</li> <li>10- Breast</li> <li>11- Gynecology and obstetrics</li> <li>12- Urology</li> </ol> <p>B- Recognize and observe cultural, moral, and religious considerations regarding the examination of specific areas of the body.</p>		
<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- Measuring and recording vital signs</li> <li>2- Examination of patient's appearance and skin findings:               <ol style="list-style-type: none"> <li>a- General appearance</li> <li>b- Skin manifestations</li> </ol> </li> <li>3- Head and neck examination</li> <li>4- Eye examination</li> <li>5- Ear, nose, and throat examination</li> <li>6- Heart examination- normal vs. murmur</li> <li>7- Respiratory system examination</li> <li>8- Abdominal and rectal examination</li> <li>9- Joints, muscles, and rheumatologic examination</li> <li>10- Breast examination</li> <li>11- Gynecologic and obstetric examination</li> <li>12- Urologic examination</li> </ol>		



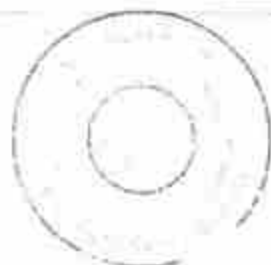
	13- Cultural, moral, and religious considerations regarding the examination of specific areas of the body
<b>Course Description</b>	In this course, the students should achieve the specified goals by attending the class, the skill lab, and workshops, and doing individual and group assignments.
<b>Instructional Activities</b>	<p>Learning activities in this course should include a balanced combination of theoretical instruction, individual study and group discussion, and doing other learning tasks. It is recommended that the practical part of this course be presented simultaneously with the theoretical part and through small group activities in the skill lab or in a controlled clinical environment under direct supervision of faculty members or trained instructors.</p> <p>The timing and combination of these activities and required settings for each activity (including the classroom, the skill lab, and controlled clinical environments) will be determined by each medical school in the study guide based on the standards introduced by the Secretariat of the General Medical Education Council.</p>
<b>Notes</b>	<p>*Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education.</p> <p>**The time and presentation mode of classes should be selected in a way that they do not to interfere with the student's clinical practice.</p> <p>*** The methods, the syllabus and the students' evaluation must be determined, announced, and implemented by the educational department based on appropriate scientific principles. The medical schools responsible for program approval, monitoring its implementation and its evaluation.</p>

#### Clinical Introduction to Diseases Courses:

- Clinical Reasoning in Approaching Common Signs and Symptoms
- Introduction to Cardiovascular Diseases
- Introduction to Respiratory Diseases
- Introduction to Hematologic Diseases
- Introduction to Gastroenterology and Hepatic Diseases
- Introduction to Endocrine and Metabolic Diseases
- Introduction to Kidney Diseases
- Introduction to Rheumatologic Diseases
- Introduction to Pediatric Diseases
- Introduction to Clinical Surgery
- Introduction to Neurologic Diseases
- Introduction to Psychiatry
- Introduction to Infectious Diseases

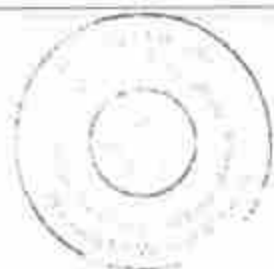


<b>Course Code</b>	174		
<b>Course Name</b>	Clinical Reasoning in Approaching Common Signs and Symptoms	<b>Course Type</b>	Theoretical
<b>Course Level</b>	Introduction to Clinical Sciences	<b>Course duration</b>	8 hours
<b>Prerequisite Courses</b>		<b>Credit Hours</b>	0.5
<b>General Objectives</b>	<p>At the end of this course, the students are expected to:</p> <ol style="list-style-type: none"> <li>1- explain the process of medical consultation and the position of clinical reasoning in reaching a diagnosis and clinical decision</li> <li>2- suggest some examples of common and general manifestations for a hypothetical patient, as well as the appropriate approach, and differential diagnoses, using related scientific concepts and principles (definitions, physiopathology, and epidemiology)</li> <li>3- pay attention to the importance of clinical reasoning in medical decision-makings.</li> </ol>		
<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- Introduction to clinical medicine</li> <li>2- The process of clinical reasoning and decision making</li> <li>3- Common symptoms and complaints, and approaches toward them (based on the clinical reasoning process):</li> </ol> <ul style="list-style-type: none"> <li>- Weakness and lethargy, fatigue</li> <li>- Nausea and vomiting</li> <li>- Jaundice</li> <li>- Involuntary weight loss</li> </ul>		
<b>Course Description</b>	<p>In this course, the students must achieve the specified goals by attending the class, the skill lab, and workshops, and doing individual and group assignments.</p> <p>At least part of each session should be devoted to presenting clinical cases and how to apply theoretical knowledge in analyzing the patient's problem and reaching a diagnosis.</p>		
<b>Instructional Activities</b>	<p>Learning activities in this course should include a balanced combination of theoretical training, individual study and group discussion, case studies, and doing other learning tasks.</p> <p>The timing and combination of these activities and required settings for each activity (including the classroom, the skill lab, and controlled clinical environments) will be determined by each medical school in the study guide based on the standards introduced by the Secretariat of the General Medical Education Council.</p>		
<b>Notes</b>	<p>*It is recommended that this course be offered with the participation of faculty members who specialize in general internal medicine or faculty members who have a general and overlooking view of the practice of general practitioners.</p> <p>**Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning</p>		



	<p>guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education.</p> <p>*** The methods, the syllabus and the students' evaluation must be determined, announced, and implemented by the educational department based on appropriate scientific principles. The medical schools re responsible for program approval, monitoring its implementation and its evaluation.</p>
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<b>Course Code</b>	175		
<b>Course Name</b>	Introduction to Cardiovascular Diseases	<b>Course Type</b>	Theoretical and Practical
<b>Course Level</b>	Introduction to Clinical Sciences	<b>Course duration</b>	32 hours (theoretical) 4 hours (Practical, case discussion)
<b>Prerequisite Courses</b>		<b>Credit Hours</b>	2
<b>General Objectives</b>	<p>At the end of this course, (based on the attached list) the students are expected to:</p> <p>A- in the face of any common and important symptoms and complaints,</p> <ol style="list-style-type: none"> <li>1- define them</li> <li>2- explain the required physical examination (focused history taking and physical examination) in approaching them</li> <li>3- make important differential diagnoses and suggest the required steps to reach the diagnosis and management of the patient's problem</li> </ol> <p>B- about common and important diseases,</p> <ol style="list-style-type: none"> <li>1- describe the definition, etiology, and epidemiology of the disease</li> <li>2- explain the problems of patients with common and important diseases</li> <li>3- describe the methods of diagnosing the disease</li> <li>4- explain the most important preventive measures at different levels, including treatment and rehabilitation of the patient based on scientific evidence and local guidelines as expected from a general practitioner</li> <li>5- use what they have learned for clinical reasoning, and suggesting a diagnostic or therapeutic approaches in the face of scenarios or descriptions of patients related to these diseases</li> </ol> <p>C- pay attention to important issues that need to be considered in the clinical setting of this area</p>		
<b>Course Description</b>	<p>In this course, the students must achieve the specified goals by attending the class, the skill lab, and workshops, and doing individual and group assignments.</p> <p>At least part of each session should be devoted to presenting clinical cases and how to apply theoretical knowledge in analyzing the patient's problem and reaching a diagnosis.</p> <p>At least one session of the course should be devoted to a case discussion so that students examine a patient's history and practice the application of what they have learned in this course in analyzing the patient's problems and reaching a diagnosis or answers for the clinical questions having been posed.</p>		

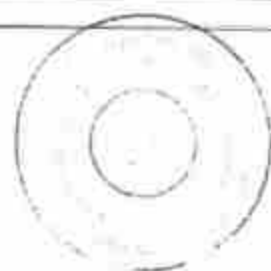




Educational Activities	<p>Learning activities in this course should include a balanced combination of theoretical training, individual study and group discussion, case studies, and doing other learning tasks.</p> <p>The timing and combination of these activities and required settings for each activity (including the classroom, the skill lab, and controlled clinical environments) will be determined by each medical school in the study guide based on the standards introduced by the Secretariat of the General Medical Education Council.</p>
Notes	<p>*Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education.</p> <p>** The methods, the syllabus and the students' evaluation must be determined, announced, and implemented by the educational department based on appropriate scientific principles. The medical schools re responsible for program approval, monitoring its implementation and its evaluation.</p> <p>***In presenting the content of these courses, the main emphasis is on signs and symptoms and common diseases. Obviously, in each medical school, the curriculum committee must have the necessary surveillance over the proportion of the content presented by the respected professors, to the number of credits and capabilities expected of general practitioners in the health system.</p>

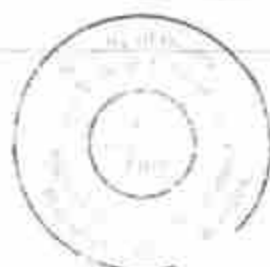
#### Appendix to the Introductory Course of Cardiovascular Diseases - Doctoral of Medicine (The outline)

- 1- Functional anatomy and physiology of the heart
- 2- Paraclinical methods in the diagnosis of cardiovascular diseases
- 3- Clinical manifestations of cardiovascular disease:
  - a- Chest pain
  - b- Shortness of breath
  - c- Syncope
  - d- Heart palpitation
  - e- Cardiac arrest and sudden death
- 4- ECG, principles of normal heart electrophysiology and heart blocks
- 5- Cardiac arrhythmia
- 6- Atherosclerosis
- 7- Coronary artery disease
- 8- Cardiac valve diseases (rheumatic heart disease, diseases of mitral, tricuspid, aortic and pulmonary valves)
- 9- Cardiac muscle diseases
- 10- Pericardial and endocardial diseases
- 11- Vascular diseases (arterial and venous)
- 12- Arterial hypertension
- 13- Heart failure
- 14- Acute circulatory failure (shock)
- 15- Case discussion



\* The Secretariat of the General Education Council can modify the above outline, if required, in accordance with demands and priorities if approved by the General Medical Board and medical schools.

<b>Course Code</b>	176		
<b>Course Name</b>	Introduction to Respiratory Diseases	<b>Course Type</b>	Theoretical and Practical
<b>Course Level</b>	Introduction to Clinical Sciences	<b>Course duration</b>	32 hours (theoretical) 4 hours (Practical, case discussion)
<b>Prerequisite Courses</b>		<b>Credit Hours</b>	2
<b>General Objectives</b>	<p>At the end of this course, (based on the attached list) the students are expected to:</p> <p>A- in the face of any common and important symptoms and complaints,</p> <ol style="list-style-type: none"> <li>1- define them</li> <li>2- explain the required physical examination (focused history taking and physical examination) in approaching them</li> <li>3- make important differential diagnoses and suggest the required steps to reach the diagnosis and management of the patient's problem</li> </ol> <p>B- about common and important diseases,</p> <ol style="list-style-type: none"> <li>1- describe the definition, etiology, and epidemiology of the disease</li> <li>2- explain the problems of patients with common and important diseases</li> <li>3- describe the methods of diagnosing the disease</li> <li>4- explain the most important preventive measures at different levels, including treatment and rehabilitation of the patient based on scientific evidence and local guidelines as expected from a general practitioner</li> <li>5- use what they have learned for clinical reasoning, and suggesting a diagnostic or therapeutic approaches in the face of scenarios or descriptions of patients related to these diseases</li> </ol> <p>C- pay attention to important issues that need to be considered in the clinical setting of this area</p>		
<b>Course Description</b>	<p>In this course, the students must achieve the specified goals by attending the class, the skill lab, and workshops, and doing individual and group assignments.</p> <p>At least one session of the course should be devoted to a case discussion so that students examine a patient's history and practice the application of what they have learned in this course in analyzing the patient's problems and reaching a diagnosis or answers for the clinical questions having been posed.</p>		
<b>Educational Activities</b>	<p>Learning activities in this course should include a balanced combination of theoretical training, individual study and group discussion, case studies, and doing other learning tasks.</p> <p>The timing and combination of these activities and required settings for each activity (including the classroom, the skill lab, and controlled clinical environments) will be</p>		



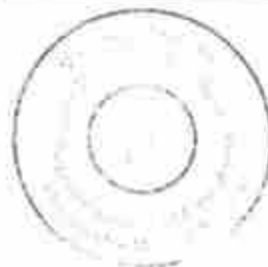
	determined by each medical school in the study guide based on the standards introduced by the Secretariat of the General Medical Education Council.
Notes	<p>*Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education.</p> <p>** The methods, the syllabus and the students' evaluation must be determined, announced, and implemented by the educational department based on appropriate scientific principles. The medical schools re responsible for program approval, monitoring its implementation and its evaluation.</p> <p>***In presenting the content of these courses, the main emphasis is on signs and symptoms and common diseases. Obviously, in each medical school, the curriculum committee must have the necessary surveillance over the proportion of the content presented by the respected professors, to the number of credits and capabilities expected of general practitioners in the health system.</p>

#### Appendix to the Introductory Course of Respiratory Diseases - (The outline)

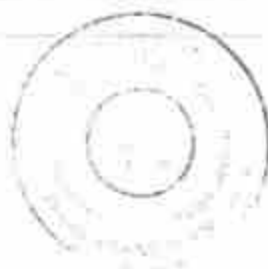
- 1- A review of functional anatomy and physiology of the respiratory system (ventilation, perfusion, mechanics, and respiratory control)
- 2- Symptomatology of respiratory diseases
- 3- Diagnostic methods in lung diseases (imaging, endoscopy, immunological and microbiological tests, evaluation of respiratory function)
- 4- Chronic obstructive pulmonary diseases (bronchial asthma)
- 5- Chronic obstructive pulmonary diseases (COPD)
- 6- Upper respiratory tract infections
- 7- Bacterial and viral pneumonia
- 8- Pulmonary tuberculosis
- 9- Bronchiectasis and lung abscess
- 10- Lung tumors
- 11- Interstitial lung diseases
- 12- Occupational lung diseases caused by environmental factors in the lungs (asbestosis, organic and inorganic pollutants, etc.)
- 13- Pulmonary vascular diseases (pulmonary embolism, pulmonary hypertension)
- 14- Pleural disorders and diseases
- 15- Respiratory failure and ARDS
- 16- Case discussion

\* The Secretariat of the General Education Council can modify the above outline, if required, in accordance with demands and priorities if the changes are approved by and coordinated with the General Medical Board and Medical Schools.

Course Code	177		
Course Name	Introduction to Hematologic Diseases	Course Type	Theoretical and Practical



<b>Course Level</b>	Introduction to Clinical Sciences	<b>Course duration</b>	32 hours (theoretical) 4 hours (Practical, case discussion)
<b>Prerequisite Courses</b>		<b>Credit Hours</b>	2
<b>General Objectives</b>	<p>At the end of this course, (based on the attached list) the students are expected to:</p> <p>A- in the face of any common and important symptoms and complaints,</p> <ol style="list-style-type: none"> <li>1- define them</li> <li>2- explain the required physical examination (focused history taking and physical examination) in approaching them</li> <li>3- make important differential diagnoses and suggest the required steps to reach the diagnosis and management of the patient's problem</li> </ol> <p>B- about common and important diseases,</p> <ol style="list-style-type: none"> <li>1- describe the definition, etiology, and epidemiology of the disease</li> <li>2- explain the problems of patients with common and important diseases</li> <li>3- describe the methods of diagnosing the disease</li> <li>4- explain the most important preventive measures at different levels, including treatment and rehabilitation of the patient based on scientific evidence and local guidelines as expected from a general practitioner</li> <li>5- use what they have learned for clinical reasoning, and suggesting a diagnostic or therapeutic approaches in the face of scenarios or descriptions of patients related to these diseases</li> </ol> <p>C- pay attention to important issues that need to be considered in the clinical setting of this area</p>		
<b>Course Description</b>	<p>In this course, the students must achieve the specified goals by attending the class, the skill lab, and workshops, and doing individual and group assignments.</p> <p>At least one session of the course should be devoted to a case discussion so that students examine a patient's history and practice the application of what they have learned in this course in analyzing the patient's problems and reaching a diagnosis or answers for the clinical questions having been posed.</p>		
<b>Educational Activities</b>	<p>Learning activities in this course should include a balanced combination of theoretical training, individual study and group discussion, case studies, and doing other learning tasks.</p> <p>The timing and combination of these activities and required settings for each activity (including the classroom, the skill lab, and controlled clinical environments) will be determined by each medical school in the study guide based on the standards introduced by the Secretariat of the General Medical Education Council.</p>		
<b>Notes</b>	<p>*Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education.</p>		

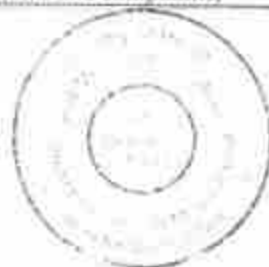




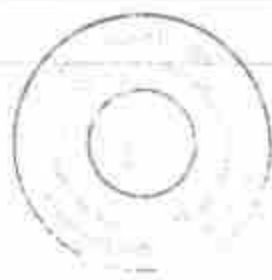
	<p><b>** The methods, the syllabus and the students' evaluation must be determined, announced, and implemented by the educational department based on appropriate scientific principles. The medical schools are responsible for program approval, monitoring its implementation and its evaluation.</b></p> <p><b>***In presenting the content of these courses, the main emphasis is on signs and symptoms and common diseases. Obviously, in each medical school, the curriculum committee must have the necessary surveillance over the proportion of the content presented by the respected professors, to the number of credits and capabilities expected of general practitioners in the health system.</b></p>
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<b>Appendix to the Introductory Course of Hematologic Diseases - (The outline)</b>	
<ol style="list-style-type: none"> <li>1- Functional anatomy and physiology of the blood system (hematopoiesis, blood cells, and their function, hemostasis)</li> <li>2- Paraclinical evaluation in blood system diseases (complete blood cell count, blood smear examination, bone marrow examination)</li> <li>3- Clinical and paraclinical symptoms in blood diseases (anemia, high hemoglobin, leukopenia, leukocytosis, lymphadenopathy, splenomegaly, bleeding, thrombocytopenia, thrombocytosis, pancytopenia, infections, and venous thrombosis)</li> <li>4- Anemia (iron deficiency anemia and chronic disease anemia, megaloblastic anemia, aplastic anemia)</li> <li>5- General hemolysis, membranopathies, and enzymopathies</li> <li>6- Hemoglobinopathies, thalassemia syndromes, and acquired hemolytic anemia</li> <li>7- Inherited and acquired coagulation disorders</li> <li>8- Platelet homeostasis disorders</li> <li>9- Thrombotic disorders and anticoagulant treatments</li> <li>10- Myeloproliferative neoplasms (primary thrombocytosis, primary and secondary polycythemia, myelofibrosis)</li> <li>11- Acute leukemia and bone marrow transplantation</li> <li>12- Chronic leukemias (CML, CLL, HCL)</li> <li>13- Hodgkin's and Non-Hodgkin's lymphoma, plasma cell dyscrasias</li> <li>14- Blood and transfusion products</li> <li>15- Emergencies of oncology</li> <li>16- Case discussion</li> </ol>	
<p><b>* The Secretariat of the General Education Council can modify the above outline, if required, in accordance with demands and priorities if the changes are approved by and coordinated with the General Medical Board and Medical Schools.</b></p>	

<b>Course Code</b>	178		
<b>Course Name</b>	Introduction to Gastroenterology and Hepatic diseases	<b>Course Type</b>	Theoretical and Practical
<b>Course Level</b>	Introduction to Clinical Sciences	<b>Course duration</b>	36 hours (theoretical) 4 hours (Practical, case discussion)
<b>Prerequisite Courses</b>		<b>Credit Hours</b>	2.1
<b>General Objectives</b>	<p>At the end of this course, (based on the attached list) the students are expected to:</p> <p>A- in the face of any common and important symptoms and complaints,</p>		



	<ol style="list-style-type: none"> <li>1- define them</li> <li>2- explain the required physical examination (focused history taking and physical examination) in approaching them</li> <li>3- make important differential diagnoses and suggest the required steps to reach the diagnosis and management of the patient's problem</li> </ol> <p>B- about common and important diseases;</p> <ol style="list-style-type: none"> <li>1- describe the definition, etiology, and epidemiology of the disease</li> <li>2- explain the problems of patients with common and important diseases</li> <li>3- describe the methods of diagnosing the disease</li> <li>4- explain the most important preventive measures at different levels, including treatment and rehabilitation of the patient based on scientific evidence and local guidelines as expected from a general practitioner</li> <li>5- use what they have learned for clinical reasoning, and suggesting a diagnostic or therapeutic approaches in the face of scenarios or descriptions of patients related to these diseases</li> </ol> <p>C- pay attention to important issues that need to be considered in the clinical setting of this area</p>
<b>Course Description</b>	<p>In this course, the students must achieve the specified goals by attending the class, the skill lab, and workshops, and doing individual and group assignments.</p> <p>At least one session of the course should be devoted to a case discussion so that students examine a patient's history and practice the application of what they have learned in this course in analyzing the patient's problems and reaching a diagnosis or answers for the clinical questions having been posed.</p>
<b>Educational Activities</b>	<p>Learning activities in this course should include a balanced combination of theoretical training, individual study and group discussion, case studies, and doing other learning tasks.</p> <p>The timing and combination of these activities and required settings for each activity (including the classroom, the skill lab, and controlled clinical environments) will be determined by each medical school in the study guide based on the standards introduced by the Secretariat of the General Medical Education Council</p>
<b>Notes</b>	<p>*Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education.</p> <p>** The methods, the syllabus and the students' evaluation must be determined, announced, and implemented by the educational department based on appropriate scientific principles. The medical schools re responsible for program approval, monitoring its implementation and its evaluation.</p> <p>***In presenting the content of these courses, the main emphasis is on signs and symptoms and common diseases. Obviously, in each medical school, the curriculum committee must have the necessary surveillance over the proportion of the content</p>

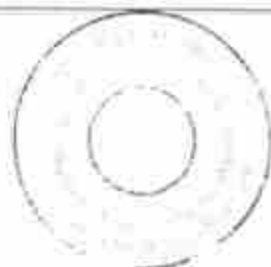


	presented by the respected professors, to the number of credits and capabilities expected of general practitioners in the health system.
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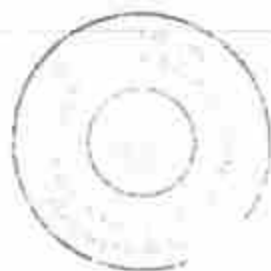
#### Appendix to the Introductory Course of Gastroenterology and Hepatic diseases - (The outline)

- 1- Functional anatomy and physiology of the gastrointestinal tract
- 2- Methods of paraclinical examinations in gastrointestinal diseases
- 3- Manifestations of gastrointestinal diseases:
  - a- Dyspepsia
  - b- Swallowing disorders (odynophagia and dysphagia)
  - c- Heartburn and reflux
  - d- Vomiting
  - e- Gastrointestinal bleeding
  - f- Diarrhea (acute and chronic)
  - g- Malabsorption
  - h- Constipation and excretory disorders
  - i- Abdominal pain
- 4- Oral and salivary gland diseases (aphthous, oral cancer, candidiasis, parotid inflammation)
- 5- Esophageal diseases (reflux, movement disorders, esophagitis, tumors, and esophageal ulcers)
- 6- Diseases of the stomach and duodenum (gastritis, peptic ulcer, functional disorders, and stomach cancers)
- 7- Diseases of the small intestine (malabsorption syndrome, movement disorders, food-induced side effects, infections of the small intestine, tumors of the small intestine)
- 8- Pancreatic diseases (acute and chronic pancreatitis, tumors)
- 9- Inflammatory bowel diseases
- 10- Irritable bowel syndrome
- 11- Functional anatomy and physiology of the liver and bile ducts
- 12- Paraclinical examination of diseases of the liver and bile ducts (blood biochemical tests, hematological tests, hematologic and immunologic tests, imaging and histologic examination)
- 13- Manifestation of liver diseases:
  - a- Acute liver failure
  - b- Impaired liver function tests (interpretation of the liver test)
  - c- Jaundice
  - d- Hepatomegaly
  - e- Ascites
  - f- Hepatic encephalopathy
  - g- Bleeding from esophageal varices
- 14- Liver infections (viral hepatitis and liver abscess)
- 15- Autoimmune diseases of liver and bile duct
- 16- Fatty liver
- 17- Liver cirrhosis
- 18- Liver tumors
- 19- Drug-induced liver damage
- 20- Hereditary liver diseases (hemochromatosis, Wilson, Gilbert)
- 21- Gallstones and cholestasis (PSC, PBC)
- 22- Gastrointestinal parasitic diseases and hydatid cysts
- 23- Case discussion

\* The Secretariat of the General Education Council can modify the above outline, if required, in accordance with demands and priorities if the changes are approved by and coordinated with the General Medical Board and Medical Schools.



<b>Course Code</b>	179		
<b>Course Name</b>	Introduction to Endocrine and Metabolic Diseases	<b>Course Type</b>	Theoretical and Practical
<b>Course Level</b>	Introduction to Clinical Sciences	<b>Course duration</b>	32 hours (theoretical) 4 hours (Practical, case discussion)
<b>Prerequisite Courses</b>		<b>Credit Hours</b>	2
<b>General Objectives</b>	<p>At the end of this course, (based on the attached list) the students are expected to:</p> <p>A- in the face of any common and important symptoms and complaints,</p> <ol style="list-style-type: none"> <li>1- define them</li> <li>2- explain the required physical examination (focused history taking and physical examination) in approaching them</li> <li>3- make important differential diagnoses and suggest the required steps to reach the diagnosis and management of the patient's problem</li> </ol> <p>B- about common and important diseases,</p> <ol style="list-style-type: none"> <li>1- describe the definition, etiology, and epidemiology of the disease</li> <li>2- explain the problems of patients with common and important diseases</li> <li>3- describe the methods of diagnosing the disease</li> <li>4- explain the most important preventive measures at different levels, including treatment and rehabilitation of the patient based on scientific evidence and local guidelines as expected from a general practitioner</li> <li>5- use what they have learned for clinical reasoning, and suggesting a diagnostic or therapeutic approaches in the face of scenarios or descriptions of patients related to these diseases</li> </ol> <p>C- pay attention to important issues that need to be considered in the clinical setting of this area.</p>		
<b>Course Description</b>	<p>In this course, the students must achieve the specified goals by attending the class, the skill lab, and workshops, and doing individual and group assignments.</p> <p>At least one session of the course should be devoted to a case discussion so that students examine a patient's history and practice the application of what they have learned in this course in analyzing the patient's problems and reaching a diagnosis or answers for the clinical questions having been posed.</p>		
<b>Instructional Activities</b>	<p>Learning activities in this course should include a balanced combination of theoretical training, individual study and group discussion, case studies, and doing other learning tasks.</p> <p>The timing and combination of these activities and required settings for each activity (including the classroom, the skill lab, and controlled clinical environments) will be determined by each medical school in the study guide based on the standards introduced by the Secretariat of the General Medical Education Council.</p>		
<b>Notes</b>	<p>*Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates</p>		





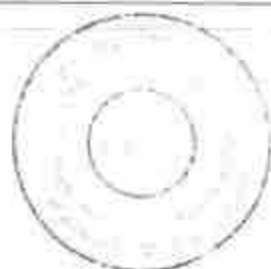
	<p>of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education.</p> <p><b>**</b> The methods, the syllabus and the students' evaluation must be determined, announced, and implemented by the educational department based on appropriate scientific principles. The medical schools are responsible for program approval, monitoring its implementation and its evaluation.</p> <p><b>***</b> In presenting the content of these courses, the main emphasis is on signs and symptoms and common diseases. Obviously, in each medical school, the curriculum committee must have the necessary surveillance over the proportion of the content presented by the respected professors, to the number of credits and capabilities expected of general practitioners in the health system.</p>
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#### Appendix to the Introductory Course of Endocrinology and Metabolic diseases - (The outline)

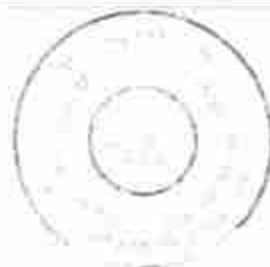
- 1- General concepts of endocrinology
- 2- Pituitary and hypothalamic diseases (functional anatomy and physiology, clinical manifestation of pituitary and hypothalamic diseases, hypopituitarism and hypothalamic dysfunction, prolactinoma, acromegaly, and diabetes insipidus)
- 3- Thyroid diseases (functional anatomy and physiology, clinical manifestation of thyroid diseases, paraclinical examinations of thyroid diseases, hyperthyroidism, hypothyroidism, thyroiditis, goiter, and thyroid tumors)
- 4- Parathyroid diseases (functional anatomy and physiology, hypercalcemia and hypocalcemia, hyperthyroidism, and hypothyroidism)
- 5- Adrenal (functional anatomy and physiology, clinical manifestations of adrenal diseases, Cushing's syndrome, adrenal insufficiency, and pheochromocytoma)
- 6- Gonads (functional anatomy and physiology, delayed puberty, amenorrhea and hirsutism, polycystic ovarian syndrome)
- 7- Diabetes: definition, diagnosis and classification
- 8- Acute complications of diabetes: diabetic ketoacidosis, hyperosmolar coma
- 9- Chronic complications of diabetes
- 10- Metabolic syndrome and obesity
- 11- Lipid disorders
- 12- Case discussion

\* The Secretariat of the General Education Council can modify the above outline, if required, in accordance with demands and priorities if the changes are approved by and coordinated with the General Medical Board and Medical Schools.

Course Code	180		
Course Name	Introduction to Kidney Diseases	Course Type	Theoretical and Practical
Course Level	Introduction to Clinical Sciences	Course duration	26 hours (Theoretical) 4 hours (Practical, case discussion)
Prerequisite Courses		Credit Hours	1.6
General Objectives	<p>At the end of this course, (based on the attached list) the students are expected to:</p> <p>A- In the face of any common and important symptoms and complaints:</p>		



	<p>1- Define them</p> <p>2- Explain the required physical examination (focused history taking and physical examination) in approaching them.</p> <p>3- Make important differential diagnoses and suggest the required steps to reach the diagnosis and management of the patient's problem.</p> <p>B- About common and important diseases:</p> <p>1- Describe the definition, etiology, and epidemiology of the disease</p> <p>2- Explain the problems of patients with common and important diseases.</p> <p>3- Describe the methods of diagnosing the disease.</p> <p>4- Explain the most important preventive measures at different levels, including treatment and rehabilitation of the patient based on scientific evidence and local guidelines as expected from the general practitioner.</p> <p>5- Use what has been learned for clinical reasoning, and suggest a diagnostic or therapeutic approach in the face of scenarios or descriptions of patients related to these diseases.</p> <p>C- Pay attention to important issues that need to be considered in the clinical setting of this area.</p>
<b>Course Description</b>	<p>In this course, the students must achieve specific goals by attending the classroom, the skill lab, workshops, and completing individual and group assignments.</p> <p>At least one session of the course should be devoted to case discussion so that students while reviewing a patient's history, apply what they have learned in this course to analyze his or her problems and arrive at a diagnosis or answer the clinical questions.</p>
<b>Instructional Activities</b>	<p>Learning activities in this course should include a balanced combination of theoretical training, individual study and group discussion, case studies, and other learning tasks.</p> <p>Timetables, combined learning activities and areas required for each activity (including the classroom, the skill lab, and controlled clinical environments) in the study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>
<b>Notes</b>	<p>• Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education.</p> <p>*** The methods, the syllabus and the students' evaluation should be determined, announced, and implemented by the educational department based on appropriate scientific principles. Program approval, monitoring its implementation and its evaluation are the responsibility of the medical school.</p> <p>***In presenting the content of introduction to clinical courses, the main emphasis is on signs and symptoms and common diseases. Obviously, in each medical school, the curriculum committee must have the necessary oversight of the appropriateness of the content presented by the respected professors, with the course content and capabilities expected of general practitioners in the health system.</p>

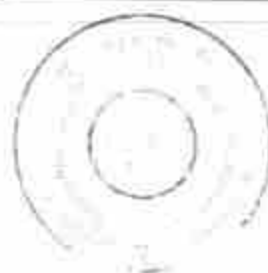


### Appendix to the Introductory Course of Kidney Diseases - (The outline)

- 1- Functional anatomy and physiology of urinary tract
- 2- Laboratory diagnosis of kidney and urinary tract diseases (GFR, urinary analysis, blood tests, imaging, and kidney biopsy)
- 3- Clinical manifestations of kidney and urinary tract diseases
- 4- Acute renal failure
- 5- Chronic kidney disease (renal insufficiency)
- 6- Vascular diseases of the kidney
- 7- Glomerular diseases of the kidney
- 8- Tubulointerstitial diseases (acute and chronic interstitial nephritis, reflux induced nephropathy, etc.)
- 9- Cystic kidney diseases
- 10- Kidney stones
- 11- Urinary tract infections
- 12- Water and electrolyte disorders
- 13- Acid-base disorders
- 14- Arterial hypertension
- 15- Principles of alternative therapy in renal failure (conservative treatment, hemodialysis, peritoneal dialysis, kidney transplantation)
- 16- Kidney and systemic diseases, pregnancy
- 17- Case discussion

\* The Secretariat of the General Education Council can modify the above outline, if required, in accordance with demands and priorities if the changes are approved by and coordinated with the General Medical Board and Medical Schools.

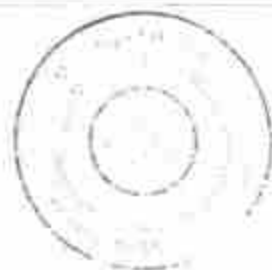
Course Code	181		
Course Name	Introduction to Rheumatologic Diseases	Course Type	Theoretical and Practical
Course Level	Introduction to Clinical Sciences	Course duration	26 hours (Theoretical) 4 hours (Practical, case discussion)
Prerequisite Courses		Credit Hours	1.6
General Objectives	<p>At the end of this course, (based on the attached list) the students are expected to:</p> <p>A- In the face of any common and important symptoms and complaints:</p> <ol style="list-style-type: none"> <li>1- Define them</li> <li>2- Explain the required physical examination (focused history taking and physical examination) in approaching them.</li> <li>3- Make important differential diagnoses and suggest the required steps to reach the diagnosis and management of the patient's problem.</li> </ol> <p>B- About common and important diseases:</p> <ol style="list-style-type: none"> <li>1- Describe the definition, etiology, and epidemiology of the disease.</li> <li>2- Explain the problems of patients with common and important diseases.</li> <li>3- Describe the methods of diagnosing the disease.</li> <li>4- Explain the most important preventive measures at different levels, including treatment and rehabilitation of the patient based on scientific evidence and local guidelines as expected from the general practitioner.</li> </ol>		



	<p>S- Use what has been learned for clinical reasoning, and suggest a diagnostic or therapeutic approach in the face of scenarios or descriptions of patients related to these diseases.</p> <p>C- Pay attention to important issues that need to be considered in the clinical setting of this area.</p>
<b>Course Description</b>	<p>In this course, the students must achieve specific goals by attending the classroom, the skill lab, workshops, and completing individual and group assignments.</p> <p>At least one session of the course should be devoted to case discussion so that students while reviewing a patient's history, apply what they have learned in this course to analyze his or her problems and arrive at a diagnosis or answer the clinical questions.</p>
<b>Instructional Activities</b>	<p>Learning activities in this course should include a balanced combination of theoretical training, individual study and group discussion, case studies, and other learning tasks.</p> <p>Timetables, combined learning activities and areas required for each activity (including the classroom, the skill lab, and controlled clinical environments) in the study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>
<b>Notes</b>	<p>* Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education.</p> <p>*** The methods, the syllabus and the students' evaluation should be determined, announced, and implemented by the educational department based on appropriate scientific principles. Program approval, monitoring its implementation and its evaluation are the responsibility of the medical school.</p> <p>***In presenting the content of introduction to clinical courses, the main emphasis is on signs and symptoms and common diseases. Obviously, in each medical school, the curriculum committee must have the necessary oversight of the appropriateness of the content presented by the respected professors, with the course content and capabilities expected of general practitioners in the health system.</p>

#### Appendix to the Introductory Course of Rheumatologic Diseases - (The outline)

- 1- Symptomology of rheumatologic diseases
  - a- Spinal pain and general musculoskeletal pains
  - b- Polyarthritides and monoarthritides
- 2- Functional anatomy and physiology of connective tissue
- 3- Osteoarthritis
- 4- Rheumatoid arthritis and JRA
- 5- Seronegative spondyloarthritides (ankylosing spondylitis, reactive arthritis, etc.)
- 6- Psoriatic arthritides
- 7- Infectious arthritis (septic, viral, tuberculosis, and brucella)

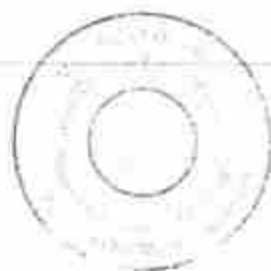




- 8- Gout and other arthropathies caused by crystalline
- 9- Connective tissue diseases (systemic lupus erythematosus, systemic sclerosis, Sjogren's syndrome, polymyositis, and dermatomyositis)
- 10- Vasculitis
- 11- Osteoporosis
- 12- Other bone diseases (osteomalacia, Paget's disease, hyperparathyroidism)
- 13- Laboratory tests and observational techniques (imaging) in rheumatic disorders
- 14- The approach toward patients with musculoskeletal complaints (history and examination), introducing clinical syndromes
- 15- Principles of treatment in rheumatic diseases
- 16- Case discussion

\* The Secretariat of the General Education Council can modify the above outline, if required, in accordance with demands and priorities if the changes are approved by and coordinated with the General Medical Board and Medical Schools.

<b>Course Code</b>	182		
<b>Course Name</b>	Introduction to Pediatric Diseases	<b>Course Type</b>	Theoretical
<b>Course Level</b>	Introduction to Clinical Sciences	<b>Course duration</b>	17 hours (Theoretical)
<b>Prerequisite Courses</b>		<b>Credit Hours</b>	1 Credit hour*
<b>General Objectives</b>	<p>At the end of this course, (based on the attached list) the students are expected to:</p> <p>A- In the face of any common and important symptoms and complaints:</p> <ol style="list-style-type: none"> <li>1- Define them</li> <li>2- Explain the required physical examination (focused history taking and physical examination) in approaching them.</li> <li>3- Make important differential diagnoses and suggest the required steps to reach the diagnosis and management of the patient's problem.</li> </ol> <p>B- About common and important diseases:</p> <ol style="list-style-type: none"> <li>1- Describe the definition, etiology, and epidemiology of the disease.</li> <li>2- Explain the problems of patients with common and important diseases.</li> <li>3- Describe the methods of diagnosing the disease</li> <li>4- Explain the most important preventive measures at different levels, including treatment and rehabilitation of the patient based on scientific evidence and local guidelines as expected from the general practitioner.</li> <li>4- Use what has been learned for clinical reasoning, and suggest a diagnostic or therapeutic approach in the face of scenarios or descriptions of patients related to these diseases.</li> </ol> <p>C- Pay attention to important issues that need to be considered in the clinical setting of this area.</p>		
<b>Course Description</b>	<p>In this course, the students must achieve specific goals by attending the classroom, the skill lab, workshops, and completing individual and group assignments.</p>		

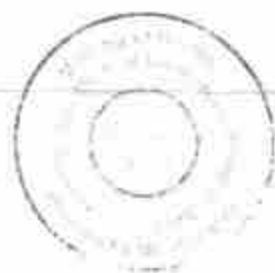


	At least one session of the course should be devoted to case discussion so that students while reviewing a patient's history, apply what they have learned in this course to analyze his or her problems and arrive at a diagnosis or answer the clinical questions.
<b>Instructional Activities</b>	<p>Learning activities in this course should include a balanced combination of theoretical training, individual study and group discussion, case studies, and other learning tasks.</p> <p>Timetables, combined learning activities and areas required for each activity (including the classroom, the skill lab, and controlled clinical environments) in the study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>
<b>Notes</b>	<p>*Out of a total of 6 theoretical units of pediatrics in Medicine, 5 units in the clerkship period ( 1 and 2) and 1 unit (equivalent to 17 hours) in the clinical preparation course should present in the form of learning needs (must know).</p> <p>** Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education.</p> <p>*** The methods, the syllabus and the students' evaluation should be determined, announced, and implemented by the educational department based on appropriate scientific principles. Program approval, monitoring its implementation and its evaluation are the responsibility of the medical school.</p>

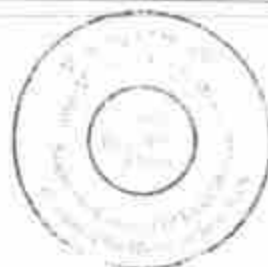
#### Appendix to the Introductory Course of Pediatric Diseases - (The outline)

- 1- Definition of pediatrics; epidemiology of diseases and child mortality and morbidity in Iran, and familiarity with the health system and children's health programs in Iran
- 2- History taking and physical examination of a child
- 3- Familiarity with screening for diseases based on recommended national programs
- 4- Infection control in the hospital, epidemiological control of infectious diseases in children in the community
- 5- Pathophysiology of upper and lower respiratory tract infections
- 6- Pathophysiology of hypoglycemia in children
- 7- Pathophysiology of edema and hematuria
- 8- Shock in children (concepts, pathophysiology, etiology, and clinical signs)
- 9- Familiarity with the principles of the pathophysiology of body fluids and evaluation of common electrolyte disorders
- 10- Pathophysiology of acid-base disorders

\* The Secretariat of the General Education Council can modify the above outline, if required, in accordance with demands and priorities if the changes are approved by and coordinated with the General Medical Board and Medical Schools.



<b>Course Code</b>	183		
<b>Course Name</b>	Introduction to Clinical Surgery	<b>Course Type</b>	Theoretical and Practical
<b>Course Level</b>	Introduction to Clinical Sciences	<b>Course duration</b>	15 Hours Theoretical and 4 Hours Workshop
<b>Prerequisite Courses</b>		<b>Credit Hours</b>	1
<b>General Objectives</b>	<p>At the end of this course, (based on the attached list) the students are expected to:</p> <p>A- In the face of any common and important symptoms and complaints:</p> <ol style="list-style-type: none"> <li>1- Define them.</li> <li>2- Explain the required physical examination (focused history taking and physical examination) in approaching them.</li> <li>3- Make important differential diagnoses and suggest the required steps to reach the diagnosis and management of the patient's problem.</li> </ol> <p>B- About common and important diseases:</p> <ol style="list-style-type: none"> <li>1- Describe the definition, etiology, and epidemiology of the disease.</li> <li>2- Explain the problems of patients with common and important diseases.</li> <li>3- Describe the methods of diagnosing the disease.</li> <li>4- Explain the most important preventive measures at different levels, including treatment and rehabilitation of the patient based on scientific evidence and local guidelines as expected from the general practitioner.</li> <li>5- Use what has been learned for clinical reasoning, and suggest a diagnostic or therapeutic approach in the face of scenarios or descriptions of patients related to these diseases.</li> </ol> <p>C- Pay attention to important issues to be considered in the clinical setting of this area.</p>		
<b>Course Description</b>	In this course, the students must achieve specific goals by attending the classroom, the skill lab, workshops, and completing individual and group assignments.		
<b>Instructional Activities</b>	<p>This course should include a balanced combination of theoretical training, individual study and group discussion, case studies, and other learning tasks.</p> <p>Timetables, combined learning activities and areas required for each activity (including the classroom, the skill lab, and controlled clinical environments) in the study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>		
<b>Notes</b>	*Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of		



the General Medical Education Council of the Ministry of Health and Medical Education.

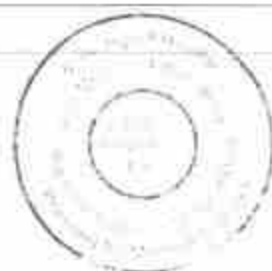
\*\* The methods, the syllabus and the students' evaluation should be determined, announced, and implemented by the educational department based on appropriate scientific principles. Program approval, monitoring its implementation and its evaluation are the responsibility of the medical school.

#### Appendix to the Course of Introduction to Clinical Surgery - (The outline)

- 1- Acute abdomen and its differential diagnoses
- 2- Principles of dealing with open and closed wounds and controlling external bleedings
- 3- Shock and transfusion
- 4- Dealing with common traumas including primary and secondary evaluation
- 5- Managing patients before and after surgery
- 6- History taking and physical examination of the urogenital system
- 7- Common signs and symptoms of urinary tract diseases (urology)
- 8- Hematuria and renal colic
- 9- General concepts of fractures and dislocations (including the principles of repair of open fractures)
- 10- Principles of taking orthopedic history and examinations and common diagnostic methods in orthopedics
- 11- Identification of simple surgical instruments and widely used sets in different departments, and how to use aseptic techniques in common hospital procedures ( a 2-hour workshop)
- 12- The importance of documenting care and important file recording issues in surgical wards (a 2-hour workshop)
- 13- Safety of patients in surgical wards

\*The Secretariat of the General Education Council can modify the above outline, if required, in accordance with demands and priorities if the changes are approved by and coordinated with the General Medical Board and Medical Schools.

Course Code	184		
Course Name	Introduction to Neurological Diseases	Course Type	Theoretical
Course Level	Introduction to Clinical Sciences	Course duration	9 Hours
Prerequisite Courses		Credit Hours	0.5 Credit hour
General Objectives	<p>At the end of this course, (based on the attached list) the students are expected to:</p> <p>A- In the face of any common and important symptoms and complaints,</p> <p>1- Define them.</p> <p>2- Explain the required physical examination (focused history taking and physical examination) in approaching them.</p>		





	<p>3- Make important differential diagnoses and suggest the required steps to reach the diagnosis and management of the patient's problem.</p> <p>B- About common and important diseases:</p> <ol style="list-style-type: none"> <li>1- Describe the definition, etiology, and epidemiology of the disease.</li> <li>2- Explain the problems of patients with common and important diseases.</li> <li>3- Describe the methods of diagnosing the disease.</li> <li>4- Explain the most important preventive measures at different levels, including treatment and rehabilitation of the patient based on scientific evidence and local guidelines as expected from the general practitioner.</li> <li>5- Use what has been learned for clinical reasoning, and suggest a diagnostic or therapeutic approach in the face of scenarios or descriptions of patients related to these diseases.</li> </ol> <p>C- Pay attention to important issues to be considered in the clinical setting of this area.</p>
Course Description	<p>In this course, the students must achieve specific goals by attending the classroom, the skill lab, workshops, and completing individual and group assignments.</p>
Instructional Activities	<p>This course should include a balanced combination of theoretical training, individual study and group discussion, case studies, and other learning tasks. Timetables, combined learning activities and areas required for each activity (including the classroom, the skill lab, and controlled clinical environments) in the study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>
Notes	<p>* Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education.</p> <p>** The methods, the syllabus and the students' evaluation should be determined, announced, and implemented by the educational department based on appropriate scientific principles. Program approval, monitoring its implementation and its evaluation are the responsibility of the medical school.</p>

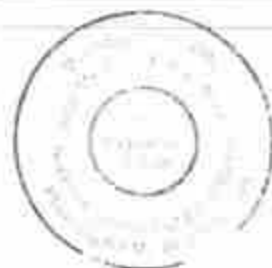
#### Appendix to the Course of Introduction to Neurological Diseases - (The outline)

##### 1- Determining the location of injury in neurology



2-	Disorders of consciousness, status epilepticus and brain death (concepts, pathophysiology, key points of examination and history)
3-	Approaches toward patients with muscle weakness
4-	Stroke (concepts, pathophysiology, etiology, and clinical signs)
5-	Seizure disorders (definitions, classification, clinical signs, and differential diagnosis)
6-	Approach to dizziness and balance disorders
7-	Back pain, neck pain and pain in limbs
8-	Headache (definitions, classification, and key points of history and examination)
<p>* The Secretariat of the General Education Council can modify the above outline, if required, in accordance with demands and priorities if the changes are approved by and coordinated with the General Medical Board and Medical Schools.</p>	

<b>Course Code</b>	185		
<b>Course Name</b>	Introduction to Psychiatry	<b>Course Type</b>	Theoretical
<b>Course Level</b>	Introduction to Clinical Sciences	<b>Course duration</b>	8 Hours
<b>Prerequisite Courses</b>		<b>Total Credit Hours</b>	0.5 Credit Hour
<b>General Objectives</b>	<p>At the end of this course, (based on the attached list) the students are expected to:</p> <p>D- in the face of any common and important symptoms and complaints,</p> <ol style="list-style-type: none"> <li>4- define them</li> <li>5- explain the required physical examination (focused history taking and physical examination) in approaching them</li> <li>6- make important differential diagnoses and suggest the required steps to reach the diagnosis and management of the patient's problem</li> </ol> <p>E- about common and important diseases,</p> <ol style="list-style-type: none"> <li>6- describe the definition, etiology, and epidemiology of the disease</li> <li>7- explain the problems of patients with common and important diseases</li> <li>8- describe the methods of diagnosing the disease</li> <li>9- explain the most important preventive measures at different levels, including treatment and rehabilitation of the patient based on scientific evidence and local guidelines as expected from a general practitioner</li> <li>10- use what they have learned for clinical reasoning, and suggesting a diagnostic or therapeutic approaches in the face of scenarios or descriptions of patients related to these diseases</li> </ol> <p>F- pay attention to important issues that need to be considered in the clinical setting of this area</p>		
<b>Course Description</b>	In this course, the students must achieve specific goals by attending the classroom, the skill lab, workshops, and completing individual and group assignments.		
<b>Instructional Activities</b>	This course should include a balanced combination of theoretical training, individual study and group discussion, case studies, and other learning tasks.		



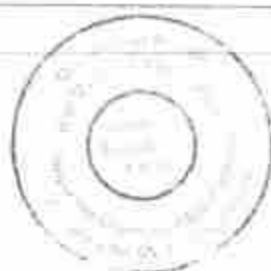
	Timetables, combined learning activities and areas required for each activity (including the classroom, the skill lab, and controlled clinical environments) in the study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.
Notes	<p>* Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education.</p> <p>** The methods, the syllabus and the students' evaluation should be determined, announced, and implemented by the educational department based on appropriate scientific principles. Program approval, monitoring its implementation and its evaluation are the responsibility of the medical school.</p>

#### Appendix to the Course of Introduction to Psychiatry - (The outline)

- 1- General concepts of psychiatry and mental health and common classifications in psychiatry
- 2- Taking history of patients with psychiatric problems: principles and techniques and symptomatology
- 3- Psychiatric issues in physical illnesses and psychosomatic disorders
- 4- Physical problems in mental illnesses
- 5- Depression and anxiety (definition, significance, epidemiology)
- 6- Somatoform disorders
- 7- Psychiatric emergencies (principles of exposure and care and principles of treatment)

\* The Secretariat of the General Education Council can modify the above outline, if required, in accordance with demands and priorities if the changes are approved by and coordinated with the General Medical Board and Medical Schools.

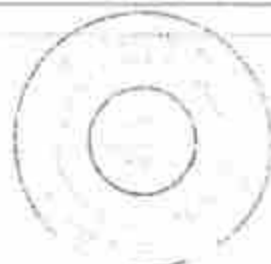
Course Code	136		
Course Name	Introduction to Infectious Diseases	Course Type	Theoretical
Course Level	Introduction to Clinical Sciences	Course duration	17 Hours
Prerequisite Courses		Credit Hours	1 Credit Hour
General Objectives	<p>At the end of this course, (based on the attached list) the students are expected to:</p> <p>A- In the face of any common and important symptoms and complaints,</p> <p>1- Define them.</p> <p>2- Explain the required physical examination (focused history taking and physical examination) in approaching them.</p>		



	<p>3- Make important differential diagnoses and suggest the required steps to reach the diagnosis and management of the patient's problem.</p> <p>B- About common and important diseases:</p> <ol style="list-style-type: none"> <li>1- Describe the definition, etiology, and epidemiology of the disease.</li> <li>2- Explain the problems of patients with common and important diseases.</li> <li>3- Describe the methods of diagnosing the disease.</li> <li>4- Explain the most important preventive measures at different levels, including treatment and rehabilitation of the patient based on scientific evidence and local guidelines as expected from the general practitioner.</li> <li>5- Use what has been learned for clinical reasoning, and suggest a diagnostic or therapeutic approach in the face of scenarios or descriptions of patients related to these diseases.</li> </ol> <p>C- Pay attention to important issues to be considered in the clinical setting of this area.</p>
<b>Course Description</b>	In this course, the students must achieve specific goals by attending the classroom, the Skill Lab, the workshop, and performing individual and group assignments.
<b>Instructional Activities</b>	This course should include a balanced combination of theoretical training, individual study and group discussion, case studies, and other learning tasks. Timetables, combined learning activities and areas required for each activity (including the classroom, the skill lab, and controlled clinical environments) in the study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.
<b>Notes</b>	<p>* Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education.</p> <p>** The methods, the syllabus and the students' evaluation should be determined, announced, and implemented by the educational department based on appropriate scientific principles. Program approval, monitoring its implementation and its evaluation are the responsibility of the medical school.</p>

#### Appendix to the Course of Introduction to Psychiatry - (The outline)

- 1- Principles of prevention of infectious diseases
- 2- Basic principles of laboratory tests in infectious diseases



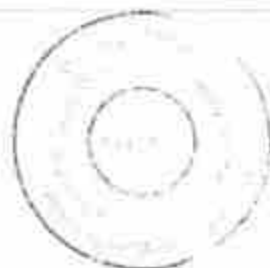
- 3- Principles of nosocomial infection control and isolation
- 4- Principles of personal care against infections
- 5- Dealing with a febrile patient and fever without localized symptoms
- 6- Sepsis and septic shock
- 7- Dealing with a patient with enlarged lymph nodes
- 8- Dealing with a patient with fever and rash
- 9- Infection of the skin and soft tissues
- 10- Viral and bacterial infections of the gastrointestinal tract
- 11- Common parasitic infections of the gastrointestinal tract
- 12- Common infections of the upper respiratory tract
- 13- Common infections of the lower respiratory tract
- 14- Nosocomial infections

\* The Secretariat of the General Education Council can modify the above outline, if required, in accordance with demands and priorities if the changes are approved by and coordinated with the General Medical Board and Medical Schools.



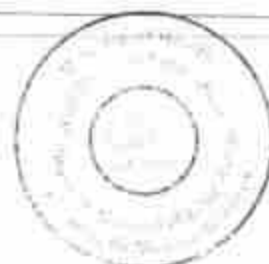


Course Code	187		
Course Name	Traditional Medicine		
Course Level	Clinical Clerkship		
Prerequisite Courses			
Course Type	Theoretical	Practical	Total
Course Duration	34 Hours		34 Hours
General Objectives	<p>The instructional objectives of this course are as follows:</p> <ol style="list-style-type: none"> <li>1- Familiarity with the schools of traditional and complementary medicine approved by the World Health Organization and the scope of its widely used branches</li> <li>2- Familiarity with how to obtain scientific information regarding the need for further learning and access to future research results in traditional and complementary medicine</li> <li>3- Gaining a positive outlook to respond to patients' choices in traditional and complementary medicine</li> <li>4- Empowerment of students of general medicine in the field of integrated medicine (using all potentials and the current effective therapeutic interventions as teamwork collaboration)</li> <li>5- Familiarity with how to use the measures of Persian traditional medicine in the cycle of therapeutic procedures based on evidence-based medicine as part of the scope of clinical practice of general medicine and timely referral of serious cases to PhD holders of Persian traditional medicine</li> <li>6- Creating a rational attitude in medical students towards education, guidance, and counseling about a healthy lifestyle from the perspective of the Persian traditional medicine</li> </ol>		
Course Description	<p>In this course, students will be introduced to the global definitions and terminology of traditional and complementary medicine (T&amp;CM) and comprehensive medicine, as well as the basic principles and scope of some of the most important and well-known schools of medicine that have the most scientific evidence in the world. The overall goal is for all medical schools to ensure that all general medical students be familiar with the traditional and complementary medicine in a way that they acquire a level of awareness of all patient choices, especially in the following areas:</p> <ol style="list-style-type: none"> <li>1- Familiarity with Persian traditional medicine and learning its practical and fundamental concepts</li> <li>2- Teaching the basics of prevention and healthy lifestyle from the perspective of Persian traditional medicine</li> <li>3- Creating a suitable basis for scientific research in traditional medicine and motivating medical students to continue their education in the higher education courses of this field</li> </ol>		
Notes	<ul style="list-style-type: none"> <li>- Definition of the traditional and complementary medicine (T&amp;CM) and the comprehensive medicine from the perspective of the World Health Organization, definition of the holistic medicine, its place in the medical education and research system, policies and strategies of the World Health</li> </ul>		

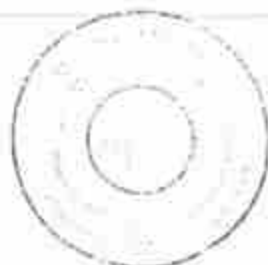


Organization regarding traditional medicine, the place of traditional and complementary medicine in the education and research system and healthcare system of some countries of the world, or the experiences of some developed countries in the use of traditional and complementary medicine in their education and research system and health systems and the introduction of traditional and complementary treatment methods (T&CM)

- History, main concepts, principles, therapeutic applications, contraindications, possible side effects and cases of treatment whose effectiveness and safety have been proven based on new scientific evidence and what a physician should know about the most important disciplines of traditional and complementary medicine (such as chiropractic, acupuncture, and traditional Chinese medicine, Ayurveda, naturopathy, reflexology, meditation, hypnosis, homeopathy)
- History of Persian traditional medicine, its place in the medical education and research system and healthcare system, laws and policy-making, principles and foundations of traditional medicine (general concepts, definition, classification, wisdom and philosophy of medicine from the perspective of Persian traditional medicine, elements, temperaments and humors, natural affairs, powers, causes of diseases, symptoms, therapeutic measures, manipulative therapies, etc.)
- History of medical knowledge and introduction of medical scientists
- Introducing the sources of traditional medicine / introducing reputable domestic and foreign sources and websites
- Wisdom and philosophy of medicine from the perspective of Persian traditional medicine
- Fundamentals of traditional medicine: Basic and practical concepts of the components
- Basics of traditional medicine: Basic and practical concepts of temperament and humors
- Basics of traditional medicine: Basic and practical concepts, members of spirits, powers and actions
- Basics of traditional medicine: Basic and practical recognition of congenital temperament
- Principles of health maintenance and prevention in traditional medicine (Six essentials): The climate
- Principles of health maintenance and prevention in traditional medicine (Six essentials): Sleep and wakefulness
- Principles of prevention in traditional medicine (Six essentials): Movement and stillness (exercise)
- Principles of prevention in traditional medicine (Six essentials): Retention and vomiting (storage of useful substances and disposal of waste products)



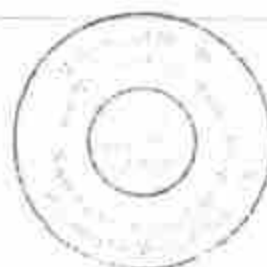
	<ul style="list-style-type: none"> <li>- Principles of prevention in traditional medicine (Six essentials): Mental disorders (Moods)</li> <li>- Principles of prevention in traditional medicine (Six essentials): Principles of healthy eating</li> <li>- Principles of prevention in traditional medicine (Six essentials): Principles of applied food sciences</li> <li>- Principles of prevention in traditional medicine (Six essentials): Principles of maintaining health on the basis of each temperament</li> <li>- Food items: Legumes, nuts, fruits, and vegetables</li> <li>- Food items: Dairy and meat</li> <li>- Familiarity with manipulative practices: Massage, Cupping, Bloodletting</li> </ul>
Notes	<p>According to the definition offered by the World Health Organization, traditional and complementary medicine consist of a group of practices and products that are not part of the conventional medicine. This definition reflects the fact that there are methods for health and treatment in society that are not addressed by the conventional medicine schools, but these methods are effective in public health (positively or negatively), and statistics show that the use of these methods is growing rapidly. Thus, over the past two decades, governments and international organizations have sought identification, education, research, standardization, and legislation in this area.</p> <p>Due to the increasing tendency among people to use the traditional and complementary medicine in different countries, increasing the awareness of physicians in this field is necessary and the need for the integrated or integrative medicine is felt. Therefore, the World Health Organization has recommended that those who provide medical services need to have scientific and academic knowledge in the field of traditional and complementary medicine. In order to increase physicians' awareness of the current traditional and conventional therapies, and their effectiveness, and in order to establish an appropriate referral system, it is necessary to provide a strategy to integrate traditional and complementary medicine education into the conventional and academic education of medical students.</p> <p>The purpose of "integrated medicine" is to use all the potentials and effective therapeutic interventions available by experienced and trained licensed therapists in the form of teamwork collaboration. On the other hand, the inclusion of these interventions in the treatment cycle based on evidence-based medicine is essential.</p> <p>In Iran, considering the announced health policies and Iran's long and rich history in traditional medicine, the expansion of traditional medicine studies and encouraging the use of documented and scientific experiences is a priority. Therefore, it is necessary for medical graduates to have a good perspective toward traditional medicine. Acquiring skills in applying diagnostic and therapeutic methods of traditional medicine requires passing specialized and supplementary training courses and is beyond the scope of the general medicine curriculum.</p> <p>* It is essential that the methods, syllabus, and student evaluation techniques be determined, announced, and implemented by the medical schools based on appropriate scientific principles and the recommendations of the esteemed board of traditional medicine. Medical schools are responsible for program approval, monitoring the implementation, and evaluation of the program.</p>



\*\* It is necessary for students to be familiar with the articles published in traditional medicine in reputable journals, research methods in the traditional and complementary medicine, as well as the need to use integrative medicine (comprehensive medicine) and identify and review a number of successful experiences in this field.

\*\*\* The purpose of the "integrated medicine" is to use all the potentials and effective therapeutic interventions available by the experienced and trained therapists in the form of teamwork collaboration. On the other hand, the inclusion of these interventions in the treatment cycle based on evidence-based medicine is essential.

<b>Course Code</b>	188		
<b>Course Name</b>	Clerkship: Internal Medicine Diseases	<b>Rotation Type</b>	Compulsory
<b>Course Level</b>	Clerkship: 2 Months of general internal medicine must be offered in Clerkship I.	<b>Rotation Training Duration</b>	3 Months (12 weeks)
<b>Prerequisite Courses</b>			
<b>Total Credits</b>	9 Credit hours of clerkship		
<b>General Objectives</b>	<p>At the end of this training cycle, the students should be able to:</p> <ol style="list-style-type: none"> <li>1- communicate properly with the clients, patients, staff, and other members of the healthcare team and show the characteristics of appropriate professional behavior in their interactions in a desirable way</li> <li>2- take a history of the patient with common and important symptoms and complaints related to this section (the attached appendix), perform the necessary physical examinations, make important differential diagnoses, and suggest the diagnosis and management procedure of the patient's problem</li> <li>3- identify the problems of patients with common and important diseases related to this section (the attached appendix); based on scientific evidence and local guidelines, reason and propose suggestions regarding prevention, treatment, follow-up, referral, and patient rehabilitation along with education as expected from a general practitioner, and participate in the management of the patient's problem according to the standards of the ward under the supervision of seniors (according to the rules of the ward)</li> <li>4- perform the essential procedures related to this section (the attached appendix) in compliance with the principles of patient safety and under the proper supervision of higher levels (according to the criteria of the ward)</li> </ol>		
<b>Course Description</b>	<p>In this training rotation, the trainee must achieve the specified goals by attending clinical rounds, and training clinics, and performing individual and group assignments. To provide the required theoretical knowledge, theoretical training classes should be held.</p>		

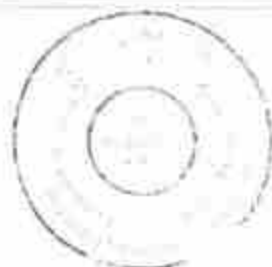


<b>Instructional Activities</b>	<p>Learning activities in this section should include a balanced combination of patient bedside education, self-study and group discussion, presentation of illness cases, performing practical procedures under the supervision of the instructor, and participation in group training sessions.</p> <p>Timing, and combination of these learning activities and areas required for each activity (including the hospitals, clinics, healthcare centers, laboratories, emergencies, skill lab) in the clinical study guide are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>
<b>Notes</b>	<p>* Due to varying circumstances of clinical education in different medical schools, it is necessary that a clinical learning guide be compiled and provided to the learners by each school of medicine in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education. In each clinical learning guide, in addition to the abovementioned skills, the main diagnostic and paraclinical methods and essential medicines the trainee must have sufficient knowledge about must be specified.</p> <p>** The number and presentation mode of classes should not overshadow and disrupt the students' presence alongside the patients and their clinical practice.</p> <p>*** It is essential that the methods, syllabus, and evaluation of externs be determined, announced, and implemented by the educational department based on appropriate scientific principles. Medical schools are responsible for program approval, monitoring the implementation, and evaluation of the program.</p> <p>**** Supervision can be exercised by seniors (e.g., interns, residents, fellows, professors) or other qualified members of the healthcare team in a way that the externs can achieve the learning objectives while ensuring observation of patients' safety and rights. How and by whom the supervision is performed for each procedure or intervention will be determined by the medical school.</p>

#### Appendix to the Clerkship of Internal Medicine Diseases

##### Common Signs and Symptoms in this Ward

- 1- Chest pain
- 2- Abdominal pain
- 3- Spinal pain and general musculoskeletal pain
- 4- Weakness and lethargy
- 5- Shortness of breath
- 6- Cough and hemoptysis
- 7- Edema
- 8- Palpitation
- 9- Dysphagia
- 10- Nausea, vomiting
- 11- Dyspepsia
- 12- Diarrhea





- 13- Constipation
- 14- Involuntary weight loss
- 15- Jaundice
- 16- Ascites and abdominal swelling
- 17- Symptoms of the urinary system (polyuria, dysuria, frequency)
- 18- Enlargement of lymph nodes and spleen
- 19- Polyarthrititis and monoarthrititis
- 20- Gastrointestinal bleeding
- 21- Fever
- 22- Hyperglycemia
- 23- Obesity

#### Important Syndromes and Diseases in this Ward

##### Necessary Cases

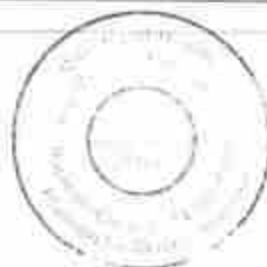
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| <ol style="list-style-type: none"> <li>1- Diabetes</li> <li>2- Hypothyroidism</li> <li>3- Goiter</li> <li>4- Hyperthyroidism</li> <li>5- Hyperlipidemia</li> <li>6- Gout</li> <li>7- Obesity</li> <li>8- Hyperandrogenic disorders in women</li> <li>9- Osteoporosis</li> <li>10- Cushing's syndrome (with emphasis on medication-induced Cushing)</li> <li>11- Viral hepatitis</li> <li>12- Esophageal reflux</li> <li>13- Gastric or peptic ulcer</li> <li>14- Gastritis and duodenitis</li> <li>15- Irritable bowel syndrome</li> <li>16- Anal fissure</li> <li>17- Gallstones</li> <li>18- Deficiency of iron, Vitamin B12, Folic acid</li> <li>19- Iron deficiency anemia</li> <li>20- Minor Thalassemia</li> <li>21- Transfusion reactions</li> <li>22- Arterial hypertension</li> <li>23- Nephropathy due to chronic diseases (diabetes, hypertension)</li> </ol> | <ol style="list-style-type: none"> <li>24- Acute pyelonephritis</li> <li>25- Cystitis and urethritis</li> <li>26- Urinary stones</li> <li>27- Acute kidney failure</li> <li>28- Chronic kidney failure</li> <li>29- Asthma</li> <li>30- COPD</li> <li>31- Acute bronchitis and bronchiolitis</li> <li>32- Pneumonia</li> <li>33- Bronchiectasis</li> <li>34- Occupational lung diseases</li> <li>35- Pleurisy</li> <li>36- Adult respiratory distress syndrome</li> <li>37- Fibromyalgia</li> <li>38- Rheumatic fever</li> <li>39- Vasculitis</li> <li>40- Viral arthritis</li> <li>41- Rheumatoid arthritis</li> <li>42- Osteoarthritis</li> <li>43- Rotator cuff syndrome</li> <li>44- Osteoporosis</li> <li>45- Patellar chondromalacia</li> <li>46- Spondylosis</li> <li>47- Plantar fasciitis</li> </ol> |
|--|---|

\* Essential cases include diseases and syndromes that are within the scope of the general practitioner's practice. Other important cases may be added to the above list by the medical school's curriculum committee, if necessary, provided that training and patient exposure will be available to medical externs and trainees.

\*\* During this rotation, it is necessary to introduce the common tests and diagnostic methods used in the clinical practice of general practitioners, and teach students how to request and interpret the results of these tests and methods in the case of common internal disorders and diseases.

\*\*\* During this rotation, it is necessary to teach the common drugs used in the clinical activity of general practitioners, and how to write prescriptions for common internal disorders and diseases.

\*\*\*\* During this course, the students need to learn how to observe patient safety and practice it in action.

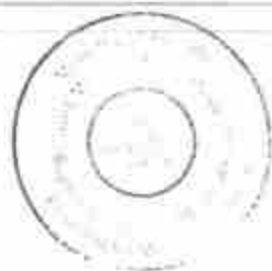


**Essential Procedures in this Ward**

- 1- First aids
- 2- Cardiopulmonary resuscitation in adults (primary and advanced)
- 3- Taking a venous blood sample
- 4- Blood sampling for blood culture
- 5- Arterial blood sampling to measure arterial gases
- 6- Establishing peripheral venous route and fluid injection
- 7- Insulin injection
- 8- Injection: Intradermal, subcutaneous, intramuscular, intravenous, and intraosseous injections
- 9- Airway administration
- 10- Needle thoracostomy in compressive pneumothorax
- 11- Thoracocentesis
- 12- Abdominal paracentesis
- 13- Standard precautions for infection control, especially when working under sterile conditions (infection control precautions) such as hand washing
- 14- Inserting and removing the bladder catheter
- 15- Suprapubic puncture
- 16- Patient transfer
- 17- Performing aspiration of knee joint fluid
- 18- Use of sprays
- 19- Use of hemodynamic monitoring devices
- 20- Rectal tube implantation
- 21- Inserting the nasogastric tube through the nose and stomach lavage

\* The Secretariat of the General Education Council can change the list of common signs and symptoms, important syndromes and diseases, and the necessary procedures at required intervals in accordance with needs and priorities if approved by the General Medical Board and medical schools.

Course Code	190		
Course Name	Clerkship: Cardiovascular Diseases	Rotation Type	Compulsory
Course Level	Clerkship (Clerkship 1 or 2)	Rotation Training Duration	1 Month
Prerequisite Courses	Introduction to Clinical Sciences	Course Credit	3 Credits
General Objectives	At the end of this training cycle, the students should be able to: <ol style="list-style-type: none"><li>1- communicate properly with the clients, patients, staff, and other members of the healthcare team and show the characteristics of appropriate professional behavior in their interactions in a desirable way</li><li>2- take a history of the patient with common and important symptoms and complaints related to this section (the attached appendix), perform the necessary physical examinations, make important differential diagnoses, and suggest the diagnosis and management procedure of the patient's problem</li><li>3- identify the problems of patients with common and important diseases related to this section (the attached appendix); based on scientific evidence and local guidelines, reason and propose suggestions regarding prevention, treatment, follow-up, referral, and patient rehabilitation along with education as expected from a general practitioner, and participate in the management of the patient's problem according to the standards of the ward under the supervision of seniors (according to the rules of the ward)</li></ol>		

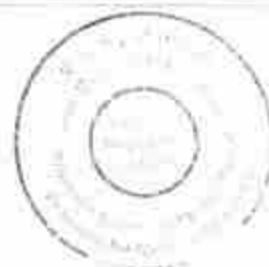


	4- perform the essential procedures related to this section (the attached appendix) in compliance with the principles of patient safety and under the proper supervision of higher levels (according to the criteria of the ward)
<b>Course Description</b>	In this training rotation, the trainee must achieve the specified goals by attending clinical rounds, and training clinics, and performing individual and group assignments. To provide the required theoretical knowledge, theoretical training classes should be held.
<b>Instructional Activities</b>	<p>Learning activities in this section should include a balanced combination of patient bedside education, self-study and group discussion, presentation of illness cases, performing practical procedures under the supervision of the instructor, and participation in group training sessions.</p> <p>Timing, and combination of these learning activities and areas required for each activity (including the hospitals, clinics, healthcare centers, laboratories, emergencies, skill lab) in the clinical study guide are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>
<b>Notes</b>	<p>* Due to varying circumstances of clinical education in different medical schools, it is necessary that a clinical learning guide be compiled and provided to the learners by each school of medicine in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education. In each clinical learning guide, in addition to the abovementioned skills, the main diagnostic and paraclinical methods and essential medicines the trainee must have sufficient knowledge about must be specified.</p> <p>** The number and presentation mode of classes should not overshadow and disrupt the students' presence alongside the patients and their clinical practice.</p> <p>*** It is essential that the methods, syllabus, and evaluation of externs be determined, announced, and implemented by the educational department based on appropriate scientific principles. Medical schools are responsible for program approval, monitoring the implementation, and evaluation of the program.</p> <p>**** Supervision can be exercised by seniors (e.g., interns, residents, fellows, professors) or other qualified members of the healthcare team in a way that the externs can achieve the learning objectives while ensuring observation of patients' safety and rights. How and by whom the supervision is performed for each procedure or intervention will be determined by the medical school.</p>

#### Appendix to the Clerkship of Cardiovascular Diseases

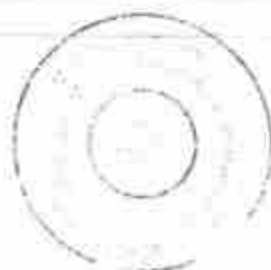
##### Common Signs and Symptoms in this Ward

- 1- Chest pain
- 2- Shortness of breath



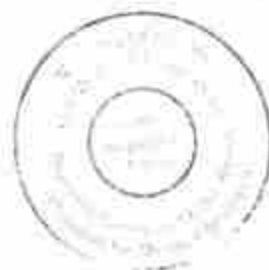
3- Cough and hemoptysis
4- Edema
5- Heart palpitation
6- Fatigue
7- Abnormal electrocardiogram
<b>Essential and Important Syndromes and Diseases in this Ward</b>
1- Hyperlipidemia
2- Atherosclerosis
3- Arterial hypertension
4- Arterial hypertension emergencies
5- Coronary artery disease (stable and unstable angina)
6- Acute myocardial infarction
7- Pulmonary core
8- Heart failure
9- Mitral valve insufficiency and stenosis
10- Common atrial arrhythmias (atrial fibrillation and flutter)
11- Fatal ventricular arrhythmias
12- Cardiac arrest
13- Shock
<p>* Essential cases include diseases and syndromes that are within the scope of the general practitioner's practice. Other important cases may be added to the above list by the medical school's curriculum committee, if necessary, provided that training and patient exposure will be available to medical externs.</p> <p>** During this rotation, it is necessary to introduce the common tests and diagnostic methods used in the clinical practice of general practitioners, and teach students how to request and interpret the results of these tests and methods in the case of common cardiovascular disorders and diseases.</p> <p>*** During this rotation, it is necessary to teach the common drugs used in the clinical activity of general practitioners, and how to write prescriptions for common disorders and diseases of the cardiovascular system.</p> <p>**** During this course, the students need to learn how to observe patient safety and practice it in action.</p>
<b>Essential Procedures in this Ward:</b>
1- First aid
2- Cardiopulmonary resuscitation in adults (primary and advanced)
3- Taking a venous blood sample
4- Arterial blood sampling to measure arterial gases
5- Establishing a peripheral venous route and fluid injection
6- Standard precautions for infection control, especially when working under sterile conditions (Infection control precautions) such as hand washing
7- Patient transfer
8- Use of hemodynamic monitoring devices
9- Getting an EKG
<p>* The Secretariat of the General Education Council can change the list of common signs and symptoms, important syndromes and diseases, and the necessary procedures at required intervals in accordance with needs and priorities if approved by the General Medical Board and medical schools.</p>

Course Code	192		
Course Name	Clerkship: Pediatric Diseases	Rotation Type	Compulsory





<b>Course Level</b>	<b>Clerkship</b>	<b>Rotation Training Duration</b>	<b>3 Months (12 Weeks)</b>
<b>Prerequisite Courses</b>	<b>Fundamentals of Pediatrics</b>	<b>Course Credit</b>	<b>Total 9 Credits of Clerkship</b>
<b>General Objectives</b>	<p>At the end of this training cycle, the students should be able to:</p> <ol style="list-style-type: none"> <li>1- communicate properly with the clients, patients, staff, and other members of the healthcare team and show the characteristics of appropriate professional behavior in their interactions in a desirable way</li> <li>2- take a history of the patient with common and important symptoms and complaints related to this section (the attached appendix), perform the necessary physical examinations, make important differential diagnoses, and suggest the diagnosis and management procedure of the patient's problem</li> <li>3- identify the problems of patients with common and important diseases related to this section (the attached appendix); based on scientific evidence and local guidelines, reason and propose suggestions regarding prevention, treatment, follow-up, referral, and patient rehabilitation along with education as expected from a general practitioner, and participate in the management of the patient's problem according to the standards of the ward under the supervision of seniors (according to the rules of the ward)</li> <li>4- perform the essential procedures related to this section (the attached appendix) in compliance with the principles of patient safety and under the proper supervision of higher levels (according to the criteria of the ward)</li> </ol>		
<b>Course Description</b>	<p>In this training rotation, the trainee must achieve the specified goals by attending clinical rounds, and training clinics, and performing individual and group assignments. To provide the required theoretical knowledge, theoretical training classes should be held.</p>		
<b>Instructional Activities</b> **	<p>Learning activities in this section should include a balanced combination of patient bedside education, self-study and group discussion, presentation of illness cases, performing practical procedures under the supervision of the instructor, and participation in group training sessions.</p> <p>Timing, and combination of these learning activities and areas required for each activity (including the hospitals, clinics, healthcare centers, laboratories, emergencies, skill lab) in the clinical study guide are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>		
<b>Notes</b>	<p>* Universities that offer the Clerkship program as Clerkship 1 and 2 (Studentship and Externship) can use the proposed program as recommended; and universities that do not offer the Externship course as a separate one can include all the topics of Clerkships 1 and 2 in the syllabus of their clerkship course.</p> <p>** Due to varying circumstances of clinical education in different medical schools, it is necessary that a clinical learning guide be compiled and provided to the learners by each school of medicine in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education. In each clinical learning guide, in addition to the abovementioned skills, the main diagnostic and paraclinical methods and essential medicines the trainee must have sufficient knowledge about must be specified.</p> <p>** The number and presentation mode of classes should not overshadow and disrupt the</p>		





students' presence alongside the patients and their clinical practice.

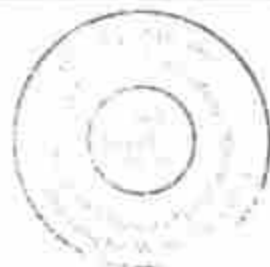
\*\*\* It is essential that the methods, syllabus, and evaluation of externs be determined, announced, and implemented by the educational department based on appropriate scientific principles. Medical schools are responsible for program approval, monitoring the implementation, and evaluation of the program.

\*\*\*\* Supervision can be exercised by seniors (e.g., interns, residents, fellows, professors) or other qualified members of the healthcare team in a way that the externs can achieve the learning objectives while ensuring observation of patients' safety and rights. How and by whom the supervision is performed for each procedure or intervention will be determined by the medical school.

#### Appendix to the Clerkship of Pediatric Diseases

##### Common Symptoms, Complaints, and Causes of Admission of Children

- 1- Taking a history and physical examination of the child
- 2- Examination of normal and abnormal growths in children and how to use growth curves
- 3- Examination of natural and abnormal development and developmental assessment tools in children according to the National Healthy Child Program and early child development
- 4- Breastfeeding, lactating mother counseling, maternal diseases and medications during breastfeeding
- 5- Nutrition in different periods from the first six months of age to puberty (assessment, counseling) according to the National Healthy Child Program and early child development
- 6- Common nutritional problems in childhood and adolescence according to the National Healthy Child Program (FTT, obesity and micronutrient deficiency)
- 7- Promoting children's health in terms of accident prevention, poisoning, burns, infectious and non-communicable diseases - the role of the physician according to the National Healthy Childhood Program
- 8- Vaccination
- 9- Evaluation of the critically ill child according to the national program
- 10- Examination of a healthy term newborn and primary care of the delivery room
- 11- Respiratory distress, apnea and cyanosis in infants
- 12- Jaundice in infants
- 13- Seizures and hypoglycemia in infants
- 14- Nutrition and fluid therapy in infants and children
- 15- Fever in children
- 16- Stomachache in children
- 17- Diarrhea and vomiting in children
- 18- Constipation in children
- 19- Jaundice in children
- 20- Hepatosplenomegaly in children
- 21- Acute loose paralysis in children
- 22- Lymphadenopathy in children
- 23- Polyuria in children
- 24- Infection in infants
- 25- Infection of the lower respiratory tract in children
- 26- Upper respiratory tract infection and approaches toward a child with respiratory distress and airway obstruction (croup, epiglottitis, and foreign body)
- 27- Brain infection in children (pathophysiology, signs, and symptoms)
- 28- Headache in children
- 29- Seizures in children
- 30- Clinical signs and symptoms and diagnosis of common neuromuscular diseases in children (limping child)
- 31- Coagulation disorders in children
- 32- Anemia in children



- 33- Normal puberty and signs of normal and abnormal puberty
- 34- Hypocalcemia and rickets in children and infants
- 35- Urinary tract infection in children (self-reading assignment) \*
- 36- Glomerulonephritis and nephrotic syndrome in children
- 37- Oliguria and renal failure in children
- 38- Asthma
- 39- Urticaria, angioedema, anaphylaxis and atopic dermatitis and serum sickness
- 40- Salmonellosis-Brucellosis
- 41- Whooping cough, diphtheria and tetanus
- 42- Intestinal parasitic diseases
- 43- Osteomyelitis and septic arthritis
- 44- Common viral rash diseases (rubella, scarlet fever, roseola, chickenpox)
- 45- Common non-rash viral diseases
- 46- Hypothyroidism / hyperthyroidism in children
- 47- Tuberculosis in children
- 48- Common parasitic diseases (Kala-Azar and malaria)
- 49- Common vasculitis in children (Kawasaki, Enoch)
- 50- Diabetes mellitus and DKA
- 51- Familiarity with common and important congenital heart diseases
- 52- High blood pressure in children
- 53- Heart failure in children
- 54- Chronic diarrhea
- 55- Common genetic syndromes (including MR)
- 56- Common symptoms of inherited metabolic diseases
- 57- Common skin diseases in children

#### Essential Procedures in this Ward:

- 1- Blood sampling from a vein
- 2- Taking children and infant blood pressure
- 3- Collection of urine using a urine bag
- 4- Vaccination of children and infants
- 5- Arterial blood sampling (ABG, etc.)
- 6- Inserting a urinary catheter
- 7- Inserting a nasogastric tube
- 8- Spinal cord puncture of children and infants
- 9- Suprapubic aspiration

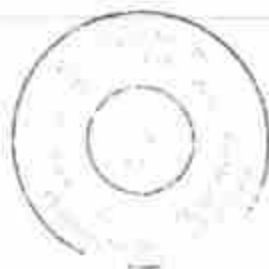
(It is essential to teach the above-mentioned topics through a one-day workshop on mouldages for clerkship students)

\* During this rotation, it is necessary to teach the list of common drugs and how to write prescriptions in common cases of this field that are used in the clinical practice of general practitioners.

\*\* At the end of the rotation, it is necessary to teach the common tests and diagnostic methods used in the clinical practice of the general practitioner, and how to request and interpret the results of these tests and methods in common disorders and diseases in children.

\*\*\* During this course, students need to learn how to observe patient safety and practice.

#### Essential workshops in the clinical education course for Pediatric Diseases



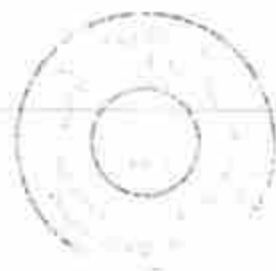
- 1- A 2-day workshop on the Pediatric Advanced Life Support (PALS) based on the American Heart Association (AHA) program
- 2- A 1-day Workshop on the Neonatal Resuscitation Program (NRP)
- 3- A 1-day workshop on breastfeeding
- 4- A half-day workshop on the Integrated Management of Childhood Illness (IMCI)

\* In order to teach the National Healthy Child Program, it is necessary to set up special clinics in coordination with the health deputy of universities, under the supervision of faculty members of the pediatric department and with the presence of interns and specialized pediatric residents.

\*\* In addition to teaching IMCI theory, it is recommended to hold IMCI training workshops for general medicine students.

\*\*\* The Secretariat of the General Education Council can modify the above outline, if required, in accordance with demands and priorities if the changes are approved by and coordinated with the General Medical Board and Medical Schools.

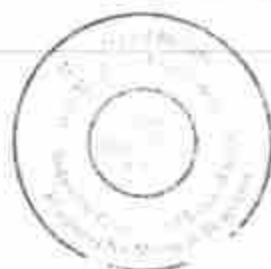
Course Code	194
Course Name	Pediatric Diseases (1)
Course Level	Clerkship
Prerequisite Courses	
Course Type	Theoretical
Course Duration	68 Hours
General Objectives	<p>At the end of this course, (based on the attached list) the students are expected to:</p> <p>A- In the face of any common and important symptoms and complaints,</p> <ol style="list-style-type: none"> <li>1- Define them.</li> <li>2- Explain the required physical examination (focused history taking and physical examination) in approaching them.</li> <li>3- Make important differential diagnoses and suggest the required steps to reach the diagnosis and management of the patient's problem.</li> </ol> <p>B- About common and important diseases:</p> <ol style="list-style-type: none"> <li>1- Describe the definition, etiology, and epidemiology of the disease.</li> <li>2- Explain the problems of patients with common and important diseases.</li> <li>3- Describe the methods of diagnosing the disease.</li> </ol>



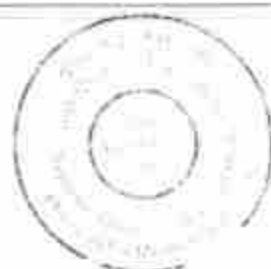
	<p>4- Explain the most important preventive measures at different levels, including treatment and rehabilitation of the patient based on scientific evidence and local guidelines as expected from the general practitioner.</p> <p>5- Use what has been learned for clinical reasoning, and suggest a diagnostic or therapeutic approach in the face of scenarios or descriptions of patients related to these diseases.</p> <p>C- Pay attention to important issues to be considered in the clinical setting of this area.</p>
<b>Course Description</b>	In this course, the students must achieve specific goals by attending the classroom, the skill lab, workshops, and completing individual and group assignments.
<b>Instructional Activities</b>	<p>This course should include a balanced combination of theoretical training, individual study and group discussion, case studies, and other learning tasks.</p> <p>Timetables, combined learning activities and areas required for each activity (including the classroom, the skill lab, and controlled clinical environments) in the study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>
<b>Notes</b>	<p>*Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education.</p> <p>**The methods, the syllabus and the students' evaluation should be determined, announced, and implemented by the educational department based on appropriate scientific principles. Program approval, monitoring its implementation and its evaluation are the responsibility of the medical school.</p>

#### Outline of the Pediatric Diseases (1) Course

- 1- Taking a history and physical examination of the child
- 2- Familiarity with normal and abnormal growth patterns in children and how to use growth curves
- 3- Familiarity with normal and abnormal development patterns and developmental assessment tools in children according to the National Healthy Childhood Program and early child development
- 4- Breastfeeding, lactation counseling, maternal diseases and medications during breastfeeding
- 5- Nutrition in different periods from the first six months of age to puberty (assessment, counseling) according to the National Healthy Childhood Program and early child development
- 6- Familiarity with common nutritional problems in childhood and adolescence according to the National Healthy Childhood Program (FTT, obesity and micronutrient deficiency)



- 7- Promoting children's health in the field of accident prevention, poisoning, burns, infectious and non-communicable diseases - the role of the physician according to the National Healthy Childhood Program (self-reading assignment) \*
- 8- Familiarity with the national vaccination program (self-reading assignment) \*
- 9- Familiarity with the evaluation of a critically ill child according to the national program of IMCI \*\*
- 10- Examination of a healthier newborn baby and primary care of the delivery room
- 11- Respiratory distress, apnea and cyanosis in infants
- 12- Jaundice in infants
- 13- Seizures and hypoglycemia in infants
- 14- Nutrition and fluid therapy in infants and children
- 15- Fever in children
- 16- Pain in children
- 17- Diarrhea and vomiting in children
- 18- Constipation in children
- 19- Jaundice in children
- 20- Hepatosplenomegaly in children
- 21- Acute loose paralysis in children
- 22- Lymphadenopathy in children
- 23- Polyuria in children
- 24- Familiarity with common symptoms of malignant diseases in children (self-reading assignment) \*
- 25- Infection in infants
- 26- Infection of the lower respiratory tract in children
- 27- Upper respiratory tract infection and approach to the child with respiratory distress and airway obstruction (croup, epiglottitis and foreign body)
- 28- Brain infection in children (pathophysiology, signs and symptoms)
- 29- Headache in children (self-reading assignment) \*
- 30- Seizures in children
- 31- Clinical signs and symptoms and diagnosis of common neuromuscular diseases in children (loose child)
- 32- Coagulation disorders in children
- 33- Anemia in children
- 34- Normal puberty and signs of normal and abnormal puberty
- 35- Hypocalcemia and rickets in children and infants
- 36- Urinary tract infection in children (self-reading assignment) \*
- 37- Glomerulonephritis and nephrotic syndrome in children
- 38- Oliguria and kidney failure in children
- 39- Asthma
- 40- Urticaria, angioedema, anaphylaxis and atopic dermatitis and serum sickness
- 41- Salmonellosis-Brucellosis
- 42- Whooping cough, diphtheria and tetanus
- 43- Parasitic diseases of the intestine (self-reading assignment) \*
- 44- Osteomyelitis and septic arthritis
- 45- Common viral diseases of rash (rubella, scarlet fever, roseola, chickenpox) (self-reading assignment) \*
- 46- Common non-rash viral diseases (self-reading assignment) \*
- 47- Hypothyroidism / hyperthyroidism in children
- 48- Tuberculosis in children
- 49- Common parasitic diseases (Kala-Azar and malaria) (self-reading assignment) \*
- 50- Common vasculitis in children (Kawasaki, Henoch) (self-reading assignment) \*
- 51- Diabetes mellitus and DKA
- 52- Familiarity with common and important congenital heart diseases
- 53- High blood pressure in children
- 54- Heart failure in children
- 55- Chronic diarrhea (self-reading assignment) \*
- 56- Common genetic syndromes (including MR) (self-reading assignment) \*
- 57- Common symptoms of inherited metabolic diseases
- 58- Common skin diseases in children
- 59- Restlessness





- 60- Limping
- 61- Impaired urinary control and nocturia
- 62- Shock in children
- 63- Gastrointestinal bleeding (upper and lower)
- 64- Level of consciousness disorders (coma and delirium)
- 65- Investigation of abnormal U / A
- 66- Hyponatremia and hypernatremia in children
- 67- Acid and base disorders in children
- 68- Approach to ingesting caustic substances with foreign body
- 69- Drowning - Electric shock
- 70- Common poisonings in children
- 71- Hepatitis
- 72- Rheumatic fever and endocarditis

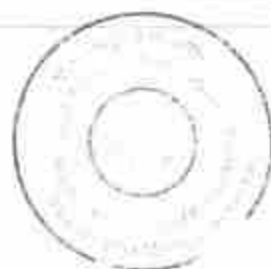
\* It is recommended that the method of evaluating the learning activities of theoretical topics, which is done as self-study, be specified and announced by the educational department at the beginning of the educational stage.

\*\* In order to teach the National Healthy Childhood Program, it is necessary to set up special clinics in coordination with the health deputy of universities, under the supervision of faculty members of the pediatrics department and with the presence of interns and pediatric residents.

\*\*\* In addition to teaching IMCI theory, it is recommended to hold IMCI training workshops for general medicine students.

\*\*\*\* The Secretariat of the General Education Council can modify the above outline, if required, in accordance with demands and priorities if the changes are approved by and coordinated with the General Medical Board and Medical Schools.

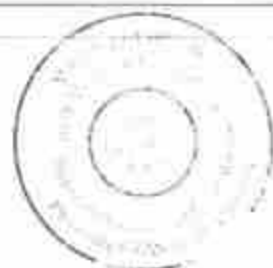
Course Code	195
Course Name	Pediatric Diseases (2)
Course Level	Clerkship
Prerequisite Courses	Pediatric Diseases (1)
Course Type	Theoretical
Course Duration	17 Hours
General Objectives	At the end of this course, (based on the attached list) the students are expected to:  A- In the face of any common and important symptoms and complaints, 1- Define them.  2- Explain the required physical examination (focused history taking and physical examination) in approaching them.



	<p>3- Make important differential diagnoses and suggest the required steps to reach the diagnosis and management of the patient's problem.</p> <p>B- About common and important diseases:</p> <ol style="list-style-type: none"> <li>1- Describe the definition, etiology, and epidemiology of the disease.</li> <li>2- Explain the problems of patients with common and important diseases.</li> <li>3- Describe the methods of diagnosing the disease.</li> <li>4- Explain the most important preventive measures at different levels, including treatment and rehabilitation of the patient based on scientific evidence and local guidelines as expected from the general practitioner.</li> <li>5- Use what has been learned for clinical reasoning, and suggest a diagnostic or therapeutic approach in the face of scenarios or descriptions of patients related to these diseases.</li> </ol> <p>C- Pay attention to important issues to be considered in the clinical setting of this area.</p>
<b>Course Description</b>	In this course, the students must achieve specific goals by attending the classroom, the skill lab, workshops, and completing individual and group assignments.
<b>Instructional Activities</b>	This course should include a balanced combination of theoretical training, individual study and group discussion, case studies, and other learning tasks. Timetables, combined learning activities and areas required for each activity (including the classroom, the skill lab, and controlled clinical environments) in the study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.
<b>Notes</b>	<p>• Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education.</p> <p>**The methods, the syllabus and the students' evaluation should be determined, announced, and implemented by the educational department based on appropriate scientific principles. Program approval, monitoring its implementation and its evaluation are the responsibility of the medical school.</p>

#### Outline of the Pediatric Diseases (1) Course

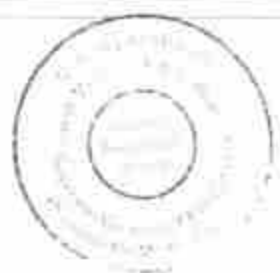
- 1- Familiarity with normal and abnormal growth patterns in children and how to use growth curves and familiarity with natural and abnormal development patterns and developmental assessment tools in children according to the National Healthy Childhood Program and early child development
- 2- Approach to the child with restlessness
- 3- Approach to the child with fever



- 4- Approach the child with symptoms of brain infection
- 5- Approach to the limping child
- 6- Disorders of urinary control and nocturia in children
- 7- Approach to shock in children
- 8- Approach to the child with gastrointestinal bleeding (upper and lower)
- 9- Approach to the child with level of consciousness disorder (coma and delirium)
- 10- Check for abnormal U / A
- 11- Dealing with hyponatremia and hypernatremia in children
- 12- Dealing with acid and base disorders in children
- 13- Approach to a child who has swallowed a caustic substance or a foreign body
- 14- Approach to a child who has drowned or been electrocuted
- 15- Dealing with common poisonings in children
- 16- Hepatitis
- 17- Rheumatic fever and endocarditis

The Secretariat of the General Education Council can modify the above outline, if required, in accordance with demands and priorities if the changes are approved by and coordinated with the General Medical Board and Medical Schools.

<b>Course Code</b>	196		
<b>Course Name</b>	General Surgery Clerkship	<b>Type of Rotation</b>	Compulsory
<b>Course Level</b>	Clerkship: Two months of General Surgery, essentially presented in Clerkship I.	<b>Duration of Rotation</b>	Two months (8 weeks)
<b>Prerequisite Courses</b>	Introduction to Clinical Sciences		
<b>Credit Hours</b>	6 credits		
<b>General Objectives</b>	<p>At the end of this educational rotation, the students should be able to:</p> <ol style="list-style-type: none"> <li>1- communicate properly with clients, patients, staff and other members of the healthcare team and excellently show characteristics of professional behavior in their interactions.</li> <li>2- take the history of the patients with common and important symptoms related to this ward (the attached Appendix), perform the necessary physical examinations, make important differential diagnoses, and suggest the diagnosis and management of the patient's chief complaint.</li> <li>3- identify the problems of patients with common and important diseases related to this ward (the attached Appendix) based on scientific evidence and local guidelines; show reasoning and makes suggestions about prevention, treatment, follow-up, referral and rehabilitation measures, as well as the patient education as expected from a general practitioner, and participate in the management of the patient's problem according to the standards of the ward under the supervision of senior levels (according to the rules of the ward).</li> <li>4- perform the essential procedures related to this ward (the attached Appendix) in compliance with the principles of patient safety and under the proper supervision of senior levels (according to the rules of the ward).</li> </ol>		
<b>Course Description</b>	<p>In this training rotation, the externs must achieve specific goals by attending clinical rounds, medical clinics, and performing individual and group assignments. In order to provide them with required theoretical knowledge, theoretical training classes should be held.</p>		

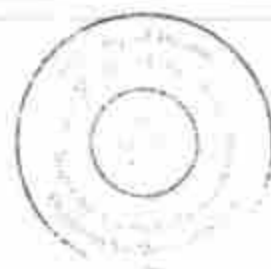


<b>Instructional activities</b>	<p>Learning activities in this ward should be balanced between the patient bedside education, individual study and group discussions, presentation of case reports, supervised practical procedures, and participation in educational sessions of the department.</p> <p>Timetables, combined learning activities and areas required for each activity (including hospitals, operating room, clinics, health care centers, laboratories, emergency departments, and the skill lab) in the clinical study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>
<b>Notes</b>	<p>* Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education. In addition to the abovementioned skills, major paraclinical and diagnostic methods and essential drugs should be specified for the clerkship students to gain an adequate level of knowledge and competency.</p> <p>**The amount and manner of teaching in theoretical classes should not affect the presence of the students in the practical field and their acquisition of practical skills.</p> <p>*** The methods, the syllabus and the students' evaluation should be determined, announced, and implemented by the educational department based on appropriate scientific principles. Program approval, monitoring its implementation and its evaluation are the responsibility of the medical school.</p> <p>**** Supervision can be exercised by seniors (e.g. interns, residents, fellows, professors) or other qualified staff of the healthcare team in a way that while ensuring the safety and rights of patients, the possibility of achieving the learning objectives of students becomes feasible. Medical schools are responsible for determining the manner and if appropriate supervision over each procedure or intervention.</p>

#### Appendix to the Clerkship of courses in General Surgery diseases

##### Common signs and symptoms in this ward

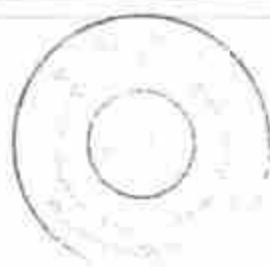
- 1- Cervical mass
- 2- Dysphagia
- 3- Breast mass
- 4- Breast pain
- 5- Breast secretion
- 6- Vomiting and nausea
- 7- Acute abdominal pain
- 8- Chronic abdominal pain
- 9- Abdominal mass
- 10- Obstructive jaundice
- 11- Upper gastrointestinal bleeding (hematemesis)
- 12- Lower gastrointestinal bleeding (hematochezia)
- 13- Groin mass



- 14- Claudication
- 15- Acute lower extremity pain due to vascular problems
- 16- Chronic lower extremity pain due to vascular problems
- 17- Thyroid nodule
- 18- Lymphadenopathy of the neck, axilla and the groin
- 19- Plural effusion
- 20- No gas passage and defecation
- 21- Defecation disorder
- 22- Abdominal distention
- 23- Anal pain
- 24- Anal itching

#### Important syndromes and diseases in this ward

Must know	Better to know
<ol style="list-style-type: none"> <li>1- Shock</li> <li>2- Burns</li> <li>3- Gastric cancer</li> <li>4- Acute appendicitis</li> <li>5- Malignant diseases of the large intestine</li> <li>6- Benign diseases of the small intestine, colon and anus</li> <li>7- Peptic and gastric and duodenal diseases</li> <li>8- Acute and chronic pancreatitis</li> <li>9- Intestinal obstruction</li> <li>10- Abdominal and inguinal hernias</li> <li>11- Bile duct diseases with emphasis on diseases caused by gallstones</li> <li>12- Pancreatic masses with emphasis on malignant diseases of the pancreas</li> <li>13- Malignant diseases of the breast</li> <li>14- Benign thyroid diseases with emphasis on goiter and hyperthyroidism</li> <li>15- Malignant thyroid diseases</li> <li>16- Benign and malignant liver masses with emphasis on common diseases in Iran</li> <li>17- Major trauma (injury management based on ATLS principles)</li> <li>18- Management of water, electrolyte and acid-base in surgical patients</li> <li>19- Managing surgical patients before and after surgery</li> <li>20- Hemorrhage and surgical homeostasis and principles of blood transfusion</li> <li>21- Acute surgical care</li> <li>22- Surgical infections</li> <li>23- Wound management and wound healing</li> <li>24- Gastroesophageal reflux disease (GERD)</li> <li>25- History and examination of neurosurgery patient</li> <li>26- Approach (classification, CT findings, emergencies) and management of a patient with Head Injury</li> <li>27- Managing a patient with spinal trauma</li> <li>28- Cerebrovascular diseases</li> </ol>	<ol style="list-style-type: none"> <li>1- Esophageal carcinoma</li> <li>2- Inflammatory bowel diseases</li> <li>3- Diverticular diseases</li> <li>4- Benign breast diseases</li> <li>5- Parathyroid diseases</li> <li>6- Adrenal diseases</li> <li>7- Peripheral vascular diseases with ulcers of the lower extremities</li> <li>8- Arterial aneurysm diseases</li> <li>9- Venous diseases with emphasis on deep vein thrombosis and varicose diseases</li> <li>10- Common cases and pediatric surgical emergencies</li> <li>11- Nutrition in surgical patients</li> <li>12- Malignant skin lesions</li> <li>13- Port vein hypertension and its complications</li> <li>14- Diseases of spleen and lymph nodes</li> <li>15- Diseases of the chest, trachea, lungs and pleura</li> <li>16- Brain tumors (types, signs and findings, prognosis)</li> <li>17- Hydrocephalus and meningoencephaly</li> <li>18- Low back pain and lumbar disc herniation</li> <li>19- Malignant diseases of the small intestine</li> <li>20- Obesity</li> </ol>





\* Common tests and diagnostic methods used by a general practitioner, requesting and interpreting the results of these tests and methods in common surgical disorders and diseases should be taught in this rotation.

\*\* During this rotation, it is necessary to teach the the common drugs used in the clinical practice of a general practitioner as well as how to prescribe drugs for common surgical disorders and diseases.

\*\*\* Learning about Better-to-Know cases in case of encountering a related patient in the ward will be the responsibility of the student either as a self-study assignment or by electronic materials.

\*\*\*\* During this course, the students need to learn and practice patient safety.

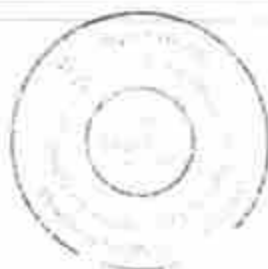
#### Important procedures in this ward

- 1- Controlling external bleeding
- 2- Use of surgical instruments
- 3- Local anesthesia
- 4- Suturing and removing skin sutures
- 5- Wound care including washing and dressing
- 6- Participation in performing complex dressings along with simple debridement
- 7- Participation in abscess drainage
- 8- Gastrostomy feeding tube insertion
- 9- Insertion of urinary catheter
- 10- Participation in chest tube placement
- 11- Needle thoracostomy for tension pneumothorax
- 12- Participation in cricothyroidectomy
- 13- Thoracocentesis
- 14- Abdominal paracentesis
- 15- Burn wound management
- 16- Rectal tube insertion
- 17- Draining subungual hematoma (preferable)
- 18- Tube thoracostomy (preferable)
- 19- Circumcision (preferable)
- 20- Peripheral vascular cut-down (preferable)

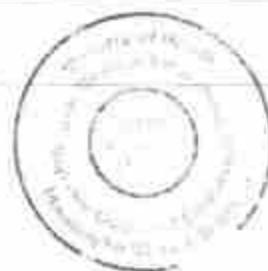
\* The Secretariat of the General Education Council can modify the list of common signs and symptoms, syndromes, diseases, and essential procedures in this ward at certain times, in accordance with priorities and the approval of the changes by the General Medical Board and Medical Schools.

\*\* Fractures and dislocations of the spinal column are taught in the neurosurgery ward.

Course code	198
Course Name	Surgical Diseases
Course level	Clerkship
Course type	Theory
Pre-requisite course	
Duration of training	85 hours
General Objectives	At the end of this educational rotation, the students (according to the attached list) should be able to:  A) Upon encountering any of the common and important signs and symptoms:



	<p>1- Explain its definition.</p> <p>2- Describe the required focused history taking and physical examination to approach them.</p> <p>3- Make important differential diagnoses and suggest the necessary steps to reach the diagnosis and management of the patient's complaint.</p> <p>B) In the case of common and important diseases:</p> <p>1- Describe the definition, etiology, and epidemiology of the disease.</p> <p>2- Explain the problems of the patients with common and important diseases.</p> <p>3- Describe the methods of diagnosing the disease.</p> <p>4- Explain the most important preventive measures at different levels, including treatment and rehabilitation of the patient based on scientific evidence and local guidelines as expected from a general practitioner.</p> <p>5- Apply the acquired knowledge upon encountering the scenarios or patients' history for clinical reasoning and suggesting diagnostic or therapeutic approaches.</p> <p>C- Pay attention to important issues to be considered in the clinical setting of this area.</p>
Course description	In this course, the students must achieve specific goals by attending the classroom, the skill lab, workshops, and completing individual and group assignments.
Instructional activities	<p>In this course, the students must achieve specific goals by attending the classroom, the skill lab, workshops, and completing individual and group assignments.</p> <p>Timetables, combined learning activities and areas required for each activity (including classes, the skill lab and clinical fields) in the clinical study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>
Notes	<p>* Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education.</p> <p>** The amount and manner of classes should not be in a way that they disturb the students' clinical learning.</p> <p>*** The methods, the syllabus and the students' evaluation should be determined, announced, and implemented by the educational department based on appropriate scientific principles. Program approval, monitoring its implementation and its evaluation are the responsibility of the medical school.</p>



## Contents of the Theoretical Course of Surgical Diseases

### Approach to common symptoms and complaints in surgical diseases:

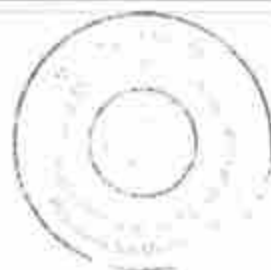
- 1- Dysphagia
- 2- Cervical and cerebral masses
- 3- Common breast complaints: lump, pain, discharge
- 4- Vomiting and nausea
- 5- Acute and chronic abdominal pain
- 6- Abdominal and inguinal mass
- 7- Obstructive jaundice
- 8- Gastrointestinal bleeding (upper and lower)
- 9- Claudication
- 10- Acute lower extremity pain due to vascular problems
- 11- Chronic lower extremity pain due to vascular problems
- 12- Thyroid nodules
- 13- Lymphadenopathy of the neck, axilla and groin
- 14- Plural effusion
- 15- Defecation disorder
- 16- Common anorectal complaints (anal pain and itching)
- 17- Shock
- 18- Burns

### Common and important diseases in General Surgery

- 19- Gastric cancer
- 20- Acute appendicitis
- 21- Malignant diseases of the large intestine
- 22- Benign diseases of the small intestine, colon and anus
- 23- Peptic and duodenal diseases
- 24- Acute and chronic pancreatitis
- 25- Intestinal obstruction
- 26- Abdominal and inguinal hernias
- 27- Diseases of the bile ducts with emphasis on diseases caused by gallstones
- 28- Pancreatic masses with emphasis on malignant diseases of the pancreas
- 29- Malignant breast diseases
- 30- Benign thyroid disease with emphasis on goiter and hyperthyroidism
- 31- Malignant thyroid disease
- 32- Benign and malignant liver masses with emphasis on common diseases in Iran
- 33- Major trauma (management of the injuries according to ATLS principles)
- 34- Management of water, electrolyte and acid-base in surgical patients
- 35- Managing surgical patients before and after surgery
- 36- Bleeding and surgical homeostasis and principles of blood transfusion
- 37- Acute surgical care
- 38- Surgical infections
- 39- Wound management and wound healing
- 40- Gastroesophageal reflux disease (GERD)
- 41- History and examination of a neurosurgery patient
- 42- Approach (classification, CT findings, emergencies) and management of the patient with Head Injury
- 43- Managing a patient with spinal trauma \*\*
- 44- Cerebrovascular diseases

\* The Secretariat of the General Education Council can modify the list of common signs and symptoms, syndromes, diseases, and essential procedures in this ward at certain times, in accordance with priorities and the approval of the changes by the General Medical Board and Medical Schools.

\*\* Fractures and dislocations of the spinal column are taught in the neurosurgery ward.



Course Code	199		
Course Name	Orthopedics Clerkship	Type of Rotation	Compulsory
Course Level	Clerkship: (During Clerkship 1 or 2, depending on university requirements)	Duration of Rotation	1 Month (4 weeks)
Prerequisite Courses			
Credit Hours	3 Credits		
General Objectives	<p>At the end of this educational rotation, the students should be able to:</p> <ol style="list-style-type: none"> <li>1- Communicate properly with clients, patients, staff and other members of the healthcare team and excellently show characteristics of professional behavior in their interactions.</li> <li>2. Take the history of the patients with common and important symptoms related to this ward (the attached Appendix), perform the necessary physical examinations, make important differential diagnoses, and suggest the diagnosis and management of the patient's chief complaint.</li> <li>3- Identify the problems of patients with common and important diseases related to this ward (the attached Appendix) based on scientific evidence and local guidelines; show reasoning and makes suggestions about prevention, treatment, follow-up, referral and rehabilitation measures, as well as the patient education as expected from a general practitioner, and participate in the management of the patient's problem according to the standards of the ward under the supervision of senior levels (according to the rules of the ward).</li> <li>4- Perform the essential procedures related to this ward (the attached Appendix) in compliance with the principles of patient safety and under the proper supervision of senior levels (according to the rules of the ward).</li> </ol>		
Course Description	<p>In this training rotation, the students must achieve specific goals by attending clinical rounds, medical clinics, and performing individual and group assignments. In order to provide them with required theoretical knowledge, theoretical training classes should be held.</p>		
Instructional activities	<p>Learning activities in this ward should be balanced between the patient bedside education, individual study and group discussions, presentation of case reports, supervised practical procedures, and participation in educational sessions of the department.</p> <p>Timetables, combined learning activities and areas required for each activity (including the hospitals, operating room, clinics, health care centers, laboratories, emergency departments, and the skill lab) in the clinical study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>		
Notes	<p>* Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education. In addition</p>		



	<p>to the abovementioned skills, major paraclinical and diagnostic methods and essential drugs should be specified for the clerkship students to gain an adequate level of knowledge and competency.</p> <p><b>**</b> The amount and manner of classes should not be in a way that they disturb the students' clinical practice and their presence in the patients' bedside.</p> <p><b>***</b> The methods, the syllabus and the students' evaluation should be determined, announced, and implemented by the educational department based on appropriate scientific principles. Program approval, monitoring its implementation and its evaluation are the responsibility of the medical school.</p> <p><b>****</b> Supervision can be exercised by the seniors (e.g. interns, residents, fellows, professors) or other members of the healthcare team in a way that while ensuring the safety and rights of patients, the possibility of achieving the learning objectives becomes feasible. Medical schools are responsible for determining the manner and appropriate supervision over each procedure or intervention.</p>
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#### Appendix to the Clerkship of courses in Orthopedics

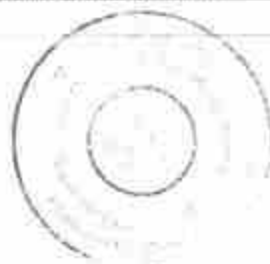
##### Common signs and symptoms in this Ward

- 1- Knee pain including osteoarthritis, meniscus and ligament lesions and joint effusion
- 2- Hip pain including osteoarthritis and avascular necrosis
- 3- Foot and ankle pain including cartilage and ligament lesions and flat foot
- 4- Shoulder pain including inflammatory lesions (bursitis, tendinitis and periarthritis) and instability
- 5- Elbow pain including tennis elbow
- 6- Hand and wrist pain including carpal tunnel syndrome, ganglion and Kienbock's disease
- 7- Back pain and neck pain
- 8- Limping Child
- 9- Limb deformity: Congenital deformities including congenital hip dysplasia, clubfoot and non-congenital deformities including genu varum and genu valgum.
- 10- Bone and soft tissue tumors
- 11- Inflammation of the joints
- 12- Multiple trauma
- 13- Fractures and dislocations of the upper limbs, lower limbs, pelvis, and spine

During this rotation, the common tests and diagnostic methods used by a general practitioner, requesting and interpreting the results of these tests and methods in common orthopedic disorders and diseases should be taught.

##### Syndromes and important diseases in this Ward

- 1- Common diseases of the hip
- 2- Common diseases of the knee
- 3- Common diseases of the ankle
- 4- Common diseases of the shoulder
- 5- Common diseases of the elbow
- 6- Common diseases of the wrist
- 7- Common diseases of the spine
- 8- Common deformities of limbs and spine
- 9- Benign musculoskeletal lesions including common benign soft tissue and bone tumors
- 10- Malignant musculoskeletal lesions including common malignant soft tissue and bone tumors
- 11- Peripheral nerve lesions and compressive neuropathies with emphasis on carpal tunnel syndrome
- 12- Neuromuscular diseases with emphasis on cerebral palsy (CP), poliomyelitis, muscular dystrophies (optional)
- 13- Metabolic diseases with emphasis on rickets, osteomalacia, osteoporosis and gout (optional)





- 14- Bone and joint infections with emphasis on septic arthritis, acute and chronic osteomyelitis, spinal tuberculosis and hand infections.
- 15- Fractures and dislocations of the upper limbs
- 16- Fractures and dislocations of the lower limbs and pelvis
- 17- Fractures and dislocations of the spine
- 18- Amputation
- 19- Side effects of fractures and dislocations with emphasis on compartment syndrome, deep vein thrombosis and fat embolism.

\* At the beginning of each main topic of the rotation, it is necessary to review the anatomy and physiology of the relevant topics with emphasis on their clinical application for the practice of a general physician.

\*\*Common tests and diagnostic methods used by a general practitioner, requesting and interpreting the results of these tests and methods in common orthopedic disorders and diseases should be taught in this rotation.

\*\*\* At the end of this rotation, it is necessary to teach the list of common drugs used in clinical practice by a general practitioner as well as how to write prescriptions for common orthopedic disorders.

\*\*\*\* During this course, the students need to learn and practice patient safety.

#### Procedures in this ward

##### Required (Must-know) procedures:

- 1- Ortolani and Barlow tests on infants
- 2- Perform ATLS (Advanced Trauma Life Support) in multiple trauma patients
- 3- Perform temporary limb immobilization with various splints
- 4- Making and installing gypsum splints (splint making)
- 5- Performing various types of bandages on all types of bone and joint injuries
- 6- Appliance of skin traction
- 7- Controlling dangerous limb bleeding
- 8- Wound care includes washing and dressing
- 9- Patient transfer

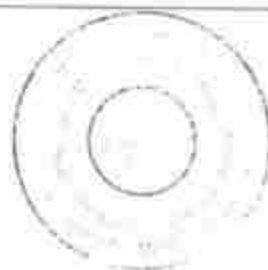
##### Preferred (Better-to-know) procedures:

- 10- Draining subungual hematoma
- 11- Aspiration of knee effusion
- 12- reducing a dislocated shoulder Kocher method
- 13- Skin traction of lower limb fractures

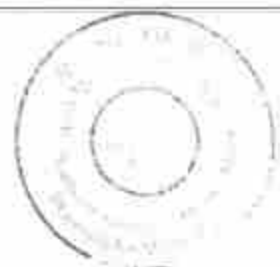
#### Specific Orthopedic physical examinations (in children and adults)

- Spine examination (including Straight Leg Raising - SLR).
- Hip examinations (including ortolani and Barlow tests).
- Knee (ligaments, meniscus, fluid), knee examinations, especially for effusion.
- Ankle and foot examination techniques,
- Shoulder examination techniques,
- Elbow examination techniques,
- Wrist, hand and finger examination techniques,
- Examination of the organ in terms of blood supply (examination of peripheral pulses and capillary refill).
- Neurological examinations of organs (nerve roots and peripheral nerves), description of peripheral nerve lesions

\* The Secretariat of the General Education Council can modify the list of common signs and symptoms, syndromes, diseases, and essential procedures in this ward at certain times, in accordance with priorities and the approval of the changes by the General Medical Board and Medical Schools.



Course code	201
Course Name	Orthopedic Diseases
Course level	Clerkship
Course type	Theory
Duration of training	51 hours
General Objectives	<p>At the end of this educational rotation, the students (according to the attached Appendix) should be able to:</p> <p>A) Upon encountering any of the common and important signs and symptoms:</p> <ol style="list-style-type: none"> <li>1- Explain its definition.</li> <li>2- Describe the required focused history taking and physical examination to approach them.</li> <li>3- Make important differential diagnoses and suggest the necessary steps to reach the diagnosis and management of the patient's complaint.</li> </ol> <p>B) In the case of common and important diseases:</p> <ol style="list-style-type: none"> <li>1- Describe the definition, etiology, and epidemiology of the disease.</li> <li>2 - Explain the problems of the patients with common and important diseases.</li> <li>3- Describe the methods of diagnosing the disease.</li> <li>4- Explain the most important preventive measures at different levels, including treatment and rehabilitation of the patient based on scientific evidence and local guidelines as expected from a general practitioner.</li> <li>5- Apply the acquired knowledge upon encountering the scenarios or patients' history for clinical reasoning and suggesting diagnostic or therapeutic approaches.</li> </ol> <p>C- Pay attention to important issues to be considered in the clinical setting of this area.</p>
Course description	<p>In this course, the students must achieve specific goals by attending classes, the skill lab, workshops, and completing individual and group assignments.</p>
Instructional activities	<p>Learning activities in this ward should be balanced between the theoretical teaching, individual study and group discussions, presentation of case reports, and other learning activities.</p> <p>Timetables, combined learning activities and areas required for each activity (including the classes, the skill lab and clinical fields) in the clinical study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>



Notes	<p>* Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education.</p> <p>** The amount and manner of classes should not be in a way that they disturb the students' clinical and learning.</p> <p>*** The methods, the syllabus and the students' evaluation should be determined, announced, and implemented by the educational department based on appropriate scientific principles. Program approval, monitoring its implementation and its evaluation are the responsibility of the medical school.</p>
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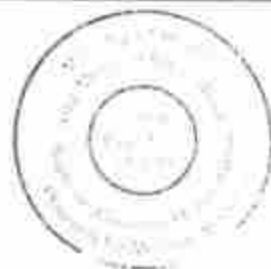
#### Contents of the Theoretical Course of Orthopedics

##### A) How to approach common signs and symptoms in orthopedics

- 1- Knee pain including osteoarthritis, meniscus and ligament lesions and joint effusion
- 2- Hip pain including osteoarthritis and avascular necrosis
- 3- Foot and ankle pain including cartilage and ligament lesions and flat foot
- 4- Shoulder pain including inflammatory lesions (bursitis, tendinitis and peri arthritis) and instability
- 5- Elbow pain including tennis elbow
- 6- Hand and wrist pain including carpal tunnel syndrome, ganglion and Kienbock's disease
- 7- Back pain and neck pain
- 8- Limping child
- 9- Limb deformity: Congenital deformities including congenital hip dysplasia, clubfoot and non-congenital deformities including genu varum and genu valgum.
- 10- Bone and soft tissue tumors
- 11- Inflammation of the joints
- 12- Multiple trauma
- 13- Fractures and dislocations of the upper limbs, lower limbs, pelvis, and spine

##### B) Common and important diseases in orthopedics

- 14- Common diseases of the hip
- 15- Common diseases of the knee
- 16- Common diseases of the ankle
- 17- Common diseases of the shoulder
- 18- Common diseases of the elbow
- 19- Common diseases of the wrist
- 20- Common diseases of the spine
- 21- Benign musculoskeletal lesions including common benign soft tissue and bone tumors
- 22- Malignant musculoskeletal lesions including common malignant soft tissue and bone tumors
- 23- Peripheral nerve lesions and compressive neuropathies with an emphasis on carpal tunnel syndrome
- 24- Neuromuscular diseases with an emphasis on cerebral palsy (CP), poliomyelitis, muscular dystrophies (optional)
- 25- Metabolic diseases with an emphasis on rickets, osteomalacia, osteoporosis and gout (optional)
- 26- Bone and joint infections with an emphasis on septic arthritis, acute and chronic osteomyelitis, spinal tuberculosis and hand infections
- 27- Amputation



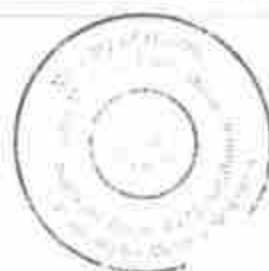
- 28- Side effects of fractures and dislocations with an emphasis on compartment syndrome, deep vein thrombosis and fat embolism

**C) Specific orthopedic examinations:**

- 29- Spine examination (including Straight Leg Raising - SLR)
- 30- Hip examinations (including Ortolani and Barlow tests)
- 31- Knee (ligaments, meniscus, fluid), knee examinations, especially for effusion
- 32- Ankle and foot examination techniques
- 33- Shoulder examination techniques
- 34- Elbow examination techniques
- 35- Wrist, hand, and finger examination techniques
- 36- Examination of limbs in terms of blood supply (examination of peripheral pulses and capillary refill)
- 37- Neurological examinations of organs (nerve roots and peripheral nerves), description of peripheral nerve lesions

\* The Secretariat of the General Education Council can modify the list of common signs and symptoms, syndromes, diseases, and essential procedures in this ward at certain times, in accordance with priorities and the approval of the changes by the General Medical Board and Medical Schools.

Course Code	202		
Course Name	Urology Clerkship	Type of Rotation	Compulsory
Course Level	Clerkship	Duration of Rotation	2 Weeks
Prerequisite Courses	Clerkship of Internal Medicine and General Surgery		
Credit Hours	1.5 credits		
General Objectives	<p>At the end of this educational rotation, the students should be able to:</p> <p>1- Communicate properly with clients, staff and other members of the healthcare team, and excellently show characteristics of professional behavior in their interactions.</p> <p>2- Take the history of patients with common and important symptoms related to this ward (the attached list), perform the necessary physical examinations, list important differential diagnoses, and perform essential procedures for the diagnosis and management of the patient's problem.</p> <p>3- Identify and suggest the problems of patients with common and important diseases related to this ward (the attached list) based on scientific evidence and local guidelines on prevention, including treatment and rehabilitation of the patient as expected from a general practitioner by reasoning, and perform the stages of the management of the patient's problem according to the standards of the ward under the supervision of senior levels (according to the rules of the ward).</p> <p>4- Perform the essential procedures related to this ward (the attached list) in compliance with the principles of patient safety and under the proper supervision (according to the rules of the ward).</p>		
Course Description	In this training rotation, the students must achieve specific goals by attending clinical rounds, medical clinics, and performing individual and group assignments.		



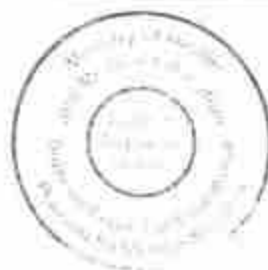


	In order to provide them with required theoretical knowledge, theoretical training classes should be held.
<b>Instructional activities</b>	<p>Learning activities in this ward should be balanced between the patient bedside education, individual study and group discussions, presentation of case reports, supervised practical procedures, and participation in educational sessions of the department.</p> <p>Timetables, combined learning activities and areas required for each activity (including the hospitals, operating room, clinics, health care centers, laboratories, emergency department, and the skill lab) in the clinical study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>
<b>Notes</b>	<p>* Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education. In addition to the abovementioned skills, major paraclinical and diagnostic methods and essential drugs should be specified for the clerkship students to gain an adequate level of knowledge and competency.</p> <p>** The amount and manner of classes should not be in a way that they disturb the students' clinical practice.</p> <p>*** The methods, the syllabus and the students' evaluation should be determined, announced, and implemented by the educational department based on appropriate scientific principles. Program approval, monitoring its implementation and its evaluation are the responsibility of the medical school.</p> <p>** The amount and manner of classes should not disturb the students' clinical practice and learning.</p> <p>**** Supervision can be exercised by the seniors (e.g. interns, residents, fellows, professors) or other members of the healthcare team in a way that while ensuring the safety and rights of patients, the possibility of achieving the learning objectives becomes feasible. Medical school are responsible for determining the manner and appropriate supervision of each procedure or intervention.</p>

#### Appendix to the Clerkship of Courses in Urology Diseases

##### Common signs and symptoms in this ward

- 1- Urogenital pain (kidney pain, radicular pain, ureteral pain, bladder pain, prostate pain, penile pain and scrotal pain)
- 2- Irritative symptoms (frequency, nocturia, dysuria, urgency)
- 3- Obstructive symptoms (weak stream, terminal dribbling, intermittency, straining)
- 4- Sexual dysfunction in men (loss of libido, impotence, lack of ejaculation, lack of orgasm, premature ejaculation)
- 5- Urinary retention
- 6- Urinary incontinence





- 7- Enuresis
- 8- Hematospermia
- 9- Pneumaturia
- 10- Tubular secretion
- 11- Fever and chills

#### Important syndromes and diseases in this ward

Must know	Better to know
<ol style="list-style-type: none"> <li>1- Nephrolithiasis</li> <li>2- Common kidney and bladder tumors</li> <li>3- Common anomalies of the urogenital system</li> <li>4- Traumas to the urinary tract and their management</li> <li>5- Neurogenic bladder</li> <li>6- Benign prostatic hyperplasia</li> <li>7- Prostate cancer</li> <li>8- Urinary tract diseases: stenosis, anomalies (including hypospadias, epispadias)</li> <li>9- Acute testicular problems (infection, torsion, trauma)</li> </ol>	<ol style="list-style-type: none"> <li>1- Testicular abnormalities (cryptorchidism, varicocele)</li> <li>2- Testicular tumors</li> </ol>

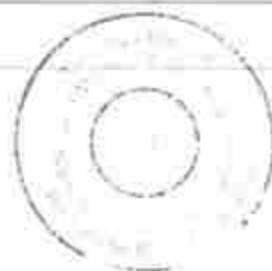
\* It is essential to teach common tests and diagnostic methods used in the scope of a general doctor's practice, requesting and interpreting the results of these tests and methods in common urologic disorders and diseases in this rotation.

\*\* During this rotation, it is necessary to teach common drugs used in the clinical practice of a general practitioner as well as how to write prescriptions for common urologic disorders and diseases.

\*\*\* During this course, the students need to learn and practice patient safety in action.

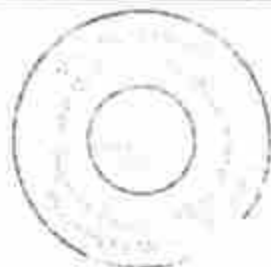
#### Important procedures in this ward

- 1- Simple wound dressings
- 2- Participating in complex dressings with simple debridement
- 3- Inserting and removing urinary catheter
- 4- Suprapubic puncture
- 5- Performing special urologic examinations
- 6- Circumcision (optional)



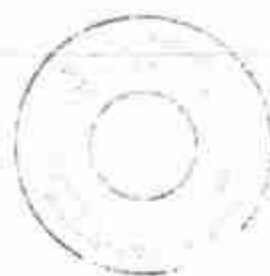
\* The Secretariat of the General Education Council can modify the list of common signs and symptoms, syndromes, diseases, and essential procedures in this ward at certain times, in accordance with priorities and the approval of the changes by the General Medical Board and Medical Schools.

<b>Course code</b>	204
<b>Course Name</b>	Urogenital Diseases (Urology)
<b>Course level</b>	Clerkship
<b>Course type</b>	Theory
<b>Duration of training</b>	17 hours
<b>General Objectives</b>	<p>At the end of this educational rotation, the students (according to the attached list) should be able to:</p> <p>A) Upon encountering any of the common and important signs and symptoms:</p> <ol style="list-style-type: none"> <li>1- Explain its definition.</li> <li>2- Describe the required focused history taking and physical examination to approach them.</li> <li>3- Make important differential diagnoses and suggest the necessary steps to reach the diagnosis and management of the patient's complaint.</li> </ol> <p>B) In the case of common and important diseases:</p> <ol style="list-style-type: none"> <li>1- Describe the definition, etiology, and epidemiology of the disease.</li> <li>2- Explain the problems of the patients with common and important diseases.</li> <li>3- Describe the methods of diagnosing the disease.</li> <li>4- Explain the most important preventive measures at different levels, including treatment and rehabilitation of the patient based on scientific evidence and local guidelines as expected from a general practitioner.</li> <li>5- Apply the acquired knowledge upon encountering the scenarios or patients' history for clinical reasoning and suggesting diagnostic or therapeutic approaches.</li> </ol> <p>C- Pay attention to important issues to be considered in the clinical setting of this area.</p>
<b>Course description</b>	In this course, the students must achieve specific goals by attending classes, the skill lab, workshops, and completing individual and group assignments.
<b>Instructional activities</b>	<p>Learning activities in this ward should be balanced between the theoretical classes, individual study and group discussions, presentation of case reports, and doing other instructional assignments.</p> <p>Timetables, combined learning activities and areas required for each activity (including classes, the skill lab and clinical fields) in the clinical study guide, are</p>

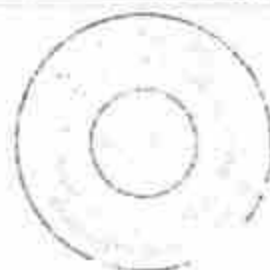


	determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.
<b>Notes</b>	<p>* Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education.</p> <p>** The amount and manner of classes should not be in a way that they disturb the students' clinical learning.</p> <p>*** The methods, the syllabus and the students' evaluation should be determined, announced, and implemented by the educational department based on appropriate scientific principles. Program approval, monitoring its implementation and its evaluation are the responsibility of the medical school.</p>

<b>Contents of the Theoretical Courses of Urogenital Diseases (Urology)</b>	
<b>A) Approach to common signs and symptoms in urologic diseases:</b>	
<ol style="list-style-type: none"> <li>1- Urogenital pain (kidney pain, radicular pain, ureteral pain, bladder pain, prostate pain, penile pain and scrotal pain)</li> <li>2- Urinating disorders (Irritative and obstructive symptoms in the urinary tract, urinary retention, incontinence, nocturia)</li> <li>3- Sexual dysfunction in men (loss of libido, impotence, lack of ejaculation, lack of orgasm, premature ejaculation)</li> </ol>	
<b>B) Important and common diseases</b>	
<ol style="list-style-type: none"> <li>4- Nephrolithiasis</li> <li>5- Common kidney and bladder tumors</li> <li>6- Common anomalies of the urogenital system</li> <li>7- Neurogenic bladder</li> <li>8- Common prostate diseases: benign prostatic hyperplasia (BPH), Prostate cancer</li> <li>9- Urinary tract diseases: stenosis, anomalies (including hypospadias, epispadias)</li> <li>10- Traumas to the urinary tract and their management</li> <li>11- Acute testicular problems (infection, torsion, trauma)</li> </ol>	
<p>* The Secretariat of the General Education Council can modify the list at certain times, in accordance with priorities and the approval of the changes by the General Medical Board and Medical Schools.</p>	



<b>Course Code</b>	205		
<b>Course Name</b>	Anesthesiology Clerkship	<b>Type of Rotation</b>	Compulsory
<b>Course Level</b>	Clerkship: (presented either in Clerkship 1 or 2)	<b>Duration of Rotation</b>	2 Weeks
<b>Prerequisite Courses</b>	Introduction to Clinical Anatomy		
<b>Credit Hours</b>	1.5 Credits		
<b>General Objectives</b>	<p>At the end of this educational rotation, the students should be able to:</p> <ol style="list-style-type: none"> <li>1- Communicate properly with clients, patients, staff and other members of the healthcare team and excellently show characteristics of professional behavior in their interactions.</li> <li>2- Pay attention to patients' specific complaints in the operating room, recovery, and intensive care units, particularly by acquiring required skills for pain management as expected from a general practitioner.</li> <li>3- Perform the essential procedures related to this ward (the attached Appendix) in compliance with the principles of patient safety and under the proper supervision of senior levels (according to the rules of the ward).</li> </ol>		
<b>Course Description</b>	<p>In this training rotation, the externs must achieve specific goals by attending clinical rounds, operating rooms, recovery, medical clinics and performing individual and group assignments. In order to provide them with required theoretical knowledge, theoretical training classes should be held.</p>		
<b>Instructional activities</b>	<p>Learning activities in this ward should be balanced between the patient bedside education, individual study and group discussions, presentation of case reports, supervised practical procedures, and participation in educational sessions of the department.</p> <p>Timetables, combined learning activities and areas required for each activity (including operating room, emergency department, the skill lab) in the study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>		
<b>Notes</b>	<p>* Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education. In addition to the abovementioned skills, major paraclinical and diagnostic methods and essential drugs should be specified for the clerkship students to gain an adequate level of knowledge and competency.</p> <p>** The amount and manner of classes should not be in a way that they disturb the students' clinical practice and learning.</p> <p>*** The methods, the syllabus and the students' evaluation should be determined, announced, and implemented by the educational department based on appropriate</p>		



	<p>scientific principles. Program approval, monitoring its implementation and its evaluation are the responsibility of the medical school.</p> <p>**** Supervision can be exercised by the seniors (e.g. interns, residents, fellows, professors) in a way that while ensuring the safety and rights of patients, the possibility of achieving the learning objectives of the students and developing skills in independently doing the essential procedures (mandated by the Document of Essential Competencies of General Medicine Students) becomes feasible. Medical schools are responsible for determining the manner and appropriate supervision over each procedure or intervention.</p>
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#### Appendix to the Clerkship of courses in Anesthesiology

##### Essential educational content in the Anesthesiology Rotation

##### Knowledge Domain:

- 1- Introduction to anesthesiology, including regional and general anesthesia and branches of anesthesia such as pain and palliative medicine
- 2- Anatomy of the airway
- 3- Airway maintenance
- 4- Pharmacology of narcotics and sedatives
- 5- Acute postoperative and chronic pain management
- 6- Principles of mechanical ventilation
- 7- Principles of CPR, BLS, ACLS, DNR (Do Not Resuscitate)
- 8- Familiarity with basic concepts and consequences of transfusion and massive transfusion

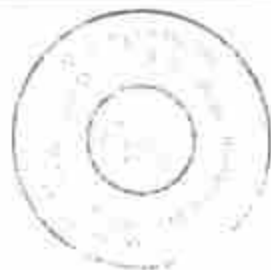
##### Practical Skills Domain (procedures):

- 1- Bag-valve-mask (BVM) ventilation skills
- 2- Selecting and using oral and nasal airway
- 3- Laryngoscopy in anesthetized patients of class 1 and 2
- 4- Performing endotracheal intubation
- 5- Performing peripheral intravenous cannulation
- 6- Active participation in cardiopulmonary resuscitation (CPR)
- 7- How to use hemodynamic monitoring devices
- 8- Preliminary use of ventilator (preferential)

\* During this course, the students need to learn and practice patient safety in action.

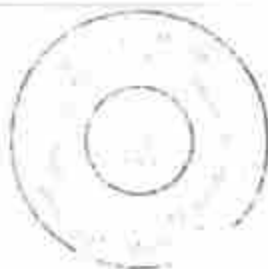
\* The Secretariat of the General Education Council can modify the list at certain times, in accordance with priorities and the approval of the changes by the General Medical Board and Medical Schools.

Course Code	206		
Course Name	Obstetrics and Gynecology Clerkship	Type of Rotation	Compulsory
Course Level	Clerkship (1 or 2)	Duration of Rotation	2 Months (8 weeks)
Prerequisite Courses	.....		
Credit Hours	6 Credits		
General Objectives	At the end of this educational rotation, the students should be able to:		



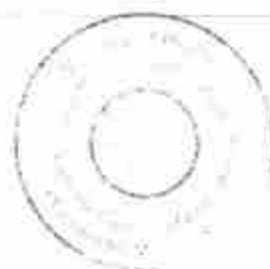


	<p>1- Communicate properly with patients, staff and other members of the healthcare team, and excellently show characteristics of professional behavior in their interactions.</p> <p>2- Take the history of patients with common and important symptoms related to this ward (the attached list), perform the necessary physical examinations, list important differential diagnoses, and perform essential procedures for the diagnosis and management of the patient's problem according to the standards of the ward as expected from a general practitioner under the supervision of the professor.</p> <p>3- Identify and suggest the problems of patients with common and important diseases related to this ward (the attached list) based on scientific evidence and local guidelines on prevention, including treatment and rehabilitation of the patient as expected from a general practitioner by reasoning, and perform the stages of the management of the patient's problem according to the standards of the ward under the supervision of senior levels (according to the rules of the ward).</p> <p>4- Perform the essential procedures related to this ward (the attached list) in compliance with the principles of patient safety and under the proper supervision (according to the rules of the ward).</p>
Course Description	In this training rotation, the externs must achieve specific goals by attending clinical rounds, medical clinics, and performing individual and group assignments. In order to provide them with required theoretical knowledge, theoretical training classes should be held.
Instructional activities	<p>Learning activities in this ward should be balanced between the patient bedside education, individual study and group discussions, presentation of case reports, supervised practical procedures, and participation in educational sessions of the department.</p> <p>Timetables, combined learning activities and areas required for each activity (including the hospital, the operating room, clinics, centers for health services, maternity hospitals, emergency departments and the skill lab) in the study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>
Notes	<p>* Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education. In addition to the abovementioned skills, major paraclinical and diagnostic methods and essential drugs should be specified for the clerkship students to gain an adequate level of knowledge and competency.</p> <p>** The amount and manner of classes should not be in a way that they disturb the students' clinical practice and learning.</p> <p>*** The methods, the syllabus and the students' evaluation should be determined, announced, and implemented by the educational department based on appropriate</p>



	<p>scientific principles. Program approval, monitoring its implementation and its evaluation are the responsibility of the medical school.</p> <p>**** Supervision can be exercised by the seniors (e.g. interns, residents, fellows, professors) or other qualified members of the healthcare team in a way that while ensuring the safety and rights of patients, the possibility of achieving the learning objectives becomes feasible. Medical schools are responsible for determining the manner and appropriate supervision over each procedure or intervention.</p>
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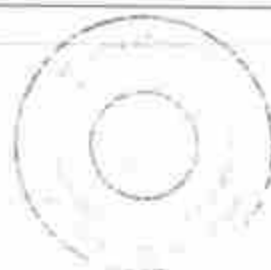
Appendix to the Clerkship of courses in Obstetrics and Gynecology	
Common signs and symptoms in this ward	
<ol style="list-style-type: none"> <li>1- Abnormal vaginal bleeding in pregnant and non-pregnant women</li> <li>2- Abdominal pain in pregnant and non-pregnant women</li> <li>3- Abnormal vaginal discharge</li> <li>4- Convulsions in pregnant women</li> <li>5- Fever in pregnant women</li> <li>6- Sensation of abdominal mass in pregnant and non-pregnant women</li> <li>7- Sensation of vaginal mass discharge</li> <li>8- Urinary incontinence</li> <li>9- Abnormal vaginal discharge in pregnant and non-pregnant women</li> <li>10- Lesion or wound of the genital tract</li> <li>11- Breast discharge</li> </ol> <p>* It is necessary that common tests and diagnostic methods used by a general practitioner, requesting and interpreting the results of these tests and methods in common obstetric and gynecological disorders and diseases be taught in this rotation.</p> <p>** During this rotation, it is necessary to teach the common drugs used in the clinical practice of a general practitioner as well as how to prescribe drugs for common obstetric and gynecological disorders and diseases.</p> <p>* During this course, the students need to learn and practice patient safety.</p>	
Syndromes and important diseases in this ward	
Must know	Better to know
<ol style="list-style-type: none"> <li>1- Physiology of pregnancy and perinatal care</li> <li>2- Management of normal vaginal delivery (NVD) - Postpartum care</li> <li>3- Assessing fetal health during labor</li> <li>4- Bleeding during pregnancy</li> <li>5- Complications of the first, second and third trimesters of pregnancy</li> <li>6- Hypertensive disorders in pregnancy</li> <li>7- RH alloimmunization disorders</li> <li>8- Common medical and surgical disorders in pregnancy</li> <li>9- Common benign disorders of the vulva, vagina, cervix, uterus, ovaries</li> <li>10- EP</li> <li>11- Abortion</li> <li>12- AVB</li> <li>13- Family planning</li> </ol>	<ol style="list-style-type: none"> <li>1- Labor dystocia</li> <li>2- Multiple pregnancy</li> <li>3- Pelvic pain - endometriosis</li> <li>4- Pelvic floor disorders</li> <li>5- Genital infections - STD - urinary tract infection (UTI)</li> <li>6- Pre-menopause - Menopause</li> <li>7- Infertility - PCOS - AKT</li> <li>8- Amenorrhea - Oligomenorrhea</li> <li>9- GTD</li> <li>10- Vulvovaginal, endometrial, ovarian, and fallopian tube cancers</li> <li>11- Puberty and its disorders</li> <li>12- Benign breast diseases</li> </ol>



Important procedures in this ward	
1-	Examinations during pregnancy
2-	Gynecological examinations
3-	Management of normal vaginal delivery (NVD)
4-	Management of an incomplete abortion with placenta in life-threatening bleedings
5-	Management of vaginal bleeding after labor
6-	Performing Pap smear
7-	Performing a urine pregnancy test

\* The Secretariat of the General Education Council can modify the list of common signs and symptoms, syndromes, diseases, and essential procedures in this section at certain times, in accordance with priorities and the approval of the changes by the General Medical Board and Medical Schools.

Course code	208
Course Name	Obstetrics and Gynecology Diseases
Course level	Clerkship
Course type	Theory
Duration of training	68 hours
General Objectives	<p>At the end of this educational rotation, the students (according to the attached list) should be able to:</p> <p>A) Upon encountering any of the common and important signs and symptoms:</p> <ol style="list-style-type: none"> <li>1- Explain its definition.</li> <li>2- Describe the required focused history taking and physical examination to approach them.</li> <li>3- Make important differential diagnoses and suggest the necessary steps to reach the diagnosis and management of the patient's complaint.</li> </ol> <p>B) In the case of common and important diseases:</p> <ol style="list-style-type: none"> <li>1- Describe the definition, etiology, and epidemiology of the disease.</li> <li>2- Explain the problems of the patients with common and important diseases.</li> <li>3- Describe the methods of diagnosing the disease.</li> <li>4- Explain the most important preventive measures at different levels, including treatment and rehabilitation of the patient based on scientific evidence and local guidelines as expected from a general practitioner.</li> <li>5- Apply the acquired knowledge upon encountering the scenarios or patients' history for clinical reasoning and suggesting diagnostic or therapeutic approaches.</li> </ol> <p>C- Pay attention to important issues to be considered in the clinical setting of this area.</p>
Course description	

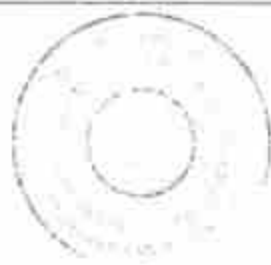


	In this course, the students must achieve specific goals by attending the classroom, the skill lab, workshops, and completing individual and group assignments.
Instructional activities	<p>Learning activities in this ward should be balanced between the theoretical training, individual study and group discussions, case reports, and other learning activities.</p> <p>Timetables, combined learning activities and areas required for each activity (including the classroom, educational center, the skill lab, and clinical settings) in the study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>
Notes	<p>* Due to varying circumstances of clinical education in different wards and medical schools, it is necessary for medical schools to prepare the syllabus and clinical study guides and present them to the students in compliance with the approved document of competencies expected from graduates of general medicine.</p> <p>** The amount and manner of classes should not be in a way that they disturb the students' clinical practice and learning.</p> <p>***Methods, syllabus and evaluation of the students should be determined, announced and implemented by the educational department based on scientific principles. Medical schools are responsible for approving the syllabus, supervising and evaluating its implementation.</p>

#### Contents of the Theoretical Course of Obstetrics and Gynecology Diseases

##### A) Obstetrics

- 1- General introductions and definitions in obstetrics and gynecology, communicating and considering ethical and religious aspects in obstetrics and gynecology examinations
- 2- A review of the anatomy and functional physiology of the reproductive system
- 3- Physiology of the placenta
- 4- Symptoms and different methods of pregnancy diagnosis
- 5- Physical exams during pregnancy and taking a history
- 6- Physiology of pregnancy
- 7- Pelvic structure and its abnormal types
- 8- Pregnancy care (including national prenatal care programs)
- 9- Common complaints during pregnancy
- 10- Physiology of childbirth, course of labor, and postpartum care
- 11- Postpartum care (including the national postpartum care program)
- 12- Delivery in abnormal fetal presentations
- 13- Labor stimulation
- 14- Labor dystocia
- 15- Fetal distress and related care
- 16- Premature birth, post-term pregnancy
- 17- Intrauterine growth retardation (IUGR)
- 18- Multiple pregnancy
- 19- Third trimester bleeding
- 20- Types of placentas and placental and umbilical cord abnormalities
- 21- Postpartum complications (infection, bleeding, thrombophlebitis, breast problems)
- 22- ABO blood groups incompatibility
- 23- Trophoblastic diseases



- 24- Physiologic labor, use of assistive devices in labor (vacuum, forceps)
- 25- Cesarean section and its types
- 26- Hydramnios, oligoamnios
- 27- Hypertensive diseases in pregnancy
- 28- Premature rupture of membranes (PROM)
- 29- Cardiovascular and urinary system diseases in pregnancy
- 30- Diabetes and pregnancy
- 31- Abortion
- 32- Ectopic pregnancy
- 33- Neonatal resuscitation

#### B) Gynecology

- 1- Clinical and paraclinical examinations in gynecological diseases
- 2- Puberty and menopause
- 3- Dysmenorrhea
- 4- Vulvovaginal diseases
- 5- Vaginitis and cervicitis
- 6- Benign diseases of the cervix and uterus
- 7- Malignant diseases of the cervix
- 8- Malignant diseases of the uterine body and the fallopian tubes
- 9- Benign ovarian tumors
- 10- Malignant ovarian tumors
- 11- Abnormal vaginal bleeding
- 12- Pelvic infections
- 13- Amenorrhea
- 14- Infertility
- 15- Endometriosis
- 16- Congenital abnormalities of the genital tract
- 17- Contraception methods

\* The Secretariat of the General Education Council can modify the list of common signs and symptoms, syndromes, diseases, and essential procedures in this ward at certain times, in accordance with priorities and the approval of the changes by the General Medical Board and Medical Schools.

#### Courses on Clinical Education of Social and Family Medicine

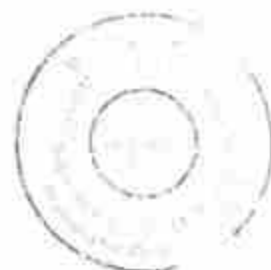
##### Social and Family Medicine Clerkship

Course Code	209		
Couse Name	Family and Family Medicine	Type of Rotation	Compulsory
Course Level	Clerkship/ Clinical Rotation year 1 or 2	Duration of Rotation	One month or 4 weeks
Pre-requisite courses		Credit Hours	3 Credits
General Objectives	In line with the competencies expected from the graduates of general medicine, at the end of this rotation, the students are expected to:		





	<p>be able to appropriately communicate with patients, staff and other members of the healthcare team and excellently show the characteristics of appropriate professional behavior in their interactions.</p> <p><b>Knowing the structure, functions and the connections between the elements of the health system and the primary healthcare, the students should also be able to:</b></p> <ol style="list-style-type: none"> <li>1- evaluate the structure of different levels of the primary healthcare and compare it with standards and report the result</li> <li>2- perform the first level health services for pregnancy, children, young adults, adults and the elderly according to national protocols under the supervision of certified trainers</li> <li>3- perform first level personal, family, and community health education according to national protocols under the supervision of certified trainers</li> <li>4- perform first level environmental and occupational health activities according to national protocols under the supervision of certified trainers</li> <li>5- perform first level oral and dental hygiene activities according to national protocols under the supervision of certified trainers</li> <li>6- perform first level activities of school healthcare and hygiene according to national protocols under the supervision of certified trainers</li> <li>7- perform first level activities of vaccination according to national protocols under the supervision of certified trainers</li> <li>8- perform first level activities related to screening and prevention of non-communicable diseases according to national protocols under the supervision of certified trainers</li> <li>9- know the electronic healthcare system and analyze its results</li> <li>10- apply the procedures and strategies of communication with the target population and social participation at the first level of healthcare service provision</li> </ol>
<b>Course Description</b>	<p>In this rotation, the students are expected to achieve the predetermined goals by attending healthcare centers and health stations and performing individual and group tasks. In order to provide them with the theoretical knowledge, such classes should be held in the form of orientation workshops by the department of Social and Family Medicine. **</p>
<b>Instructional activities</b>	<p>Learning activities should be a balanced combination of field learning, individual studies and group discussions, presenting reports, performing practical skills relevant to the abovementioned objectives under the supervision of the instructor, as well as participating in department meetings.</p> <p>The timing and organizing these activities and the location needed for each (at healthcare centers and health stations) will be determined by the medical school in the clinical study guide in accordance with the standards set by the Secretariat of the General Medicine Council.</p>
<b>Notes</b>	<p>* Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education. In addition to the abovementioned skills, methods of caring, counselling, and education should be specified for the clerkship students to gain an adequate level of knowledge and competency.</p>



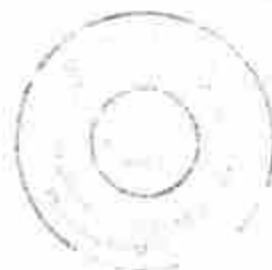
	<p>***The amount and manner of teaching in theoretical classes should not affect the presence of the students in the field and their acquisition of practical skills.</p> <p>***The methods, educational program and evaluation process should be assigned on a scientific basis, announced and implemented accordingly. The program is to be validated by the medical school.</p> <p>**** Supervision can be exercised by the seniors (e.g. residents, fellows, professors) in a way that while ensuring the safety and rights of patients, the possibility of achieving the learning objectives of the students and developing skills in independently doing the essential procedures (mandated by the Document of Essential Competencies of General Medicine Students) becomes feasible. Medical schools are responsible for determining the manner and appropriate supervision over each procedure or intervention.</p>
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### Clinical Education of Psychiatry Courses

#### Psychiatry Clerkship

#### Theoretical Course of Psychiatric Disorders

Course Code	211		
Course Name	Psychiatry Clerkship	Type of Rotation	Compulsory
Course Level	Clerkship Preferably Clerkship 2	Duration of Rotation	One month (4 weeks)
Pre-requisite courses		Credit Hours	3 credits
General Objectives	<p>At the end of this rotation, the students are expected to be able to:</p> <ol style="list-style-type: none"> <li>1- communicate with patients, workers, colleagues and members of the healthcare team while showing features of appropriate professional etiquette at a desirable level</li> <li>2- take a correct history from patients having the important signs and symptoms related to this course (see the attached list), perform the required physical examinations, propose the main differential diagnoses, and suggest the diagnosis and the procedure for managing the complaint</li> <li>3- identify the problems of patients with common important diseases related to this course (see the attached list), and do reasoning and make suggestions regarding prevention, treatment, follow-up, referrals, and training-based rehabilitation of the patients to the extent that is expected from a general physician according to the scientific evidence and local guidelines, and participate in the management of the problem based on the standards of the department under the supervision of higher levels (as determined by the regulations).</li> </ol>		
Course Description	<p>The students are expected to reach the determined goals by participating in clinics and clinical rounds and doing individual and group tasks. In order to provide students with the necessary theoretical knowledge, such courses should be held.</p>		
Instructional activities			

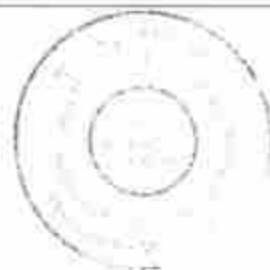


	<p>Activities in this course should be balanced between student- patient interactions, studies, group discussions, case presentations, performing procedures under supervision and participating in theoretical classes.</p> <p>Timetables, combined learning activities and areas required for each activity (including the hospitals, clinics, health care centers, laboratories, emergencies, and the skill lab) in the clinical study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>
Notes	<p>* Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education. In addition to the abovementioned skills, methods of caring, counselling, and education should be specified for the clerkship students to gain an adequate level of knowledge and competency.</p> <p>**The amount and the way of teaching in theoretical classes should not affect the presence of the students in the practical field.</p> <p>***The educational program and evaluation process should be assigned on a scientific basis, announced and implemented accordingly. The program is to be validated by the medical school.</p> <p>**** Supervision can be exercised by the seniors (e.g. residents, fellows, professors and other members of the healthcare team) in a way that while ensuring the safety and rights of patients, the possibility of achieving the learning objectives of the students and developing skills in independently doing the essential procedures (mandated by the Document of Essential Competencies of General Medicine Students) becomes feasible. Determining the manner and responsibility of appropriate supervision for each procedure or intervention is the responsibility of the medical school.</p>

#### Table of content for Clinical Rotations of Psychiatry Course

##### Common signs and symptoms

- 1- Anxiety
- 2- Aggressiveness
- 3- Depression
- 4- Addiction
- 5- Communication problems
- 6- Amnesia
- 7- Hyperactivity
- 8- Inappropriate social behavior
- 9- Inappropriate speech
- 10- Sleep problems
- 11- Sexual dysfunction
- 12- Physical problems of psychological origin
- 13- Suicide attempts
- 14- Drug side effects
- 15- Urinary and bowel incontinence (in children)

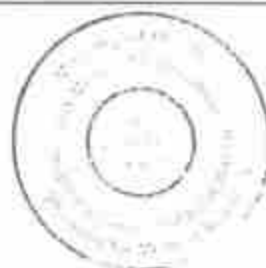


16- Personality disorders	
<b>Important syndromes and diseases</b>	
1-	Anxiety disorder (GAD, panic disorders, fear, PTSD, substance induced anxiety, anxiety related to metabolic diseases)
2-	Mood disorders (MDD, dysthymia, bipolar disorder, bereavement, adjustment disorder, PMS, post-partum depression and psychosis, substance induced mood disorders, mood disorders of metabolic diseases)
3-	Psychotic disorders (schizophrenia, delusional disorder, brief psychotic disorder, substance induced psychotic disorder, psychosis related to physical diseases such as tumors and metabolic diseases)
4-	Drug and substance abuse (knowing common drugs, signs of abuse, addiction and withdrawal signs)
5-	Sexual disorders (normal cycle, dysfunctions)
6-	Sleep disorders
7-	Somatic disorders in psychiatric diseases
8-	Psychiatric disorders in somatic diseases and psychosomatic disorders
9-	Somatiform (somatization, conversion disorder, body dysmorphic disorder, hypochondriasis)
10-	Psychological disorders
11-	Cognitive disorders (dementia, delirium)
12-	Psychological disorders of the elderly
13-	Psychiatric emergencies (suicide, homicide, risk factor assessment)
14-	Common psychiatric disorders in children and teenagers (hyperactivity, attention deficit, ADHD, conduct disorder, tic disorder, depression, anxiety, urinary and bowel incontinence, mental retardation)
<b>Other Subjects</b>	
15-	Pharmacological and non-pharmacological treatments in psychiatry
* In this rotation, common clinical tests and laboratory assessments and their interpretation and use in clinical context of neurological and psychiatric diseases should be taught.	
** In this rotation, commonly used drugs in general medical practice and neurological diseases should be taught.	
*** Students should learn and practice patient safety measures.	
<b>Essential procedures:</b>	
N/A	
During the clinical rotations, the students must watch and help manage patients during ECT.	
The Secretariat of the General Medical Education Council can change the content, common signs and symptoms, syndromes, important diseases and essential procedures in this ward at different times and in accordance to the priority and necessity, in collaboration with the General Medical Board and Medical Schools.	

Course Code	213
Course Name	Psychiatry Diseases
Course Level	Clerkship
Pre-requisite	
Course Type	Theoretical
Course Duration	26 hours
General Objectives	At the end of this rotation, (based on the attached list) the students should be able to: A) When encountering any of the common and important signs and symptoms: 1- Define it. 2- Perform focused history taking and physical exam, and explain them.



	<p>3- State the differential diagnoses and the ways to reach a definitive diagnosis and suggest patient management methods.</p> <p><b>B) Regarding important and common diseases:</b></p> <ol style="list-style-type: none"> <li>1- Explain the disease, the etiology and epidemiology</li> <li>2- Explain the major complains of individuals suffering from such diseases.</li> <li>3- Explain the diagnostic measures and procedures.</li> <li>4- Explain the important preventive measures at different levels, including treatments, rehabilitation, and patient empowerment according to scientific guidelines as expect from a general physician.</li> <li>5- Know the principles of clinical reasoning and suggest diagnostic methods and treatments according to the taught materials when encountering such patients.</li> </ol> <p><b>C) Pay attention to important details in clinical settings</b></p>
<b>Course Description</b>	The students should reach the determined goals by participating in classes, skill lab and workshops.
<b>Instructional activities</b>	<p>Activities in this course should be balanced between theoretical classes, studies, group discussions and performing assigned tasks.</p> <p>Timetables, combined learning activities and areas required for each activity (including the hospitals, clinics, health care centers, laboratories, emergencies, and the skill lab) in the clinical study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>
<b>Notes</b>	<p>* Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education. In addition to the abovementioned skills, methods of caring, counselling, and education should be specified for the clerkship students to gain an adequate level of knowledge and competency.</p> <p>**The amount and the way of teaching in theoretical classes should not affect the presence of the students in the practical field.</p> <p>***The educational program and evaluation process should be assigned on a scientific basis, announced and implemented accordingly. The program is to be validated by the medical school.</p>
<b>Headlines of the Content of the Psychiatry Diseases Theoretical Course:</b>	
<ol style="list-style-type: none"> <li>1- Anxiety disorder (GAD, panic disorders, fear, PTSD, substance induced anxiety, anxiety related to metabolic diseases)</li> <li>2- Mood disorders (MDD, dysthymia, bipolar disorder, bereavement, adjustment disorder, PMS, post-partum depression and psychosis, substance induced mood disorders, mood disorders of metabolic diseases).</li> </ol>	





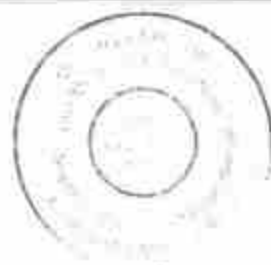
- 3- Psychotic disorders (schizophrenia, delusional disorder, brief psychotic disorder, substance induced psychotic disorder, psychotic disorders related to physical diseases such as tumors and metabolic diseases)
- 4- Drug and substance abuse (knowing common drugs, signs of abuse, addiction and withdrawal signs)
- 5- Sexual disorders (normal cycle, dysfunctions)
- 6- Sleep disorders
- 7- Somatic disorders in psychiatric diseases
- 8- Psychiatric disorders in somatic diseases and psychosomatic disorders
- 9- Somatoform (somatization, conversion disorder, body dysmorphic disorder, hypochondriasis)
- 10- Psychological disorders
- 11- Cognitive disorders (dementia, delirium)
- 12- Psychological disorders of the elderly
- 13- Psychiatric emergencies (suicide, homicide, risk factor assessment)
- 14- Common psychiatric disorders in children and teenagers (hyperactivity, attention deficit, ADHD, conduct disorder, tic disorder, depression, anxiety, urinary and bowel incontinence, mental retardation)
- 15- Pharmacological and non-pharmacological treatments in psychiatry

The Secretariat of the General Medical Education Council can change the content, common signs and symptoms, syndromes, important diseases and essential procedures in this ward at different times and in accordance to the priority and necessity, in collaboration with the General Medical Board and Medical Schools.

### Clinical training Courses of Emergency Medicine

#### Emergency Medicine Clerkship

<b>Course Code</b>	214		
<b>Couse Name</b>	Emergency Medicine Clerkship	<b>Type of Rotation</b>	Compulsory
<b>Course Level</b>	Clerkship Preferably to be presented in Clerkship 2	<b>Duration of Rotation</b>	2 weeks
<b>Pre-requisite courses</b>	Courses of Clinical Introductions	<b>Credit Hours</b>	1.5 credits
<b>General Objectives</b>	<p>At the end of this rotation, the students are expected to be able to:</p> <ol style="list-style-type: none"> <li>1- communicate with patients, workers, colleagues and members of the healthcare team while showing the appropriate manners.</li> <li>2- take a correct history from patients having the important signs and symptoms related to this course (see the attached list), perform the required physical examinations, propose the main differential diagnoses, and suggest the necessary steps to reach the diagnosis management of the problem according to the guidelines of emergency medicine.</li> <li>3- perform the necessary procedures (see the attached list) observing patient safety and under supervision of higher levels (according to the regulations of the ward).</li> </ol>		
<b>Rotation Description</b>	<p>The students should be present in the ward and visit the patient accompanying the medical team (Professor, fellow residents, and the externs of the ward and try to reach the determined goals by performing individual and group tasks. Theoretical classes should be held as needed. The training sessions can also include participating in morning rounds, workshops and practical sessions including resuscitation workshop.</p>		
<b>Instructional activities</b>			



	<p>Activities in this course should be a balanced combination of clinical training, individual studies and group discussions, presenting case reports, performing practical procedures under the supervision of professors, and participating in the department meetings.</p> <p>Timetables, combined learning activities and areas required for each activity (emergencies, the skill lab) in the clinical study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>
<b>Notes</b>	<p>* Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education. In addition to the abovementioned skills, methods of caring, counselling, and education should be specified for the clerkship students to gain an adequate level of knowledge and competency.</p> <p>** The amount and the way of teaching in theoretical classes should not affect the presence of the students in the practical field.</p> <p>*** The amount and type of tasks assigned to the students should be according to the educational goals set and should not affect the necessary skills to be learned.</p> <p>**** Supervision can be exercised by the seniors (e.g. residents, fellows, professors and other members of the healthcare team) in a way that, while ensuring the safety and rights of patients, the possibility of achieving the learning objectives of the externs and developing skills in doing the essential procedures mandated by the Document of Essential Competencies of General Medicine Students independently becomes feasible. The medical school is responsible for determining the manner and responsibility of appropriate supervision for each procedure or intervention.</p>

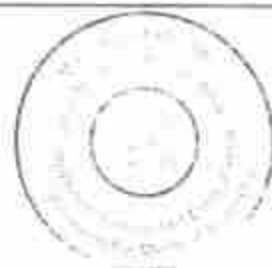
#### Attached Table of Content for the Emergency Medicine Course

##### Common Symptoms and Complaints in this Ward

- 1- Cardiac arrest
- 2- Multiple trauma
- 3- Chest pain
- 4- Abdominal pain
- 5- Dyspnea
- 6- Weakness and fatigue
- 7- Decreased level of consciousness
- 8- Common neurological symptoms: headache, dizziness and seizures

##### Important procedures in this ward:

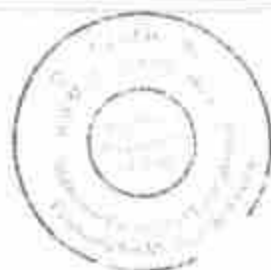
- 1- Performing and training on standard triage in regular cases according to protocols (including categorization and needs analysis of patients)
- 2- Basic maneuvers of airway management and practicing the use of aiding kits such as oral airways
- 3- Basic cardiopulmonary life support including heart massage, mouth to mouth breathing, mask breathing, Heimlich maneuver and AED
- 4- EKG and cardiopulmonary monitoring
- 5- IV insertion
- 6- Familiarity with the necessary kits and tools of urinary catheter and NG tubes
- 7- SC, IM and IV injections
- 8- Wound management (irrigating, applying bandages, types of wounds and necessary tools needed for repair)



9- Primary trauma care

The Secretariat of the General Medical Education Council can change the content, common signs and symptoms, syndromes, important diseases and essential procedures in this ward at different times and in accordance to the priority and necessity, in collaboration with the General Medical Board and Medical Schools.

Course Code	216		
Couse Name	Radiology Clerkship	Type of Rotation	Compulsory
Course Level	Clerkship	Duration of Rotation	One month (4 weeks)
Pre-requisite courses		Credit Hours	3 credits
General Objectives	<p>At the end of this rotation, the students should be able to:</p> <ol style="list-style-type: none"> <li>1- Communicate with patients, workers, colleagues and members of the healthcare team while showing the appropriate manners.</li> <li>2- develop the required knowledge regarding important radiological imaging of limbs and body systems</li> <li>3- optimally choose and request important radiological imaging, in common conditions, based on radiologic indications an in terms of their diagnostic values, costs, the amount of radiation they expose the patients to, and relevance to the physician's area of specialty.</li> <li>4- employ imaging and radiology as a scientific method of diagnosis and treatment (especially with pre and post consultation) not just as a professional skill tool.</li> <li>5- identify and differentiate the normal results and normal variations in common important imaging (see the attached list) so that they can prevent unnecessary treatments and interventions.</li> <li>6- timely identify important radiologic results in common emergency cases.</li> <li>7- compare and contrast important results reported by radiology specialists with the findings available in the films.</li> <li>8- compare and contrast the important findings available in the films and the relevant notes stated in radiological reports with clinical results of the patients and participate in the process of patient management according to ward standards under the supervision of seniors (based on regulations)</li> <li>9- Know the basic radiologic procedures</li> </ol>		
Rotation Description	<p>The students should know the principles, techniques and applications of radiology: normal anatomy in imaging of chest, abdomen, gastrointestinal system, urinary system, central nervous system, spinal cord and skeletal system; the use of different available modalities in radiology for the abovementioned organs regarding common and urgent lesions, disorders and damages in radiology to be able to relate radiological findings and reports to clinical cases. Classes should be held as required.</p>		
Instructional activities	<p>Activities in this ward should be a balanced combination of case-based training, preparing patients for radiological imaging, attending film-reading sessions, and attending educational classes of the department.</p> <p>Timetables, combined learning activities and areas required for each activity (including the hospitals, clinics, health care centers, laboratories, emergencies, and the skill lab) in the clinical study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>		



Notes	<p>* Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education. In addition to the abovementioned skills, methods of caring, counselling, and education should be specified for the clerkship students to gain an adequate level of knowledge and competency.</p> <p>** The amount and the way of teaching in theoretical classes should not affect the presence of the students in the practical field. Also, the amount and type of tasks assigned to the students should be according to the educational goals set and should not affect the necessary skills to be learned.</p> <p>*** Educational program and students' assessment should be decided upon, announced and done in a scientific method by the educational department. The medical faculty should approve the program and the assessment of students.</p>
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## Table of Contents for the Radiology Clerkship

### Important radiological imaging of limbs and systems

- 1- Imaging of gastrointestinal system (hollow viscus) (including normal findings of barium, normal CT scan, introducing CT colonography, ultrasonography, common lesions and approaches to each disease)
- 2- Imaging of bones, joints, and soft tissues (common diseases and approaches to each disease)
- 3- Imaging of bones, joints, and soft tissues (x-ray films, CT scan, MRI)
- 4- Imaging of common diseases of head and neck and approaches to each disease
- 5- Imaging of urogenital system (normal ultrasonography, normal IVP, normal CT scan, common diseases and the approaches to each one)
- 6- Imaging of breasts (including normal mammography, specific views, BIRADS system and approaches to each BIRADS and the role of sonography in MRI)
- 7- Gynecology imaging (including sonography, normal CT scan and MRI, normal hysterosalpingography, common lesions and the approaches to each disease, the indications for requesting transvaginal ultrasonography)
- 8- Imaging of mediastinum and cardiovascular system (including CXR, CT scan, normal MRI, diseases and approaches to each one)
- 9- Pediatric imaging

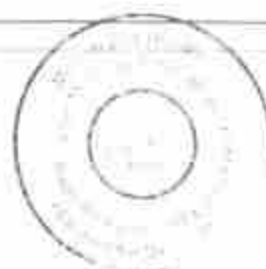
\* During this rotation, it is necessary to teach common diagnostic imaging applied in the clinical practice of general physicians, prescription and interpretation of their results in main and common diseases and disorders.

\*\* Students should learn and practice necessary measures for patient safety.

### Important radiological imaging modalities and types:

The minimum concepts required to be learned for each modality are as follows:

Simple radiography- concepts to be considered include:



- Chest X-ray: PA, lateral, decubitus
- Abdominal X-ray: supine, erect
- Skull X-ray: AP, Lateral, occipitontental
- Spine X-ray: AP and lateral
- Extremities: Upper and lower limbs

**Fluoroscopy: analyses with contrast - concepts to be considered include:**

- **Gastrointestinal system:**
  - 1- Barium swallow
  - 2- Barium follow through
  - 3- Barium enema
- **Urogenital system:**
  - 1- Intravenous venography
  - 2- Micturating cystourethrogram

**Sonography - concepts to be considered include:**

- Liver and biliary system
- Pancreas
- Spleen
- Kidneys and bladder
- Uterus and ovaries

**CT scan - concepts to be considered include:**

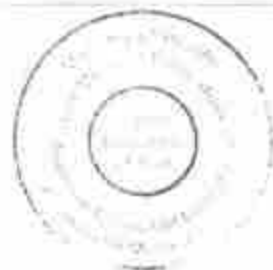
- Chest: at least 3 thorax CT scans with different indications and protocols
- Abdominopelvic: at least 3 CT scans with different indications and protocols
- Brain: at least 3 CT scans with different diagnoses
- CT angiography: limbs, mesentery, heart

\*At the beginning of every major topic of the rotation, a review of the anatomy of the relevant organ is necessary with emphasis on the clinical applications in the practice range of a general physician.

\*\* Principles of prescription of radiologic imaging in common cases applied in the practice of a general physician should be taught.

**Theoretical topics in this course**

- 1- Introduction to different radiological approaches and radiography techniques
- 2- Radiobiology and protection against radiation
- 3- Knowing contrast materials in radiology
- 4- Radiological symptomology and application indications of various radiological techniques in bone diseases and trauma
- 5- Normal chest X-ray (positions, indications, CT scans, and other radiological methods of the chest)
- 6- Radiological identification and introducing general chest diseases (mediastinum, pleura, parenchymal diseases, infectious diseases and pulmonary tumors)
- 7- Simple radiology of abdomen and indications of different radiological techniques in the examination of GI system
- 8- A brief introduction to diseases of GI system and acute abdomen
- 9- A brief introduction to diseases of urogenital system and indications of radiological techniques in the examination of urogenital system
- 10- Pediatric radiology
- 11- Knowing the preparation measures for radiologic analyses such as the ones using oral and IV contrast material, ultrasonography, CT scans, MRI, and nuclear medicine
- 12- Knowing the potential complications of radiology interventions
- 13- Knowing common contrast materials used in radiology, indications and contraindications and side effects of contrast materials
- 14- Knowing the advantages and limitations of radiology in the diagnosis and treatment of diseases





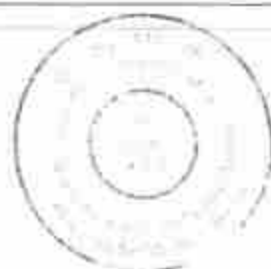
15- Knowing the side effects of ionizing radiations on human body (including pregnancy) and the preventive measures
The Secretariat of the General Medical Education Council can change the content, common signs and symptoms, syndromes, important diseases and essential procedures in this ward at different times and in accordance to the priority and necessity, in collaboration with the General Medical Board and Medical Schools.

#### Courses on clinical training of Infectious Diseases

##### Infectious Diseases Clerkship

##### Infectious Diseases (Theoretical Course)

Course Code	217		
Couse Name	Infectious Diseases Clerkship	Type of Rotation	Compulsory
Course Level	Clerkship	Duration of Rotation	One month (4 weeks)
Pre-requisite courses	Clinical Preliminaries courses	Credit hours	3 credits
General Objectives	<p>At the end of this rotation, the students should be able to:</p> <ol style="list-style-type: none"><li>1- Communicate with patients, workers, colleagues and members of the healthcare team while showing the appropriate manners.</li><li>2- Take a correct history from patients while considering important signs and symptoms related to this course (see attached tables), perform physical examination, decide the best approach, produce a list of the differential diagnoses and suggest solutions and patient management.</li><li>3- Know the signs and problems of patients with common diseases and illnesses related to this course, and participate in deciding on and explaining to the patient the possible treatments, ways of prevention, referrals and rehabilitations as expected from a general physician according to the scientific guidelines of the ward, under the supervision of superiors.</li><li>4- Independently perform essential procedures related to this ward (see attached file) assuring the safety of the patient under supervision (according to the ward rules).</li></ol>		
Rotation Description	<p>The students should reach the determined goals by participating in clinics and clinical rounds and accomplishing assigned tasks. Educational theory classes should be held whenever necessary.</p>		
Instructional activities	<p>Activities in this ward should be balanced between patients' bedside learning, individual leaning and group discussions, case presentation, doing practical procedures under the supervision of a professor and attending department meetings.</p> <p>Timetables, combined learning activities and areas required for each activity (including the hospitals, clinics, health care centers, laboratories, emergencies, and the skill lab) in the clinical study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>		
Notes			



	<p>* Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education. In addition to the abovementioned skills, main diagnostic and preclinical methods as well as essential medicines about which the extern should acquire sufficient knowledge need to be determined in each clinical learning guideline.</p> <p>** The amount and the way of teaching in theoretical classes should not affect the presence of the students in the practical field. Also, the amount and type of tasks assigned to the students should be according to the educational goals set and should not affect the necessary skills to be learned.</p> <p>*** Educational program and students' assessment should be decided upon, announced and done in a scientific method by the educational group. The medical faculty should approve the program and the assessment of students.</p> <p>**** Supervision can be exercised by the seniors (e.g. residents, fellows, professors) in a way that while ensuring the safety and rights of patients, the possibility of achieving the learning objectives of students and developing skills in doing the essential procedures (mandated by the Document of Essential Competencies of General Medicine Students) independently becomes feasible. Determining the manner and responsibility of appropriate supervision for each procedure or intervention is the responsibility of the medical school.</p>
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#### Table of Contents for Infectious Diseases Clerkship Course:

##### Common signs and complaints in this ward:

##### General signs:

Fever, chills, generalized pain (aches), burning sensation (eyes, throat, epigastric, urinary system), itchiness (eyes, throat, skin, genitalia), disorders in consciousness

##### Organ specific signs:

**Head:** headache, dizziness, head itchiness

**Eyes:** blurred vision, loss of vision, diplopia, scotoma, morning adhesion of eyelids, repetitive pterygium

**Ears:** hearing loss, pain, discharge, balance problems

**Nose:** runny nose, stuffy nose, colored nasal discharge

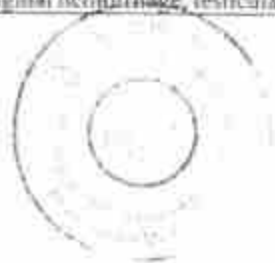
**Throat:** mucus in the throat, pain, odynophagia, hoarseness

**Lungs:** cough (dry, wet, whooping), phlegm (colorless, yellow or green, bloody), wheezing, chest pain that intensifies with cough or respiration, breathlessness (dyspnea, orthopnea), central cyanosis, intercostal muscles retraction

**Gastrointestinal system:** loss of appetite, nausea, vomiting, eructation, bitter tongue, dysphagia, acid reflux, hematemesis, bloating, tenesmus, diarrhea (simple, dysentery), constipation, stools (massive, greasy, smelly, colorless, melena), mucoid, rectorrhea, anal itchiness

**Urinary system:** dysuria and burning sensation, frequency, urgency, dribbling, color of urine (colorless, dark yellow, cloudy yellow, red), hematuria

**Reproductive system:** discharge, dyspareunia, vaginitis, dysmenorrhea, spots, vaginal hemorrhage, testicular pain



**Skin: itchiness**

**Common Signs in infectious diseases:**

**General Signs:**

- General state
- Fever curves
- Chills
- Night sweating
- Change in the level of consciousness
- Tonic and clonic seizures
- Tremor
- Paresis and plegia
- Generalized enlargement of the lymph nodes

**Organ specific signs:**

- Head: mites and ticks, kerion, nail fungal lesions, trichoptilosis
- Eyes: redness, conjunctivitis, chalazion, anisocoria, myosis and mydriasis, strabismus, retinal hemorrhage, papillary edema
- Ear: pumpation of ear drum, perforation, suppurative secretions
- Nose and sinus: suppurative and clear secretions, kusselbach plexus injury, nasal flaring, positive elimination of sinuses, paranasal consolidation in sinus radiography
- ENT: lips cyanosis, labial sores, chilitis, strawberry tongue, gingivitis, pyuria, tooth abscess, exudative pharyngitis, petechia, forch heimer patches, koplik spots, inflammation and divergence of tongue, bull neck, neck lymph node enlargement.
- Neck: Torticuli, neck nodes (mass).
- Lung and thoracic cage: crackles, decrease lung sounds, wheezing, dullness, mastitis...
- Abdomen: tenderness, rebound tenderness, positive Murphy sign, hepatomegaly, splenomegaly, ascites, inguinal hernia.
- Thigh and buttocks: hemorrhoids, fissure, pylonidal sinus
- Urogenital system: urethritis, epididymitis, orchitis, prostatitis (DRE), secretions, morning drops, lesions, chancres, itchy maculopapulovesicular lesions, cervicitis, bartonillitis,
- Limbs, skin: joint deformities, joint edema, tissue erythema, gait problems, paravertebral muscles spasm, paronochia, inter-digital fungi, cellulitis, erythema nodosum, vasculitis, angioedema, dermal ulcers, subdermal nodes, maculopapulovesiculopostular lesions, petechia, purpura, vasculitis, ecchymosis, urticaria...
- Clinical tests: Kernig, Brudzinski, Babinski, Trausseau and Shostek, nerve reflexes, sinus elimination of sinuses, shifting dullness, Lasague test, measuring size of liver...

**Important syndromes and diseases:**

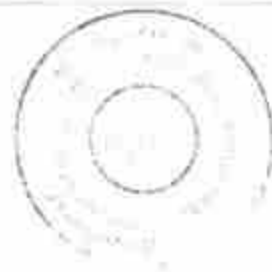
**Common diseases:**

**Bacterial:** common streptococcal infections (streptococcal pharyngitis, rheumatic fever), staphylococcal infections (abscess, pneumonia, folliculitis of eyelashes), meningitis, otitis, sinusitis, tuberculosis, brucellosis, typhoid, shigellosis, plague, cellulitis, orchitis, UTI, pneumonia, sepsis and septic shock, intoxication, STI  
**Viral:** common cold, influenza, chicken pox and zona, herpes, HIV/AIDS, hepatitis  
**Parasitic:** malaria, hydatid cyst, intestinal parasites, pediculosis, scabies

**Better to know:**

- 1- Botulism, common fungal infections (mucor)
- 2- Salmonellosis
- 3- CCHF
- 4- Hepatitis
- 5- Aids
- 6- Tetanus
- 7- Endocarditis
- 8- Osteomyelitis

\*During this rotation, the students should be taught the necessary tests and diagnostic procedures needed to diagnose such diseases as expected from a general physician, and be able to request and interpret the test results.



- \*\* The students should be taught the common drugs used and the treatment of common infectious diseases.
- \*\*\* The students should learn and practice the measures necessary to preserve the patients' safety.

**Essential procedures:**

- 1- Preparing and staining a PBS
- 2- Performing and interpreting the tuberculin test
- 3- Staining of samples
- 4- Standard precautions for controlling infections like proper hand washing, using PPE
- 5- Obtaining a correct sample for blood culture
- 6- Pharyngeal sampling
- 7- Sampling a skin lesion
- 8- LP on models or under supervision

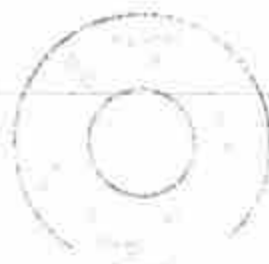
The Secretariat of the General Medical Education Council can change the content, common signs and symptoms, syndromes, important diseases and essential procedures in this ward at different times and in accordance to the priority and necessity, in collaboration with the General Medical Board and Medical Schools.

Course Code	219
Course Name	Infectious Diseases
Course Level	Clerkship
Pre-requisite	
Course Type	Theoretical
Course Duration	34 hours
General Objectives	<p>At the end of this course, (based on the attached list) the students are expected to:</p> <p>A- In the face of any common and important symptoms and complaints.</p> <ol style="list-style-type: none"> <li>1- Define them.</li> <li>2- Explain the required physical examination (focused history taking and physical examination) in approaching them.</li> <li>3- Make important differential diagnoses and suggest the required steps to reach the diagnosis and management of the patient's problem.</li> </ol> <p>B- About common and important diseases:</p> <ol style="list-style-type: none"> <li>1- Describe the definition, etiology, and epidemiology of the disease.</li> <li>2- Explain the problems of patients with common and important diseases.</li> <li>3- Describe the methods of diagnosing the disease.</li> <li>4- Explain the most important preventive measures at different levels, including treatment and rehabilitation of the patient based on scientific evidence and local guidelines as expected from the general practitioner.</li> <li>5- Use what has been learned for clinical reasoning, and suggest a diagnostic or therapeutic approach in the face of scenarios or descriptions of patients related to these diseases.</li> </ol> <p>C- Pay attention to important issues to be considered in the clinical setting of this area.</p>





<b>Course Description</b>	The students should reach the determined goals by participating in classes, the skill lab and workshops.
<b>Instructional activities</b>	<p>Activities in this course should be balanced between theoretical classes, studies, group discussions, case presentations, and performing assigned tasks.</p> <p>Timetables, combined learning activities and areas required for each activity (including the hospitals, clinics, health care centers, laboratories, emergencies, and the skill lab) in the clinical study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>
<b>Notes</b>	<p>• Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education. In addition to the abovementioned skills, methods of caring, counselling, and education should be specified for the clerkship students to gain an adequate level of knowledge and competency.</p> <p>** The amount and the way of teaching in theoretical classes should not affect the presence of the students in the practical field.</p> <p>*** The educational program and evaluation process should be assigned on a scientific basis, announced and implemented accordingly. The program is to be validated by the medical faculty.</p>
<b>Headlines of the Theoretical Content of the Infectious Diseases:</b>	
<p><b>Common diseases:</b></p> <ol style="list-style-type: none"> <li>1- <b>Bacterial:</b> common streptococcal infections (streptococcal pharyngitis, rheumatic fever), staphylococcal infections (abscess, pneumonia, folliculitis of eyelashes), meningitis, otitis, sinusitis, tuberculosis, brucellosis, typhoid, shigellosis, plague, cellulitis, orchitis, UTI, pneumonia, sepsis and septic shock, intoxication, STI</li> <li>2- <b>Viral:</b> common cold, influenza, chicken pox and Herpes zoster, herpes, HIV/AIDS, hepatitis</li> <li>3- <b>Parasitic:</b> malaria, hydatid cyst, intestinal parasites, pediculosis, scabies</li> <li>4- Infection control in health centers and hospitals</li> <li>5- Reasonable antibiotic prescription</li> </ol>	
<p>*During these classes, the students should learn the country's protocol and the epidemiology of diseases in Iran and the region.</p> <p>The Secretariat of the General Medical Education Council can change the content, common signs and symptoms, syndromes, important diseases and essential procedures in this ward at different times and in accordance to the priority and necessity, in collaboration with the General Medical Board and Medical Schools</p>	



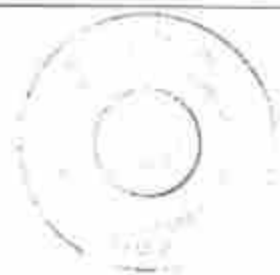


## Courses on Clinical Education in Neurology

### Neurological Diseases Clerkship

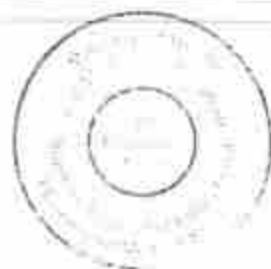
#### Neurological Diseases (Theoretical Course)

Course Code	220		
Couse Name	Neurological Diseases Clerkship	Type of Rotation	Compulsory
Course Level	Clerkship	Duration of Rotation	1 Month (4 Weeks)
Pre-requisite courses	Internal Medicine Clerkship (2 months), Pediatrics Clerkship (2 months), General Surgery Clerkship	Credit Hours	3 Credits
General Objectives	<p>At the end of this educational rotation, the students should be able to:</p> <ol style="list-style-type: none"><li>1- Communicate properly with clients, patients, staff and other members of the healthcare team and excellently show characteristics of professional behavior in their interactions.</li><li>2. Take the history of the patients with common and important symptoms related to this ward (the attached Appendix), perform the necessary physical examinations, make important differential diagnoses, and suggest the diagnosis and management of the patient's chief complaint.</li><li>3- Identify the problems of patients with common and important diseases related to this ward (the attached Appendix) based on scientific evidence and local guidelines; show reasoning and makes suggestions about prevention, treatment, follow-up, referral and rehabilitation measures, as well as the patient education as expected from a general practitioner, and participate in the management of the patient's problem according to the standards of the ward under the supervision of senior levels (according to the rules of the ward).</li><li>4- Perform the essential procedures related to this ward (the attached Appendix) in compliance with the principles of patient safety and under the proper supervision of senior levels (according to the rules of the ward).</li></ol>		
Course Description	<p>In this training rotation, the students must achieve specific goals by attending clinical rounds, medical clinics, and performing individual and group assignments. In order to provide them with required theoretical knowledge, theoretical training classes should be held.</p>		
Instructional activities	<p>Learning activities in this ward should be balanced between the patient bedside education, individual study and group discussions, presentation of case reports, supervised practical procedures, and participation in educational sessions of the department.</p> <p>Timetables, combined learning activities and areas required for each activity (including hospitals, clinics, health care centers, laboratories, emergency departments, and the skill lab) in the clinical study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>		

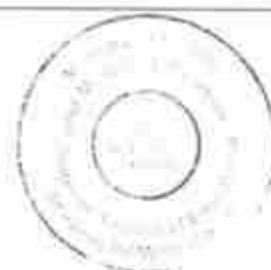


Notes	<p>* Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education. In addition to the abovementioned skills, major paraclinical and diagnostic methods and essential drugs should be specified for the clerkship students to gain an adequate level of knowledge and competency.</p> <p>** The amount and manner of classes should not be in a way that they disturb the students' clinical practice and learning.</p> <p>***Methods, syllabus and evaluation of the students should be determined, announced and implemented by the educational department based on scientific principles. Medical schools are responsible for approving the syllabus, supervising and evaluating its implementation.</p> <p>**** Supervision can be exercised by seniors (e.g. interns, residents, fellows, professors) or other qualified members of the healthcare team in a way that while ensuring the safety and rights of patients, the possibility of achieving the learning objectives becomes feasible. Medical schools are responsible for determining the manner and appropriate supervision over each procedure or intervention.</p>
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Course Code	222
Course Name	Neurological Diseases
Course Level	Clerkship
Pre-requisite	
Course Type	Theoretical
Course Duration	25 hours
General Objectives	<p>At the end of this course, (based on the attached list) the students are expected to:</p> <p>A- In the face of any common and important symptoms and complaints,</p> <ol style="list-style-type: none"> <li>1- Define them.</li> <li>2- Explain the required physical examination (focused history taking and physical examination) in approaching them.</li> <li>3- Make important differential diagnoses and suggest the required steps to reach the diagnosis and management of the patient's problem.</li> </ol> <p>B- About common and important diseases:</p> <ol style="list-style-type: none"> <li>1- Describe the definition, etiology, and epidemiology of the disease.</li> <li>2- Explain the problems of patients with common and important diseases.</li> <li>3- Describe the methods of diagnosing the disease.</li> <li>4- Explain the most important preventive measures at different levels, including treatment and rehabilitation of the patient based on scientific evidence and local guidelines as expected from the general practitioner.</li> <li>5- Use what has been learned for clinical reasoning, and suggest a diagnostic or therapeutic approach in the face of scenarios or descriptions of patients related to these diseases.</li> </ol>



	C- Pay attention to important issues to be considered in the clinical setting of this area.
<b>Course Description</b>	The students should reach the determined goals by participating in classes, the skill lab and workshops.
<b>Instructional activities</b>	<p>Activities in this course should be balanced between theoretical classes, individual studies and group discussions and performing assigned tasks.</p> <p>Timetables, combined learning activities and areas required for each activity (including the classroom, the skill lab, and controlled clinical environments) in the study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>
<b>Notes</b>	<p>* Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education. In addition to the abovementioned skills, methods of caring, counselling, and education should be specified for the clerkship students to gain an adequate level of knowledge and competency.</p> <p>** The amount and the way of teaching in theoretical classes should not affect the presence of the students in the practical field.</p> <p>*** The educational program and evaluation process should be assigned on a scientific basis, announced and implemented accordingly. The program is to be validated by the medical faculty.</p>
<b>Headlines of the Theoretical Contents of the Neurological Diseases course:</b>	
<ol style="list-style-type: none"> <li>1- The approach toward neurological disorders</li> <li>2- Stroke (diagnostic, treatment approach)</li> <li>3- Seizures and epilepsy (principles of diagnosis, treatment, and follow up)</li> <li>4- Headaches (migraine, tension, etc.)</li> <li>5- Cognitive problems and dementia</li> <li>6- Myopathies and neuromuscular junction disorders</li> <li>7- Neuropathies and excitatory neurons diseases</li> <li>8- Sleep disorders (apnea, oversleeping, insomnia, narcolepsy, parasomnia)</li> <li>9- CNS infections (meningitis, encephalitis, abscess)</li> <li>10- MS and other demyelinating diseases of CNS</li> <li>11- Movement disorders (Parkinson, chorea athetosis, dystonia, myoclonus)</li> <li>12- Paraclinical measures (laboratory testing, imaging, electrophysiology, and LP) in neurological diseases (necessity of use, physiology, techniques, and interpretations)</li> <li>13- Neurological symptoms of internal diseases</li> <li>14- Approach toward a patient with decreased level of consciousness (coma and brain death)</li> </ol>	
<p>The Secretariat of the General Medical Education Council can change the content, common signs and symptoms, syndromes, important diseases and essential procedures in this ward at different times and in accordance to the priority and necessity, in collaboration with the General Medical Board and Medical Schools.</p>	

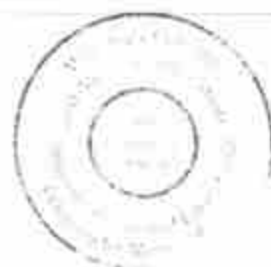


# Courses on clinical education in skin diseases

## Skin Diseases Clerkship

### Skin Diseases

<b>Course Code</b>	223		
<b>Course Name</b>	Skin Diseases Clerkship	<b>Type of Rotation</b>	Compulsory
<b>Course Level</b>	Clerkship	<b>Duration of Rotation</b>	1 Month (4 Weeks)
<b>Pre-requisite courses</b>	Internal Medicine Clerkship (2 months), Pediatrics Clerkship (2 months), General Surgery Clerkship	<b>Credit Hours</b>	3 Credits
<b>General Objectives</b>	<p>At the end of this educational rotation, the students should be able to:</p> <ol style="list-style-type: none"> <li>1- Communicate properly with clients, patients, staff and other members of the healthcare team and excellently show characteristics of professional behavior in their interactions.</li> <li>2. Take the history of the patients with common and important symptoms related to this ward (the attached Appendix), perform the necessary physical examinations, make important differential diagnoses, and suggest the diagnosis and management of the patient's chief complaint.</li> <li>3- Identify the problems of patients with common and important diseases related to this ward (the attached Appendix) based on scientific evidence and local guidelines; show reasoning and makes suggestions about prevention, treatment, follow-up, referral and rehabilitation measures, as well as the patient education as expected from a general practitioner, and participate in the management of the patient's problem according to the standards of the ward under the supervision of senior levels (according to the rules of the ward).</li> <li>4- Perform the essential procedures related to this ward (the attached Appendix) in compliance with the principles of patient safety and under the proper supervision of senior levels (according to the rules of the ward).</li> </ol>		
<b>Course Description</b>	<p>In this training rotation, the students must achieve specific goals by attending clinical rounds, medical clinics, and performing individual and group assignments. In order to provide them with required theoretical knowledge, theoretical training classes should be held.</p>		
<b>Instructional activities</b>	<p>Learning activities in this ward should be balanced between the patient bedside education, individual study and group discussions, presentation of case reports, supervised practical procedures, and participation in educational sessions of the department.</p> <p>Timetables, combined learning activities and areas required for each activity (including hospitals, clinics, health care centers, laboratories, emergencies, and the skill lab) in the clinical study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>		



Notes	<p>• Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education. In addition to the abovementioned skills, major paraclinical and diagnostic methods and essential drugs should be specified for the clerkship students to gain an adequate level of knowledge and competency.</p> <p>•• The amount and manner of classes should not be in a way that they disturb the students' clinical practice and learning.</p> <p>•••Methods, syllabus and evaluation of the students should be determined, announced and implemented by the educational department based on scientific principles. Medical schools are responsible for approving the syllabus, supervising and evaluating its implementation.</p> <p>•••• Supervision can be exercised by seniors (e.g. interns, residents, fellows, professors) or other qualified members of the healthcare team in a way that while ensuring the safety and rights of patients, the possibility of achieving the learning objectives becomes feasible. Medical schools are responsible for determining the manner and appropriate supervision over each procedure or intervention.</p>
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#### Appendix to the Clerkship of Skin Diseases for General Medicine

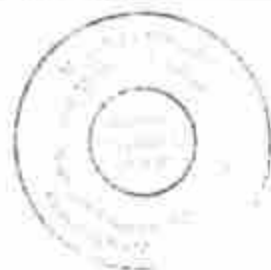
##### Common signs and symptoms in this ward

- 1- Skin lesions (macules, ecchymose, petechiae, purpura, maculopapular, papules, vesicle, pustules, bullae, blister, nodule, erythema nodosum, necrotic ulcer, gangrene, exfoliation/scales, vasculitis, crusts, hives, scar, acne)
- 2- Itchy skin (pruritus)
- 3- Alopecia (hair loss)

• Common tests and diagnostic methods used by a general practitioner, requesting and interpreting the results of these tests and methods in common skin disorders and diseases should be taught in this rotation.

##### Important disorders and diseases in this ward

- 1- Acne and Rosacea disease
- 2- Dermatitis (atopic dermatitis, seborrheic dermatitis, contact dermatitis, discoid eczema and nummular dermatitis, photo dermatitis, baby eczema or infantile eczema)
- 3- Fungal skin diseases (Dermatophytosis, candidiasis, pityriasis, versicolor)
- 4- Bacterial skin diseases (impetigo, cellulitis, pustule, carbuncle, erythrasma)
- 5- Viral skin diseases (cold sore, herpes zoster, chickenpox, wart, Molluscum contagiosum)
- 6- Common hair diseases (alopecia, areata, androgenic, cicatricialis)
- 7- Common nail diseases
- 8- Epidermal parasitic skin diseases (EPSD) (acabies, pediculosis, leishmaniasis) (diseases caused by bites)
- 9- Mycobacterial skin diseases (Cutaneous TB, leprosy)
- 10- Sexually transmitted Diseases (syphilis, AIDS)
- 11- Immunobullous skin diseases (pemphigus, bullous pemphigoid, herpetiform dermatitis)
- 12- Erythematous/squamous skin diseases (psoriasis, lichen planus, rosea pityriasis)
- 13- Skin emergencies (hives, angioedema, erythrodermatitis and Stevens-Johnson syndrome)





14- Pigmentation diseases of the skin (vitiligo)

15- Patient with generalized pruritus

16- Common local diseases

\* At the beginning of each main topic of the rotation, it is necessary to review the anatomy, histology and physiology of the relevant topics with emphasis on their clinical application for the practice of a general physician.

\*\* In this this rotation, it is necessary to teach the list of common drugs used in clinical practice by a general practitioner as well as how to write prescriptions in common skin diseases and disorders.

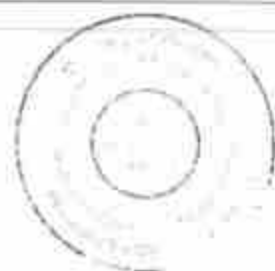
\*\*\* During this course, the students need to learn and practice patient safety.

#### Procedures in this ward

#### Subungual Hematoma Drainage (Optional)

\* The Secretariat of the General Education Council can modify the list of common signs and symptoms, syndromes, diseases, and essential procedures in this ward at certain times, in accordance with priorities and the approval of the changes by the General Medical Board and Medical Schools.

Course Code	225		
Couse Name	Ophthalmological Diseases Clerkship	Type of Rotation	Compulsory
Course Level	Clerkship (Clerkship 2)	Duration of Rotation	2 Weeks
Pre-requisite courses	Clerkships of Internal Medicine, General Surgery and Pediatrics	Credit Hours	1.5 Credits
General Objectives	<p>At the end of this educational rotation, the students should be able to:</p> <ol style="list-style-type: none"><li>1- Communicate properly with clients, patients, staff and other members of the healthcare team and excellently show characteristics of professional behavior in their interactions.</li><li>2- Take the history of the patients with common and important symptoms related to this ward (the attached Appendix), perform the necessary physical examinations, make important differential diagnoses, and suggest the diagnosis and management of the patient's chief complaint.</li><li>3- Identify the problems of patients with common and important diseases related to this ward (the attached Appendix) based on scientific evidence and local guidelines, show reasoning and makes suggestions about prevention, treatment, follow-up, referral and rehabilitation measures, as well as the patient education as expected from a general practitioner, and participate in the management of the patient's problem according to the standards of the ward under the supervision of senior levels (according to the rules of the ward).</li><li>4- Perform the essential procedures related to this ward (the attached Appendix) in compliance with the principles of patient safety and under the proper supervision of senior levels (according to the rules of the ward).</li></ol>		

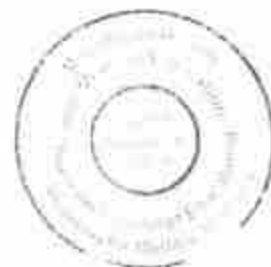


<b>Course Description</b>	In this training rotation, the students must achieve specific goals by attending clinical rounds, medical clinics, and performing individual and group assignments. In order to provide them with required theoretical knowledge, theoretical training classes should be held.
<b>Instructional activities</b>	<p>Learning activities in this ward should be balanced between the patient bedside education, individual study and group discussions, presentation of case reports, supervised practical procedures, and participation in educational sessions of the department.</p> <p>Timetables, combined learning activities and areas required for each activity (including hospitals, clinics, health care centers, laboratories, emergency department, and the skill lab) in the clinical study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>
<b>Notes</b>	<p>* Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education. In addition to the abovementioned skills, major paraclinical and diagnostic methods and essential drugs should be specified for the clerkship students to gain an adequate level of knowledge and competency.</p> <p>** The amount and manner of classes should not be in a way that they disturb the students' clinical practice and learning.</p> <p>***Methods, syllabus and evaluation of the students should be determined, announced and implemented by the educational department based on scientific principles. Medical schools are responsible for approving the syllabus, supervising and evaluating its implementation.</p> <p>**** Supervision can be exercised by seniors (e.g. interns, residents, fellows, professors) or other qualified members of the healthcare team in a way that while ensuring the safety and rights of patients, the possibility of achieving the learning objectives becomes feasible. Medical schools are responsible for determining the manner and appropriate supervision over each procedure or intervention.</p>

#### Appendix to the Clerkship of Ophthalmological Diseases for General Medicine

##### Common signs and symptoms in this ward

- 1- Red eye
- 2- Loss of vision, refractive errors (myopia and hyperopia), blurred vision
- 3- Foreign body sensation in conjunctiva and cornea
- 4- Foreign body sensation in the eye
- 5- Droopy eyelid (ptosis)
- 6- Diplopia and strabismus
- 7- Eye burn (thermal and chemical)



- 8- Traumatic eye injuries (e.g. eyelid lacerations)
- 9- Penetrating and non-penetrating contusions to the eye and orbit (intraocular hemorrhage and globe rupture)
- 10- Floaters and flashes
- 11- Pterygium
- 12- Computer vision syndrome, dry eye disease and photokeratitis
- 13- Color blindness, lacrimation and eye strain
- 14- High intraocular pressure

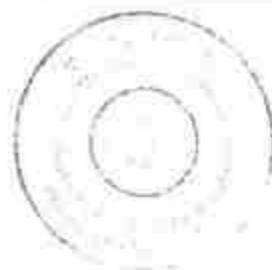
#### Important syndromes and diseases in this ward

- 1- Common ophthalmological emergencies including sudden loss of vision, eyelid laceration, foreign body sensation in the eye and in the conjunctiva and cornea, eye burn (thermal and chemical), intraocular hemorrhage, globe rupture, effects of various radiations on the eye, acute angle glaucoma, endophthalmitis, orbit fractures, retinal vein occlusion, infarction in the optic nerve, corneal epithelial defects, and retinal detachment.
- 2- Systemic eye diseases including diabetic retinopathy, hypertensive retinopathy, thyroid-dependent ophthalmopathy, autoimmune diseases (e.g. lupus, rheumatoid arthritis, Wagner, Sjogren Syndrome, Behcet Syndrome), inherited diseases of the connective tissue (e.g. Marfan Syndrome), galactosemia or deficiency of the galactase enzyme.
- 3- Strabismus and amblyopia
- 4- Optic and refractive errors including light refraction errors (myopia, hyperopia and astigmatism), presbyopia and accommodation disorder
- 5- Cataract
- 6- Glaucoma
- 7- Disease of the eyelid and lacrimal glands including eyelid infections and inflammations (stye, Chalazion, blepharitis), ptosis, eyelid tumors (e.g. melanoma, papilloma, xanthelasma, hemangioma, and carcinoma), disorders of the lacrimal apparatus (e.g. dacryoadenitis, acute, chronic and congenital nasolacrimal duct obstruction) and dry eye syndrome (DES)
- 8- Diseases of the Conjunctiva and Sclera including allergic and microbial conjunctivitis, pterygium, conjunctiva tumors and scleritis, episcleritis
- 9- Diseases of the cornea including keratitis, degenerative disease of the cornea (e.g. keratoconus and arcus senilis)
- 10- Diseases of the uvea including uveitis and melanoma
- 11- Diseases of the retina and vitreous body: vascular diseases of the retina, intraocular tumors
- 12- Neuro-ophthalmologic disorders including inflammation and swelling of the optic nerve (Optic neuritis), optic neuropathies (ischemic, toxic, and nutritional), parasympathetic system diseases, Horner's syndrome and nystagmus)
- 13- Diseases of the orbit including infections (e.g. cellulitis), dermoid and tumors (e.g. hemangioma, neurofibromatosis, melanoma, retinoblastoma, rhabdomyosarcoma)

\* At the beginning of each main topic of the rotation, it is necessary to review the anatomy and physiology of the eye with emphasis on their clinical application for the practice of a general physician.

#### Essential procedures in this ward

- 1- Central visual Acuity
- 2- Color blind test
- 3- Pinhole test
- 4- Visual field acuity test or test of loss of vision,
- 5- Periphetal vision test
- 6- Confrontational vision test
- 7- Examination of pupils
- 8- Extraocular muscle function test
- 9- Examination of external eye
- 10- Slit-lamp examination (anterior segment - optional)
- 11- Direct ophthalmoscopy



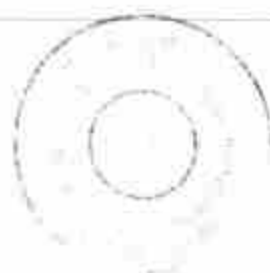
- 12- Corneal foreign body removal using the slit-lamp (Optional)  
13- Eye tonometry (Optional)

\* At the end of this rotation, it is necessary to teach the list of common drugs used in treating ophthalmology diseases and disorders as well as how to write prescriptions for common eye diseases and disorders by a general practitioner.

\*\* During this course, the students need to learn and practice patient safety.

\* The Secretariat of the General Education Council can modify the list of common signs and symptoms, syndromes, diseases, and essential procedures in this ward at certain times, in accordance with priorities and the approval of the changes by the General Medical Board and Medical Schools.

<b>Course Code</b>	227		
<b>Course Name</b>	ENT Diseases Clerkship	<b>Type of Rotation</b>	Compulsory
<b>Course Level</b>	Clerkship (Clerkship 2)	<b>Duration of Rotation</b>	1 month (4 Weeks)
<b>Pre-requisite courses</b>	Clerkships of Internal Medicine, General Surgery and Pediatrics	<b>Credit Hours</b>	3 Credits
<b>General Objectives</b>	<p>At the end of this educational rotation, the students should be able to:</p> <ol style="list-style-type: none"> <li>1- Communicate properly with clients, patients, staff and other members of the healthcare team and excellently show characteristics of professional behavior in their interactions.</li> <li>2. Take the history of the patients with common and important symptoms related to this ward (the attached Appendix), perform the necessary physical examinations, make important differential diagnoses, and suggest the diagnosis and management of the patient's chief complaint.</li> <li>3- Identify the problems of patients with common and important diseases related to this ward (the attached Appendix) based on scientific evidence and local guidelines, show reasoning and makes suggestions about prevention, treatment, follow-up, referral and rehabilitation measures, as well as the patient education as expected from a general practitioner, and participate in the management of the patient's problem according to the standards of the ward under the supervision of senior levels (according to the rules of the ward).</li> <li>4- Perform the essential procedures related to this ward (the attached Appendix) in compliance with the principles of patient safety and under the proper supervision of senior levels (according to the rules of the ward).</li> </ol>		
<b>Course Description</b>	<p>In this training rotation, the students must achieve specific goals by attending clinical rounds, medical clinics, and performing individual and group assignments. In order to provide them with required theoretical knowledge, theoretical training classes should be held.</p>		
<b>Instructional activities</b>	<p>Learning activities in this ward should be balanced between the patient bedside education, individual study and group discussions, presentation of case reports.</p>		

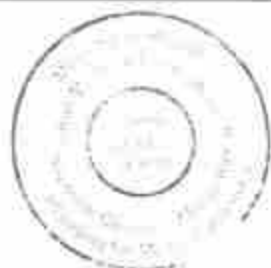


	<p>supervised practical procedures, and participation in educational sessions of the department.</p> <p>Timetables, combined learning activities and areas required for each activity (including hospitals, clinics, health care centers, laboratories, emergency department, and the skill lab) in the clinical study guide, are determined by each medical school following the standards mandated by the Secretariat of the General Medical Education Council.</p>
Notes	<p>* Due to varying circumstances of clinical education in different medical schools, it is necessary for each medical school to provide the learners with a clinical learning guide in accordance with the approved document on the competencies expected of the graduates of General Medicine as well as the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education. In addition to the abovementioned skills, major paraclinical and diagnostic methods and essential drugs should be specified for the clerkship students to gain an adequate level of knowledge and competency.</p> <p>** The amount and manner of classes should not be in a way that they disturb the students' clinical practice and learning.</p> <p>***Methods, syllabus and evaluation of the students should be determined, announced and implemented by the educational department based on scientific principles. Medical schools are responsible for approving the syllabus, supervising and evaluating its implementation.</p> <p>**** Supervision can be exercised by seniors (e.g. interns, residents, fellows, professors) or other qualified members of the healthcare team in a way that while ensuring the safety and rights of patients, the possibility of achieving the learning objectives becomes feasible. Medical schools are responsible for determining the manner and appropriate supervision over each procedure or intervention.</p>

#### Appendix to the Clerkship of ENT Diseases for General Medicine

##### Common signs and symptoms in this ward

- 1- Otalgia (ear pain)
- 2- Ear discharge
- 3- Bell's palsy
- 4- Tinnitus
- 5- Hearing loss
- 6- Vertigo
- 7- Nasal discharge / rhinorrhea
- 8- Facial tenderness
- 9- Nasal congestion
- 10- Smelling disorders
- 11- Dysphonia
- 12- Stridor
- 13- Dysphagia
- 14- Odynophagia
- 15- Odynophonia





- 16- Neck lumps
- 17- Acute respiratory obstruction
- 18- Thyroid nodosis
- 19- Oral and pharyngeal mucosal lesions
- 20- Cutaneous Pathology of the Head and Neck

#### Important syndromes and diseases in this ward

- 1- Outer ear diseases
- 2- Middle ear diseases
- 3- Inner ear diseases
- 4- Temporal bone trauma
- 5- Epistaxis
- 6- Rhino-sinusitis
- 7- Nasal and paranasal tumors
- 8- Infectious and inflammatory diseases of the oral cavity
- 9- Tumors and cysts of the oral cavity
- 10- Mandible traumas
- 11- Congenital anomalies of the pharynx
- 12- Infectious and inflammatory diseases of the pharynx
- 13- Neoplasms and cysts of the pharynx
- 14- Nasopharyngeal diseases
- 15- Congenital and infectious diseases of the larynx
- 16- Tumors of the larynx
- 17- Laryngeal trauma / injury
- 18- Congenital, infectious and inflammatory disorders of the salivary glands
- 19- Cysts and tumors of the salivary glands
- 20- Salivary glands trauma

\* At the beginning of each main topic of the rotation, it is necessary to review the anatomy and physiology of the eye with emphasis on their clinical application for the practice of a general physician.

\*\* During this rotation, the students should be taught the necessary tests and diagnostic procedures needed to diagnose common ENT diseases as expected from a general physician, and be able to request and interpret the test results.

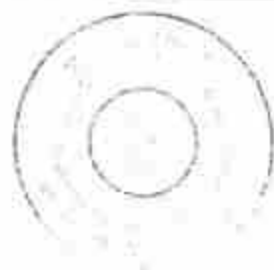
\*\*\* At the end of this rotation, it is necessary to teach the list of common drugs used in treating ENT diseases and disorders and how to write prescriptions for common ENT diseases and disorders by a general practitioner.

\*\*\*\* During this course, the students need to learn and practice patient safety.

#### Procedures in this ward

##### Compulsory (must-know) procedures

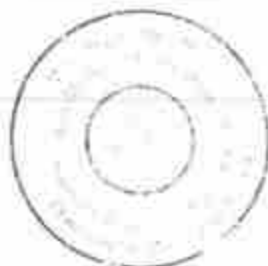
- 1- General examination of ENT patients
- 2- Complete examination of the ear
- 3- Taking history and examination of the inflamed eardrum and auditory canal, using mirror laryngoscopy and tongue depressor (spatula)
- 4- Examination of the nose
- 5- Examination of the nasopharynx
- 6- Examination of the neck and lymph nodes
- 7- Examination of the thyroid
- 8- Removal of simple foreign bodies from nose and throat
- 9- Collecting a throat swab for culture



- 10- Interpretation of plain radiographs of nasal and paranasal sinuses
- 11- Otoscopy
- 12- Diapason tests
- 13- Removal of cerumen from ears
- 14- Controlling epistaxis (nasal hemorrhage) (using tamponade)
- 15- Cricothyrotomy (cricothyroidotomy) (in the skill lab)
- 16- Tracheostomy (in the skill lab)
- 17- Heimlich maneuver (in the skill lab)

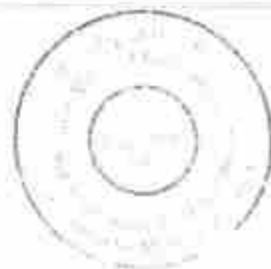
\* The Secretariat of the General Education Council can modify the list of common signs and symptoms, syndromes, diseases, and essential procedures in this ward at certain times, in accordance with priorities and the approval of the changes by the General Medical Board and Medical Schools.

Course Code	229		
Course Name	Medical Ethics		
Course Phase	Clerkship (preferably during the first months of clerkship)		
Prerequisite Courses			
Course Type	Theoretical	Practical	Total
Credit Hours	34 hours (2 Credits)		34 hours (2 Credits)
General Objectives	<p>At the end of this course, the medical students are expected to:</p> <p><b>A) In the cognitive domain:</b></p> <ol style="list-style-type: none"> <li>1- identify the humane and ethical aspects of the medical profession.</li> <li>2- recognize the set of expectations of Islamic teachings and medical jurisprudence from a qualified medical doctor.</li> <li>3- gain the capability to recognize the issues of medical ethics in their practice.</li> <li>4- gain the basic knowledge to make ethical decisions in medical practice.</li> <li>5- recognize their commitments as a medical practitioner.</li> </ol> <p><b>B) In the psychomotor domain:</b></p> <ol style="list-style-type: none"> <li>1- establish appropriate professional relationships with clients based on medical ethics principles.</li> <li>2- make ethical decisions in their practice.</li> <li>3- get the patients/their family members involved in decision making.</li> <li>4- appropriately cooperate with other health co-workers</li> <li>5- act by their commitments as a medical practitioner.</li> </ol> <p><b>C) In the affective domain:</b></p> <ol style="list-style-type: none"> <li>1- pay special attention to the dignity of the clients.</li> <li>2- consider punctuality, responsibility and fairness in providing healthcare services.</li> <li>3- set priorities for the patient's interests over personal interests as a medical practitioner.</li> <li>4- emphasize the clients' respectability.</li> <li>5- consider the clients' cultural and religious orientations.</li> </ol>		

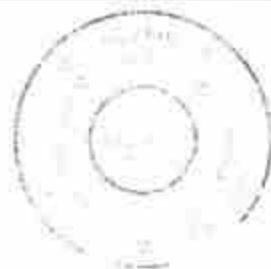


<b>Course Description</b>	In this course, issues of medical ethics are practically presented regarding respective and essential details so that ethical teachings can lead to change in medical practitioners' attitude and professional conduct. It is recommended to apply interactional methods for course presentation to guarantee the students' participation.
<b>Essential Course Content</b>	1- Introduction, history and statement of the significance of medical ethics 2- Medical ethics from the perspective of Islam and ethical theories 3- Professional commitment 4- The four principles and tools for ethical analysis 5- The relationship between the doctor and patients, the society, and the colleagues 6- Dress code and privacy 7- Confidentiality and telling the truth 8- Autonomy and informed consent 9- The patients' rights and satisfaction 10- Ethics in education 11- Ethics in research 12- Conflict of interest in three areas: education, research and healthcare provision 13- Ethics in the health system (including the allocation of resources) 14- Medical errors and a doctors' responsibility 15- Ethical considerations of healthcare provision under critical conditions 16- Breaking bad news 17- Ethical considerations in early life stages 18- Ethical considerations in later life stages 19- Familiarity with medical rights, rule and regulations 20- New technologies (including the use of stem cells) and emerging issues in medicine – the medical jurisprudence
<b>Notes</b>	

<b>Course Code</b>	230		
<b>Course Name</b>	Forensic Medicine and Intoxications		
<b>Course Phase</b>	Clerkship		
<b>Prerequisite Courses</b>			
<b>Course Type</b>	Theoretical	Practical	Total
<b>Credit Hours</b>	34 hours (2 Credits)		34 hours (2 Credits)
<b>General Objectives</b>	<p>At the end of this course, the medical students are expected to achieve the following competencies:</p> <p><b>A) in the cognitive domain:</b></p> 1- Familiarity with the rules and legal requirements of related to general issues of forensic medicine as applied to general medical practice. 2- Complete familiarity with the rules and regulations of medical practice (e.g. issuing certificates such as rest and sick leaves, death certification, mandatory disease certification, prescriptions, compulsory hospitalization, personal requests of virginity testing). 3- Familiarity with the legal aspects of consent, innocence, and medical errors. 4- Recognition of the punishments of issuing false certificates. 5- Complete familiarity with medical cases of mandatory referral to forensic medicine.		

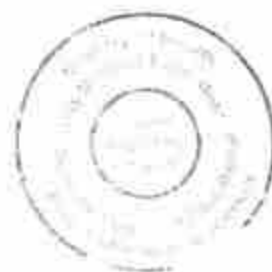


	<p><b>B) in the affective domain:</b></p> <ol style="list-style-type: none"> <li>1- Accepting the professional commitments and applying them to medical practice</li> <li>2- Familiarity with forensic medicine guidelines and oaths and applying them in medical practice.</li> <li>3- Adherence to the rules and professional duties assigned by the affiliated institute or the health system.</li> <li>4- Remaining accountable to the supervisory bodies of the health system.</li> </ol> <p><b>C) in the psychomotor domain:</b></p> <ol style="list-style-type: none"> <li>1- Adherence to the rules and legal requirements during general examination and specific cases (e.g. trauma, identification, choking and suffocation, sexual issues and toxicity).</li> <li>2- Making appropriate decisions and analyses about patients' medical problems and their families regarding relevant rules and legal requirements.</li> </ol>
<b>Course Description</b>	<p>The course of forensic medicine should be designed and presented to familiarize the clerkship students of medicine with the legal issues of medicine and to help them adhere to those principles in medical practice within the framework of scientific, practical and professional competencies of a medical practitioners asserted in the present course description. The students' attitudes towards relevant rules and legal requirements are expected to enhance with expressing lifelike examples and applicable case presentation.</p>
<b>Essential Course Content</b>	<ol style="list-style-type: none"> <li>1- General principles of forensic medicine</li> <li>2- ethical principles, rules and regulations associated with medical practice</li> <li>3- Mortology, signing death certifications and issuing the burial certificate</li> <li>4- Recovering and identifying the deceased and human remains</li> <li>5- Choking and suffocations</li> <li>6- Sexual issues</li> <li>7- traumatology: generalities and beating, accidents and events, heat and cold, radiation and electricity, noise</li> <li>8- Toxicity</li> <li>9- Sexual issues in forensic medicine/sexual deviations and relevant legal issues</li> <li>10- Firearms</li> <li>11- Pregnancy, abortion and infanticide</li> <li>12- Natural sudden deaths</li> <li>13- Child abuse and infant fatalities</li> <li>14- Legal principles of writing certificates and records</li> <li>15- Letters of consent and innocence</li> <li>16- The law of blood money (based on Islamic of the punishments of blood money)</li> </ol>



## **Chapter 4**

### **Bachelor of Medicine & Bachelor of Surgery (MBBS) Degree: Curriculum Evaluation**





**Evaluation of this program is done following two approaches: summative and formative.**

**A) Formative or constructive approach to evaluation of MBBS program:**

In the formative approach, the purpose of evaluation is to modify the current programs by comparing the implemented curriculum with the planned curriculum and its standards.

To this end, compilation of monitoring indexes of implementing the curriculum and setting up the monitoring system are done in two levels: at the university level (oriented by general medicine curriculum committee in the school of medicine); the ministry level (with the responsibility of the general medicine secretariat of training).

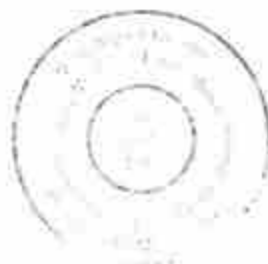
Based on the monitoring results, the final decisions are made at the level of the faculty. In case of inclusive problems and the necessity of making changes at the national level, the secretariat of general medical education council is obliged to follow up the required actions and corrections to ensure the appropriate implementation of the program.

**B) Summative approach to evaluation of MBBS program:**

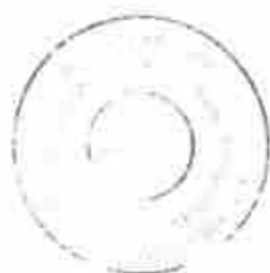
Every five years, the summative approach is carried out in order to determine the quantity of standards of the program in medical schools. Validation model will be applied for the realization of this approach. The standard document of general medical program (appendix 3) which is compiled through scientific procedures and with cooperation of general medical education experts from all over the country is the basis of accreditation of general education programs in the Iranian medical schools.

**Frequency of evaluation:**

- The summative evaluation is conducted constantly.
- The formative evaluation (program accreditation) is done every five years.



## Appendices



### **List of Appendices:**

**Appendix 1:** The document on the competencies expected from undergraduate medical program graduates in Iran, approved in the 62nd meeting of the Supreme Council of Medical Sciences Educational Planning Sciences dated January 10<sup>th</sup>, 2016 (notification no. d/518/13 dated April 4<sup>th</sup>, 2016)

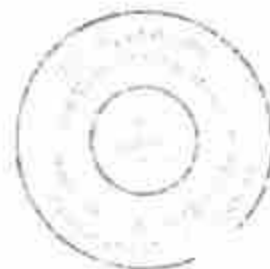
**Appendix 2:** Physical standards of the undergraduate medical program-Approved by the 249th meeting of the development council of medical sciences universities dated October 18<sup>th</sup>, 2015 (notification No. 500/1130 dated January 13<sup>th</sup>, 2016).

**Appendix 3:** Standards of the undergraduate medical program in Iran

**Appendix 4:** Bill of Rights of Patients in Iran

**Appendix 5:** Dress code regulations and students' professional ethics in laboratory-clinical environments

**Appendix 6:** Regulations for working with laboratory animals



### **Appendix 3**

## **The Iranian National Standards of the Bachelor of Medicine & Bachelor of Surgery (MBBS) Degree**

**(Edition 2016)**



## **Domain 1: Mission and Objectives**

### **Subdomain 1-1: Mission and objectives**

#### **Mandatory standards <sup>1</sup>**

##### **The school of medicine must:**

C-1-1-1- compile its mission in relation to general medical education, taking into account the health needs of the society, the system for presenting health services, based on upstream documents, values, and social accountability.

C-2-1-1- compile its mission with the cooperation of the main stakeholders and announce it to them.

C-3-1-1- in its mission, it should determine educational objectives and strategies in such a way that the implementation of the program can lead to train capable graduates to play a role as a general practitioner, and professional development through lifelong learning, and with preparation to study in the following levels (if desired).

#### **Preferred standards <sup>2</sup>**

##### **The school of medicine had better:**

D-1-1-1- use a wider range of opinions of other stakeholders in formulating and revising its mission.

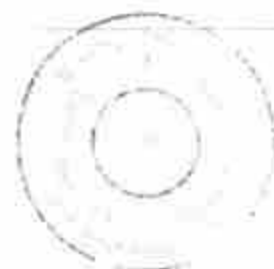
D-2-1-1- in its mission statement, include new achievements in the field of medicine and transnational aspects of health.

#### **Description:**

- ❖ The health requirements of the society and the health service delivery system are determined based on the official reports of the Ministry of Health, Treatment and Medical Education, especially the reports of the health and medical assistants.
- ❖ Upper-level documents contain all national documents related to general medical education, such as the general health policies (announced by the Supreme Leader), the country's comprehensive scientific map, the health document, the education transformation document and the capabilities expected from the general practitioners.
- ❖ The values include the sublime values of the religion of Islam in the field of gaining divine approval, preserving human dignity, honor of serving people, the necessity of preserving

<sup>1</sup> Mandatory standards that are specified with the word "must" in the text are the standards that the school of medicine is required to totally comply with.

<sup>2</sup> Preferred standards indicated by the word "should" in the text are the standards that represent the best performance of the school of medicine in the general medical education program. Therefore, the school of medicine should show some evidence that it meets at least some of these standards.





life and reviving people, improving health and quality of life, justice in health, the importance of alleviating the sufferings of the sick, observing the divine and human laws, adhering to the medical rules and observing human rights, following science, the adequacy of the medical profession, providing and guaranteeing the priorities and requirements identified and announced by the health service system, and having the necessary flexibility for compliance with jurisprudential obligations and designing and teaching the invented problems in the world of medicine.

- ❖ The limits and aspects of social accountability are considered in direct relation with general medical education.
- ❖ The meaning of lifelong learning is that the student, according to the needs of the society and the scientific and technological changes of the medical field, participates responsibly in learning and updating his knowledge and abilities.
- ❖ Main beneficiaries include the senior management of the university, the president and officials of the school of medicine, the faculty members, the students, and the graduates.
- ❖ Other beneficiaries refer to the patients, the representatives of other medical professions, related institutions (such as the medical system and insurances), and people in the community (such as the recipients of the health services), the general medical education board and the relevant officials of the related Ministry.
- ❖ The competent general practitioner is meant to be a person who, based on the competencies of general practitioners listed in the latest document of the competencies of MBBS graduates, approved by the Supreme Council of Capability Planning of Independent Medicine, is able to practice independently and act as a general practitioner.
- ❖ New medical achievements refer to innovations in the field of medicine, including innovations in equipment, methods, medicine knowledge, and medical education.
- ❖ Transnational aspects at first include regional priorities and then global health problems.

#### **Subdomain 1-2 Limits of power**

##### **Mandatory standards**

**The school of medicine must:**

C-1-2-1 have the necessary authority and resources to design and implement the educational program of general medicine.

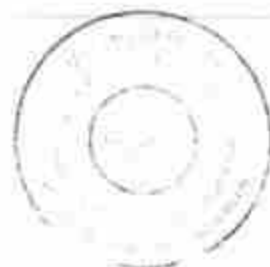
#### **Domain 2: Educational Program**

##### **Subdomain 2-1: Program framework**

##### **Mandatory standards**

**The school of medicine must:**

C-2-1-1 based on the framework and content of the national curriculum of MBBS announced by the Ministry of Health and Medical Education, compile the educational curriculum of its entire



program, obtain the approval of the university's educational council, and announce it through appropriate ways, such as by placing it on the faculty's information website.

C-2-1-2- show that in setting up and implementing the educational curriculum of medicine major in the general medicine program, it attempts to present education based on capabilities.

C-2-1-3- prepare and implement the educational curriculum of the MBBS program based on the principles of educational justice.

#### **Mandatory standards**

##### **Medical school should:**

D-2-1-1- regulate and implement the educational curriculum of the MBBS program in accordance with the competencies approved in the document of the competencies of graduates of MBBS in such a way as to ensure the capabilities of the graduates. For this purpose, it is necessary to adjust and implement all the main components of the program in accordance with the approved competencies.

##### **Description:**

- ❖ The curriculum of the general medical education is the one approved by the Ministry of Health and Medical Education.
- ❖ The educational curriculum of the general medical education program of the school of medicine contains the main components of the educational program, including competencies (a combination of knowledge, skills and attitudes that students must acquire), content and educational experiences, learning and teaching methods, student assessment, and program evaluation.
- ❖ The principles of educational justice refer to a fair treatment among students and professors regardless of gender, nationality, ethnicity, race, religion, social economic status, and physical capabilities based on acceptable minimums in accordance with existing approvals and regulations.

#### **Subdomain 2-2: Educational content**

##### **Mandatory standards**

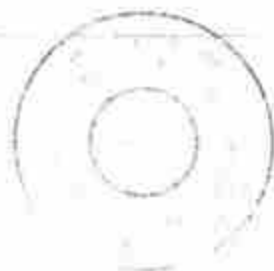
##### **Medical school must:**

C-2-2-1 in its educational program, involve the essential content of the basic sciences included in the approved national curriculum, which is required for the practice of general medicine.

The content involves facts, concepts and principles required for learning and implementing clinical sciences.

C-2-2-2 in its educational program, involve the essential content of clinical sciences included in the approved national curriculum, which is required for the practice of general medicine. This content includes professional and clinical knowledge and skills required for independent practice after graduating as a general practitioner in the country.

C-2-2-3 in the educational program, include the content related to behavioral and social sciences, medical ethics, professional ethics, medicine rights, complementary medicine and especially traditional medicine required for a general practitioner.



C-2-2-4 in its educational program, include the content of general courses required for general medical training.

C-2-2-5 In its educational program, include the content related to scientific methods required for general medical practice. This content includes critical thinking, research, and evidence-based medicine.

#### **Preferred standards**

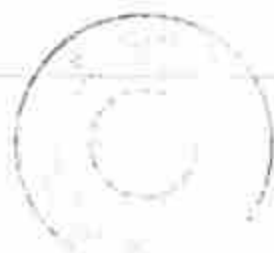
##### **Medical school should:**

D-2-2-1 take measures in order to monitor and revise the educational content (basic sciences, behavioral and social sciences, clinical sciences and scientific method) in accordance with the current and future needs of the society, scientific and technological developments, without increasing the overall volume of the program content in the national curriculum framework.

##### **Description:**

- ❖ Core content refers to content of the educational program that all students must learn.
- ❖ Basic sciences include items such as anatomical sciences (including anatomy, histology and embryology), biochemistry, physiology, medical physics, genetics, immunology, microbiology (including bacteriology, parasitology and virology), molecular biology and pathology.
- ❖ Behavioral sciences and social sciences include items like social medicine, epidemiology and vital health statistics, global health, medical psychology, medical sociology, public health and social sciences.
- ❖ Clinical sciences include items such as internal diseases, general surgery, children's diseases, women's diseases and obstetrics, psychiatry, emergency medicine, dermatology, orthopedics, urology, ophthalmology, otolaryngology, palliative medicine, radiology, and occupational medicine.
- ❖ Complementary medicine includes traditional medicine and alternative medicine.
- ❖ Clinical skills involve history description, physical examination, communication skills, diagnostic and therapeutic procedures.
- ❖ Fact is something which is known or proven. Facts in medical education are remembered in order to be cited in the future. Concepts are used in order to simplify the world and classify things. Principles state the relation between concepts.
- ❖ General courses are courses under the title of general courses that include Islamic education, Islamic ethics, Islamic texts, Persian literature, English language, physical education, and other courses presented to students of general medicine.
- ❖ Scientific method is a combination of inductive method and deductive reasoning, in such a way that the researcher first formulates the hypothesis inductively using his/her observations and then using the principles of deductive reasoning, deals with the logical application of the hypothesis.
- ❖ Medicine means all the expected roles and duties mentioned in the document of national competencies of medical graduates.

#### **Subdomain 2-3: Educational strategies**



### **Mandatory standards**

#### **The school of medicine must:**

C-2-3-1 carry out horizontal integration of related sciences to some extent.

C-2-3-2 implement part of its education in line with education based on the community in the ambulatory fields inside and outside the hospital and with an all-round health promotion approach.

### **Preferred standards**

#### **The school of medicine should:**

C-2-3-1 do the vertical integration of clinical sciences, basic sciences, behavioral and social sciences and other content of general medical program.

C-2-3-2 determine and present the elective courses based on the national curriculum and according to the priorities of the university.

C-2-3-3 organize and implement the educational curriculum of the medicine program in order to acknowledge student-centeredness and lifelong learning.

### **Description:**

- ❖ Horizontal (simultaneous) integration means the integration between basic science courses such as anatomy and physiology or the integration of internal clinical courses and surgery like nephrology and urology.
- ❖ Vertical (longitudinal) integration means the integration of courses at different levels, such as the integration of biochemistry courses and metabolic diseases or physiology and diseases of the nervous system.
- ❖ Elective content means the content of the educational program that students can choose according to their individual interests or feelings of need for deeper learning.
- ❖ Lifelong learning (refer to the description of mission and goals).
- ❖ Student-centeredness refers to educational approaches that provide learning opportunities with the aim of transferring the responsibility of learning to the students themselves and turning them into an independent and self-directed learner. In this framework, student participation is a serious necessity for learning.

### **Subdomain 2-4: Teaching-learning methods**

#### **Mandatory standards**

##### **The school of medicine must:**

C-2-4-1 use educational methods in accordance with educational goals to realize the desired capabilities.

C-2-4-2 take measures in order to improve the quality and increase the interaction with students in traditional educational methods such as lectures.

C-2-4-3 in the clinical phase, provide specific learning opportunities in the form of clinical rotations in internal and external hospital environments in accordance with the needs of general practitioners.

C-2-4-4 in the clinical stage, provide conditions where the student participates in the team of providing service to the patient, while accepting the responsibility gradually that suits his level, and enjoys proper supervision and receives sufficient feedback.



**Preferred standards****The school of medicine should:**

D-2-4-1 use active educational methods such as team-based learning, case-based, problem-based, learning in small groups, electronic learning, learning using simulators and other active methods in providing desired educational content appropriately and in accordance with educational abilities and objectives.

**Description:**

- ❖ Gradual acceptance of responsibility means that the student will gradually change from an observer, to a colleague, and finally to an active agent in learning in the clinical environment.
- ❖ Specific educational opportunities refer to the planned educational opportunities that are presented based on time and expected objectives.

**Domain 3: Student Assessment****Mandatory standards****The school of medicine must:**

C-3-1-1 formulate, announce and implement the student assessment system.

C-3-1-2 ensure that student evaluations cover all dimensions of ability, including all three cognitive, skill-based, and attitudinal fields.

C-3-1-3 use appropriate and various methods according to the goals and capabilities expected from the learners and the utility of assessment tools.

C-3-1-4 show the use of a specific mechanism for reporting evaluation results and responding to learners' objections.

C-3-1-5 give feedback to students based on the results of summative assessment exams.

C-3-1-6 examine and document the results of quantitative and qualitative analysis of multiple-choice tests and give feedback to the designers based on the results.

C-3-1-7 show that the processes and documentation of performed tests can be reviewed by an external expert.

**Preferred standards****The school of medicine should:**

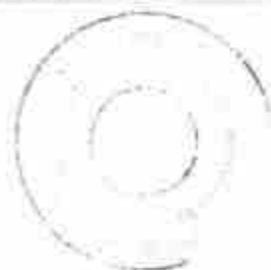
D-3-1-1 review and document the results of quantitative and qualitative analysis of other tests held (except for multiple-choice tests) and give feedback to the test designers based on the results.

D-3-1-2 show that there is a written program for monitoring the quality of exams and implement it.

D-3-1-3 organize formative assessment and provide effective and continuous feedback to students.

**Description:**

- ❖ Assessment program includes the principles and objectives of assessment, assessment tools, scheduled program, quorum determination method, providing feedback, observing exams, testing rejection compensation mechanisms and ethical considerations (the method





of avoiding conflict of interest among assessment evaluators in different phases of the general medicine program.

- ❖ Various aspects of ability, in addition to cognitive aspects, covers items such as clinical care, ethical and professional behaviors, and communication skills.
- ❖ Due to the complexity of the outcomes in the medicine field, using a single tool for assessment is not sufficient, and various tools should be used to measure cognitive, skill-based, and emotional aspects. These assessment tools can include written tests, open answer, closed answer, oral tests, OSCE, DOPS, Mini-CEX, logbook, portfolio, 360-degree assessment, and other valid tools and methods.
- ❖ The utility of tools include the five indicators of validity, reliability, educational impact, acceptability, cost effectiveness which are checked for each tool in each situation. Measuring some of these criteria is done through statistical methods and some others are examined through qualitative methods.
- ❖ In addition to the announcement of the score, the feedback includes things such as the announcement of the detailed answer sheet, specifying the students' errors, and providing solutions to improve performance.
- ❖ Summative assessment refers to tests that are conducted with the purpose of making decisions about the performance of learners.
- ❖ The quantitative and qualitative analysis of tests means to examine each question and determine its accuracy and deficiencies before the test (by using relevant checklists and through review sessions by peers or evaluation experts) and after the test (by determining the difficulty coefficient and the distinction coefficient of the questions and other relevant indicators). In addition to analyzing each of the necessary questions and items, it is necessary that the utility of any student assessment method or tool as well as the student evaluation system as a whole be identified.
- ❖ External expert means expert people outside the faculty, outside the university or from international organizations.
- ❖ Formative assessment refers to tests that are given during the course with the aim of providing feedback and improving overall performance, and its result is not included in the final evaluation.

#### **Domain 4: Students**

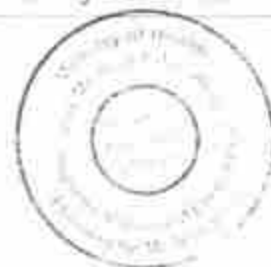
##### **Subdomain 4-1: Admission and students selection**

###### **Mandatory standards**

###### **The school of medicine must:**

C-4-1-1 have a specific program to check the characteristics of its newly arrived students and at the same time use its results in the future policies of the university and planning for students, and continuously put it at the disposal of the upstream relevant institutions.

C-4-1-2 within the framework of existing upstream laws and policies, and relying on the examination of appropriate evidence to determine the capacity and the combination of student admissions, design and implement a specific program to determine the admission capacity of newly arrived students.



C-4-1-3 should have a plan to introduce the medical field and the facilities of the faculty to its new students. Also, informing students about educational regulations, professional regulations, disciplinary regulations, and the expected professional duties should also be implemented in the same program.

#### **Preferred Standards**

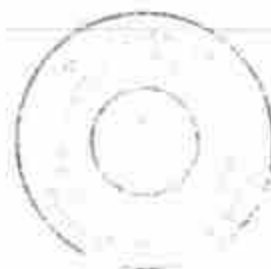
##### **The school of medicine should:**

D-4-1-1 have a program to introduce the field of medicine and the facilities of the faculty to secondary school students of the covering sub-district

D-4-1-2 in order to adapt to the changes in the MBBS program and to match the number of accepted students with the capacity of the faculty, give feedback to institutions related to student admission in order to modify related policies.

##### **Description:**

- ❖ The program for new students can include the following items:
  - Physical, mental, social, and spiritual health according to the medical profession.
  - Tending to acquire the competence, personal growth and excellence
  - Knowledge and proper attitude about academic responsibilities, role and professional-social position of practitioners
  - Necessary general abilities for proper performance in the medical profession, which can include the following:
    - Communication skills
    - Decision-making and critical thinking skills
    - Teamwork skills
    - Leadership and management skills
    - Creativity
    - Personal management skills
    - Logical reasoning skills
    - Reflection skills
  - Geographical and demographic distribution of new students
  - Academic records before entering the university
    - These records include the grade point average of the individual's high school education, his performance in the national exam, participation in students' Olympiads and other scientific achievements (such as participation in students' festivals).
- ❖ Appropriate evidence to determine student admission capacities and continuous improvement and review of related programs in relation with student admission can include the following:
  - Upstream documents and policies
  - Faculty human resources including faculty members, staff and managers
  - The capital resources of the medical school including the physical spaces of the school, hospitals and other cases
  - Consumable resources of the medical school including cash budget, equipment and other facilities
  - The needs of the society (especially in the province and city of the college)
  - Monitoring the effectiveness of the capacity of students entering the medical school in the past years



- ❖ Faculty capacity refers to the opportunities such as physical resources, learning opportunities, faculty groups, and the like.

## **Subdomain 4-2: Student advice and support**

### **Mandatory standards**

#### **The school of medicine must:**

C-4-2-1 design and implement an appropriate program to support social, legal, moral, psychological, and prevent possible harm from students in these fields.

C-4-2-2 design and implement a suitable system for providing academic and psychological counseling services to students and document the results of its implementation while maintaining the confidentiality of students' information. This system should actively identify and monitor students due to the need for these services, and the students should also be able to refer to the faculty's counseling system.

C-4-2-3 design and implement the set of extracurricular activities in order to realize growth in individual, personality, cultural, social and spiritual aspects; increase the motivation and academic vitality and professionalism among students.

C-4-2-4 determine the minimum favorable conditions of welfare support for general medical students, and in order to provide them, make plans and support them.

C-4-2-5 have a specific mechanism for identifying professional behaviors, promoting these behaviors in students and dealing with inappropriate behaviors while complying with current regulations.

C-4-2-6 design and implement a specific program to support specific student groups.

C-4-2-7 within the framework of upstream laws and policies, design and implement specific plans to establish coordination between the related units to support the organized scientific and cultural activities for students.

### **Preferred standards**

#### **The school of medicine should:**

D-4-2-1 in the system of providing academic and psychological counseling services to students, in addition to faculty members and counseling service specialists, use qualified students to provide counseling and mentorship services.

D-4-2-2 follow up the consultations made in the system of presenting academic and psychological counseling services to students and monitor their effectiveness.

D-4-2-3 continuously review and improve the set of programs related to student support standards.

#### **Description:**

- ❖ The proper system of providing educational and psychological counseling services to students includes a set of people, rules and processes that can be realized within the framework of a specific faculty institution or with the cooperation of several institutions.
- ❖ Welfare support can include the following:
  - student dormitories
  - student loans
  - nutrition
  - health insurance
  - recreational and sports facilities and spaces



- extracurricular arrangements
- student work inside and outside the university
- access to information technology (IT) facilities
- necessary arrangements for transportation and accommodation of students in university and hospital environments
- ❖ Special students' groups include the following:
  - elites and brilliant talents
  - students with poor academic status
  - students with special physical and mental needs
  - students with unfavorable economic and welfare conditions
- ❖ The supports can be provided in the form of the activities of a single custodian institution or with the cooperation of several institutions, in any case, it is recommended to maintain the coherence, transparency and accountability of these institutions at the highest level and in coordination with each other.
- ❖ Continuous improvement and review of the set of programs related to student support standards should be based on the following evidence:
  - upstream documents and policies
  - medical school and community needs
  - student need
  - student requests
  - student satisfaction with the received support
  - faculty Resources
- ❖ Eligible students are students who are approved by the faculty from the scientific, ethical and behavioral dimensions.

#### **Subdomain 4-3: The presence of students' representatives**

##### **Mandatory standards**

##### **The school of medicine must:**

C-4-3-1 provide the necessary context for the organized participation of students in the policy-making and executive processes related to the educational curriculum of the general medicine program.

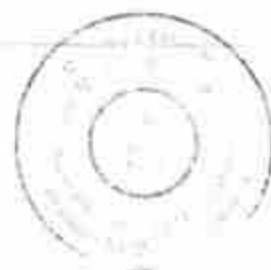
##### **Preferred standards**

##### **The school of medicine should:**

D-4-3-1 continuously review and upgrade the set of programs related to the presence of student representatives so that it leads to the improvement of students' participation level as much as possible, and in accordance with the process.

##### **Description:**

- ❖ Students' participation: Students' participation in a process means playing the role of their representatives in planning, implementation and evaluation of that process, which can range from the level of active consultation to permanent membership of the student representatives in the decision-making bodies of different faculties.





- ❖ Continuous improvement and review of the set of programs related to the attendance standards of student representatives should be based on the following evidence:
  - upstream documents and policies
  - medical school needs
  - community needs
  - requests from students and faculty members
  - Students' satisfaction with their level of participation

## **Domain 5: Faculty**

### **Subdomain 5-1: Faculty recruitment and employment**

#### **Mandatory standards**

##### **The school of medicine must:**

C-5-1-1 clearly explain and implement the announcement, recruitment, and employment policies of the faculty members/professors.

C-5-1-2 have a program for the announcement, recruitment, and employment of faculty members/professors based on the general medical curriculum and there should be enough faculty member from among clinical faculty members, basic sciences, behavioral and social sciences. In this program, there should be a proportionality of geographical full-time, full-time, and part-time faculty members, as well as a proportionality between the faculty members of the medical department and the non-medical department, and the proportionality between the number of faculty members and students.

C-5-1-3 the program for the announcement, recruiting and employing faculty members/professors be based on scientific/practical, education, research, ethics and professional character.

C-5-1-4 have an organized documented program for monitoring and continuous evaluation based on the description of the duties and responsibilities assigned to faculty members/ professors.

#### **Preferred standards**

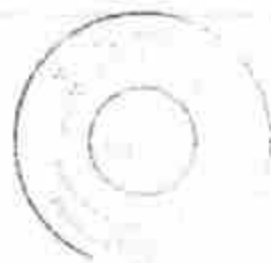
##### **The school of medicine should:**

D-5-1-1 have a program for the announcement, recruiting and employing faculty members/professors in line with the mission of the faculty and paying attention to regional characteristics.

D-5-1-2 in the announcement program, take into account the recruitment and employment of faculty members/professors, the budgets, and specific incomes of the faculty.

#### **Description:**

- ❖ The selection and supply of policies of academic faculty members means to ensure the efficiency of academic faculty members in clinical fields, basic sciences and behavioral and social sciences based on the general medical education program in the fields of educational, research and providing clinical services.
- ❖ The number, diversity and proportionality refer to the selection and provision of faculty members program in accordance with the program of the country standards.





- ❖ The scientific/practical, educational, research, ethical and professional character competencies are in accordance with the criteria of the recruitment regulations of faculty members approved by the Supreme Council of Cultural Revolution.
- ❖ Regional characteristics are the characteristics mentioned in the land survey document.
- ❖ Evaluation of the recruitment of academic faculty applicants at the entrance is based on individual resumes and faculty recruitment regulations.
- ❖ Monitoring and evaluation of faculty members in the stages of changing their employment status is based on educational and research resumes, and providing service in the previous years of service as a faculty member.

#### **Subdomain 5-2: Promotion and activities of faculty members**

##### **Mandatory standards**

##### **The school of medicine must:**

C-5-2-1 present and implement a plan to ensure the existence of a balance between the various activities of the members based on the description of employment duties and the regulation of faculty members promotion.

C-5-2-2 ensure the continuation of educational, research, cultural qualifications and providing health services by faculty members.

C-5-2-3 present and implement a plan to ensure the use of clinical and research activities in the teaching and learning process.

C-5-2-4 have a codified program for empowering and supporting faculty members/professors based on the regulation of faculty members' promotion.

C-5-2-5 make sure that the faculty members/professors are sufficiently familiar with the general medical curriculum, and in proportion to the assigned responsibility in general medical education, spend enough time and attention.

C-5-2-6 show that it has a plan to motivate and increase the ability of faculty members/professors in the field of student assessment.

C-5-2-7 show that it has a plan to ensure the minimum welfare of faculty members/professors.

##### **Description:**

- ❖ The educational, research, and cultural qualifications, and providing services can be defined based on the regulation of faculty member promotion.

#### **Domain 6: Educational Resources**

##### **Subdomain 6-1: Physical facilities**

##### **Mandatory standards**

##### **The school of medicine must:**

C-6-1-1 provide adequate and suitable physical facilities for faculty members and students to guarantee the educational program can be implemented properly.



C-6-1-2 provide an educational environment for staff, students, patients and accompanying patients in which appropriate safety principles are taken into account.

C-6-1-3 by regularly updating and expanding the facilities according to the developments in the field of educational methods, improve the educational environment of students.

**Description:**

- ❖ Physical facilities include lecture halls, classrooms, group-work rooms, research and training laboratories, clinical skills laboratories, administrative offices, libraries, information technology facilities, examination halls, dining halls, sports halls, recreational facilities, and rest fields (dormitories and pavilions).
- ❖ The minimum physical facilities required are specified in the physical standards document of the general medical program.
- ❖ Safe environment (workplace safety) includes providing essential information and protection against harmful substances, samples, regulations and safety of laboratory and safety equipment.

**Subdomain 6-2: Clinical educational resources**

**Mandatory standards**

**The school of medicine must:**

C-6-2-1 ensure the provision of the following items to gain sufficient clinical experience for students:

- Sufficient number and variety of patients
- Clinical training facilities
- Supervision of clinical training

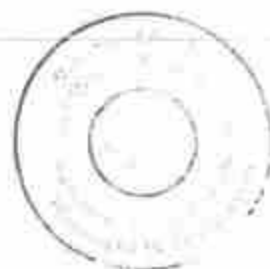
**Preferred standards**

**The school of medicine should:**

C-6-2-1 evaluate the facilities of clinical training according to the needs of the covered population and attempts in order to prepare them.

**Description:**

- ❖ In clinical training, the patient means a real patient; but if necessary, a simulated patient, a standardized patient, or other techniques can be used as an alternative.
- ❖ The required clinical training facilities are specified in the physical standards document of the general medical program.
- ❖ Clinical training facilities include a suitable combination of first, second and third grade hospitals, outpatient services, clinics, primary health care centers, health care centers and other community health care centers, in addition to a center for learning clinical skills.
- ❖ In the evaluation of clinical training facilities, while regularly paying attention to the medical training programs in terms of the appropriateness of the quality of the equipment, the number and variety of patients, treatment methods, monitoring, and their management should be evaluated.



### **Subdomain 6-3: Information technology**

#### **Mandatory standards**

##### **The school of medicine must:**

C-6-3-1 compile and implement policies for effective and moral use of information technology facilities for the students and the faculty staff.

C-6-3-2 have easy access to electronic media and provide the opportunity for the faculty members and students to use information technology and network-based facilities and the like.

C-6-3-4 provide the opportunity for the faculty members and students to use modern information technology by determining the level of access and compliance with the principles of professional ethics in the following cases:

- Patient management
- Access to patient information
- Work in health care systems
- Teaching clinical skills

#### **Preferred standards**

##### **The school of medicine should:**

D-6-3-1 provide facilities and equipment of new educational technologies such as various advanced simulators including virtual reality for the education of medical students.

#### **Description:**

- ❖ The policy of effective and ethical use of information technology and communication includes the use of computers, phones/mobile phones, internal and external networks, other tools, coordination with library services, including shared access to all resources and educational items through an LMS system, as well as the use of information technology. Application of information technology may be part of evidence-based medical education and prepare students for lifelong learning and continuous professional development.
- ❖ Ethical use refers to challenges related to physician and patient privacy and information confidentiality faced with the advancement of information technology in medical education and health care. Adopting policies related to empowering them to use new tools correctly can be helpful.

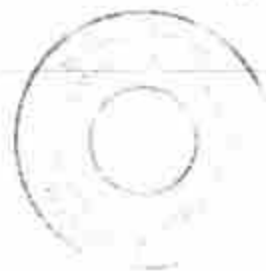
### **Subdomain 6-4: Research and scholarly inquiry**

#### **Mandatory standards**

##### **The school of medicine must:**

C-6-4-1 provide the necessary research infrastructure for the implementation of the general medicine program for medical students.

C-6-4-2 provide research facilities and specific research priorities and necessary information for students to be done by faculty members.



C-6-4-3 strengthen the relationship between research and education by formulating specific policies and implementing them.

C-6-4-4 make research and medical research the basis of reforming the educational program.

**Preferred standards:**

**The school of medicine should:**

D-6-4-1 through facilitating the learning of scientific methods and evidence-based education, ensure that research activities and medical research influence current education.

**Description:**

- ❖ Research and scholarly inquiry include scientific research in basic, clinical, behavioral and social sciences. Scholarly inquiry in medicine means obtaining knowledge and advanced medical research. Medical research can be the basis of the educational program.

**Subdomain 6-5: Expertise in medical education**

**Mandatory standards**

**The school of medicine must:**

C-6-5-1 have access to expert people in medical education.

C-6-5-2 compile and implement a specific policy for the use of expert people in medical education for the design and development of training and evaluation methods, and empowerment of faculty members.

**Preferred standards**

**The school of medicine should:**

D-6-5-1 consider the development of research in the field of medical education.

D-6-5-2 have competent people in medical education at the university level and have access to consultation at the national and international level.

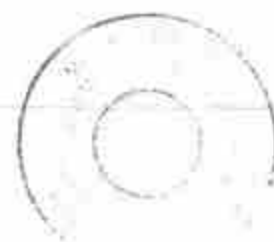
**Description:**

- ❖ Expert people in medical education include people with experience in development and research activities in medical education from various groups of medical sciences (doctors, nurses, pharmacists, dentists and other groups), educational specialists (including graduates of medical education, psychologists, sociologists, curriculum planning specialists, evaluators, and other experts) and the like.
- ❖ Research in medical education examines effective of various aspects of teaching and learning process.

**Subdomain 6-6: Educational exchanges**

**Mandatory standards**

**Medical school must:**



C-6-6-1 formulate a policy for national and international cooperation with other educational institutions, including the exchange of professors and students, and the equivalence of credits passed in other institutions.

**Preferred standards**

**The school of medicine should:**

D-6-6-1 manage the exchange of faculty members/professors, students, and experts in the regional and international level and the equivalence of credits passed in other institutions by providing appropriate resources.

**Description:**

- ❖ Other educational institutions include other medical schools and other schools and educational institutions (dentistry, pharmacy, public health and veterinary), and the related professions.
- ❖ Experts include management and technical experts.
- ❖ Equivalence of course credits can be facilitated through the work program between medical schools.

**Domain 7: Program Evaluation**

**Subdomain 7-1: Monitoring system and program evaluation**

**Mandatory standards**

**The school of medicine must:**

C-7-1-1 develop and implement a program for the systematic evaluation of the MBBS program.

C-7-1-2 develop and implement a program to monitor the processes and outcomes of medicine major in the MBBS program.

C-7-1-3 use the results of the evaluation in order to modify the medicine major in the MBBS program.

C-7-1-4 involve the main stakeholders of the evaluation in the monitoring and evaluation activities of the training program.

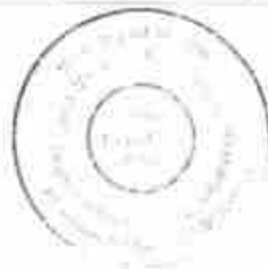
**Preferred standards**

**The school of medicine should:**

D-7-1-1- periodically, at specified intervals, (at least every 5 years), evaluate other aspects of the medicine major in the MBBS program, comprehensively.

**Description:**

- ❖ Program evaluation means the systematic and continuous process of collecting and analyzing data in order to judge the effectiveness and adequacy of the educational program and its main components (including the curriculum model, the structure of the program, the composition and length of the program, and the necessary and optional sections). Data





collection is done through different methods such as questionnaires, group discussions, interviews and document review, using valid and reliable tools, and from different sources like students, professors, and program officials.

- ❖ Course monitoring involves the continuous collection of data regarding its key aspects and in order to ensure the correct implementation of the educational process, in order to determine the fields that need intervention. Educational processes refer to the activities that are implemented so that the educational program achieves its desired results. Educational outcomes refer to the results of the program, which are usually defined in the form of immediate, mid-term and long-term outcomes.
- ❖ Other aspects of the educational program include the resources, the educational environment, the culture governing the program, the long-term consequences, the specific cases of the program (for example, the use of specific educational methods and evaluation), and social accountability.
- ❖ The main beneficiaries are referred to in the explanations in the section of mission and goals.

#### **Subdomain 7-2: Performance of students and graduates**

##### **Mandatory standards**

###### **The school of medicine must:**

C-7-2-1 analyze the performance of students of all academic semesters in relation to the intended educational outcomes and the educational program.

##### **Preferred standards**

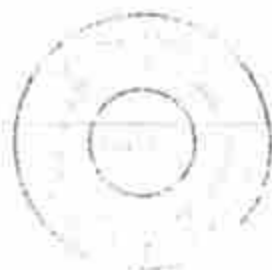
###### **The school of medicine should:**

D-7-2-1 analyze the performance of students and graduates of all academic semesters in relation to conditions, background, and input capabilities.

D-7-2-2 give feedback on the results of the performance analysis of students and graduates to the relevant authorities such as the relevant ministry, the evaluation organization, and to the curriculum planning and student counseling committee.

##### **Description**

- ❖ The purpose of analyzing students' performance is to examine the length of study, exam scores, pass and fail rate, success or conditionality and its reasons, examination of students' academic status based on self-reporting, attention to personal interest including optional courses, interviews with renewed students, interviews with withdrawn and expelled students, and other cases according to the conditions of the faculty.
- ❖ The purpose of analyzing the performance of graduates is to examine the performance results in the national exams, the chosen occupation, and performance after graduation and other cases, according to the existing conditions.



## **Domain 8: Governance and administration**

### **Subdomain 8-1: Governance**

#### **Mandatory standards**

##### **The school of medicine must:**

C-8-1-1 have received the establishment license from the Council for the Development of Medical Sciences Universities of the Ministry of Health and Medical Education.

C-8-1-2 define, develop, implement, and monitor the structure, organization, powers, responsibilities and inter-university organizational communications in order to achieve the goals of the general medicine program.

C-8-1-3 in the higher-level management, use the structure of councils with specific and defined tasks (for decision-making and policy-making), and the structure of a committee (for technical and implementational activities) with the participation of the main stakeholders.

#### **Preferred standards**

##### **The school of medicine should:**

D-8-1-2 inform the stakeholders clearly and appropriately about the decisions and performance of the governance.

#### **Description:**

- ❖ Governance structure: includes the board of directors, the policy-making council, and the processes of establishing program, institution, implementation, and monitoring policies.
- ❖ Committee structure: refers to a structure for the implementation of general medicine programs and policies, such as educational program committee, recruitment committee, and other issues.
- ❖ Main beneficiaries are referred to in the description of the mission and goals.
- ❖ Program and institutional policies include the mission of the medical school, the educational program, the admission system, the recruitment of personnel, the selection of effective policies and decisions in the interaction and communication with the health and clinical departments.

### **Subdomain 8-2: Educational management**

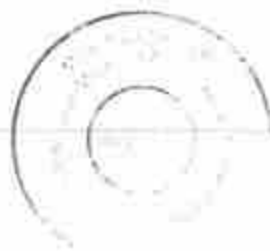
#### **Mandatory standards**

##### **The school of medicine must:**

C-8-2-1 determine the officials related to the general medicine programs, and describe and specify the responsibilities of each of them towards the management of this course.

#### **Preferred standards**

##### **The school of medicine should:**



D-8-2-1 have a specific plan to evaluate the performance of the management team and monitor and evaluate the performance of this team in terms of achieving its mission and expected results, periodically.

#### **Description**

- ❖ The education management team: These are natural and legal persons of the board of directors and the governance structure, who are responsible for the educational, research, service and decision-making issues. These people consist of the dean of the medical school, the vice education president of general medicine (basic and clinical sciences) of the faculty, the implementation committee of the basic standards of the general medical course, the managers of the educational groups, the educational councils of the groups (both basic and clinical sciences), the heads of the educational departments (both basic and clinical sciences), the heads of educational hospitals and the vice presidents of clinical education in the educational hospitals.

### **Subdomain 8-3: Educational budget and resource allocation**

#### **Mandatory standards**

##### **The school of medicine must:**

C-8-3-1 have a specific budget to fulfill the goals and implement the general medicine program.

C-8-3-2- delegate the financial and administrative powers needed to realize and develop activities related to general medical education based on the standards of this program.

#### **Description:**

- ❖ Specific budget: It refers to the educational budget based on the budget activities in the college, which should be related to a clear and transparent proportion of the medical school budget.

### **Subdomain 8-4: Management and implementation**

#### **Mandatory standards**

##### **The school of medicine must:**

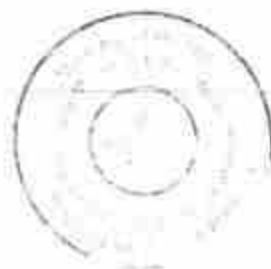
C-8-4-1 have the necessary professional executive staff to implement the educational program.

C-8-4-2 design and implement a specific program to provide human, capital, and consumption resources required for the continuation and promotion of student activities in the following fields in cooperation with the cultural student vice-chancellor of the university:

- Students' religious, cultural and sports activities,
- Students' scientific activities
- Social activities and personal development of students

C-8-4-3 have a specific structure and trustee to manage the student evaluation process and continuous evaluation in order to improve and promote the quality of student evaluation.

#### **Description:**



- ❖ The appropriate professional executive staff refers to the experts suitable for the requirements of the faculty, including the financial manager, budget staff, educational research experts, etc.

#### **Sub-domain 8-5: Interaction with the health sector**

##### **Mandatory standards**

##### **The school of medicine must:**

C-8-5-1 have a specific and appropriate process for constructive and continuous interaction with the health sector (health and treatment, food, and drug) and the relevant sections in the society.

##### **Description:**

- ❖ Constructive interaction: includes information exchange, joint efforts and cooperation with related organizations to train practitioners for social response to the future needs of society.

#### **Domain 9: Continuous Revision**

##### **Mandatory standards**

##### **The school of medicine must:**

C-9-1-1 continuously examine and review at the MBBS degree program and its components.

C-9-1-2 take action to solve the deficiencies identified in the MBBS program and its components.

C-9-1-3 consider a suitable budget for the continuous revision of the MBBS program.

##### **Preferred standards**

##### **The school of medicine should:**

D-9-1-1 carry out its continuous review process based on the results of prospective studies, evaluations and review of literature on medical education documents.

Pay attention to the following in the continuous review process:

D-9-1-2 modify the mission statement in accordance with the scientific, socio-economic and cultural developments of the society

D-9-1-3 revise the abilities of graduates in accordance with the needs of the working environments they enter

D-9-1-4 revise the educational program model and educational methods in order to ensure they are suitable and appropriate.

D-9-1-5 modify the educational content in accordance with scientific advances in the fields of basic sciences, clinical, behavioral and social sciences, changes occurred in demographic characteristics, and the status of diseases in the form of entering the new ones and exiting the old ones from the educational curriculum.

D-9-1-6 improve the quality of the learners' evaluation system, and also the methods and number of tests based on the changes made in the consequences of learning and educational methods.



D-9-1-7 provide feedback to institutions related to student admission to modify the related policies in order to comply with changes in the MBBS program, and the proportionality of the number of admitted students with the capacity of the faculty.

D-9-1-8 modify the process of calling and recruiting academic staff in the faculty based on the needs arisen.

D-9-1-9 renovate educational facilities and equipment based on emerging needs, including the capacity to accept students, the number and characteristics of faculty members, and the characteristics of the educational program.

D-9-1-10 revise the program monitoring and evaluation system

D-9-1-11 reform and develop the organizational structure and the organization of high-level and executive management of the MBBS program in order to properly face the changing conditions and needs, as well as taking into account the interests of various stakeholder groups.

**Description:**

- ❖ The components of the MBBS program are the mission and goals, the structure, processes, outcomes, content, teaching and learning methods, assessment and evaluation, and the learning environment.





#### Appendix 4

##### Bill of Rights of Patients in Iran

1. Optimal receiving of health services is the patients' right.

-The provision of health services must:

1-1) deserve human dignity and respecting the values, cultural and religious beliefs;

1-2) be based on honesty, fairness, politeness and kindness;

1-3) be without any kind of discrimination, including ethnic, cultural, religious, disease type and gender;

1-4) be based on up-to-date knowledge;

1-5) be based on the superiority of the patients' interests;

1-6) be about the distribution of health resources based on justice and treatment priorities of patients;

1-7) be based on the coordination of treatment elements including prevention, diagnosis, treatment and rehabilitation;

1-8) be along with the provision of all basic and necessary amenities and away from imposing pain and suffering and unnecessary restrictions;

1-9) pay special attention to the rights of vulnerable groups in society, including children, pregnant women, the elderly, and the mentally ill patients, prisoners, patients with mental and physical disabilities, and people without guardians;

1-10) take place as soon as possible and respect the patients' time;

1-11) consider variables such as language, age and gender of service recipients;

1-12) in urgent and emergency care, be provided regardless of its cost. In

non-immediate (elective) cases, it should be based on defined criteria;

1-13) In urgent and emergency care, if it is not possible to provide appropriate services, it is necessary that after provision of essential services and needed explanations, the conditions for transferring the patient to an equipped unit be provided.

1-14) In the final stages of life, when the condition of the disease is irreversible and the death of patient is imminent, the goal is to maintain his comfort. Comfort means reducing the patients' pain and suffering, paying attention to the psychosocial, social, spiritual, and emotional needs of him and his family at the time of death. The dying patient has the right to be with someone who likes during the last moments of his life.

2. The information should be provided to the patient appropriately and adequately.

2-1) the content of the information should include the following:

2-2-1) the provisions of the patients' bill of rights at the time of patient admission;



2-1-2) predictable criteria and costs of the hospital, including medical and non-medical services, insurance terms, and introducing support systems at the time of patient admission;

2-1-3) the name, the responsibility and professional rank of the members of the medical group responsible for providing health care, including doctors, nurses, students, and their professional relationship with each other;

2-1-4) diagnostic and treatment methods and the strengths and weaknesses of each method and its possible complications, diagnosis of the disease, prediagnosis and its side effects, as well as all the information influencing the patients' decision-making process;

2-1-5) how to access the attending physician and the main members of the medical team during the treatment;

2-1-6) all actions that have a research nature.

2-1-7) providing necessary training for the continuation of treatment;

2-2) The way of providing information should be as follows:

2-2-1) Information should be provided to the patient at the appropriate time and according to his/her conditions, including anxiety and pain and individual characteristics such as language, educational degree, and comprehension level, except that:

- delay in starting the treatment owing to providing the above information causes damage to the patient; (in such cases, the transfer of information after necessary actions, should be done at the earliest convenient time);

- despite being informed of the right to receive information, the patient refuses to receive information, in which case the patient's request should be respected, unless the lack of information puts the patient or others at serious risk;

2-2-2) The patient can access all the information recorded in his clinical file and receive its image, and request the correction of the errors contained in it.

3. The patient's right to choose and make a free decision in receiving health services should be respected.

3-1) the range of choice and decision is about the following items:

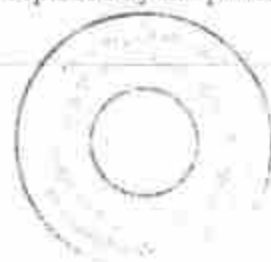
3-1-1) selection of medical doctor and health service provider center within the criteria:

3-1-2) selection and ask opinion of a second doctor as a consultant:

3-1-3) participation or non-participation in any kind of research, making sure that his decision has no effect on continuing the way of receiving health services;

3-1-4) acceptance or reject of the proposed treatments, after being aware of the probable complications caused by accepting or rejecting them, except in cases like suicide or cases where refusing treatment puts another person at serious risk;

3-1-5) announcing the patient's previous opinion regarding the future treatment actions when the patient has the capacity to make a decision be recorded and used as a guide for medical procedures in the absence of his decision-making capacity, in accordance with the legal standards considered by the providers of health services and decision makers should be replaced by the patient.



3-2) Selection and decision-making conditions include the following terms:

3-2-1) Patient selection and decision-making should be freely and consciously based on receiving sufficient and comprehensive information (mentioned in paragraph 2).

3-2-2) After providing the information, the patient should be given enough time to make a decision and make a choice.

4. The provision of health services must be based on respect for the patient's privacy right (privacy) and compliance with the principle of confidentiality.

4-1) Observing the principle of confidentiality regarding all information of the patient is mandatory, except in cases where the law excludes it;

4-2) The patient's privacy must be respected in all stages of care, both diagnostic and therapeutic. For this purpose, it is mandatory that all the necessary facilities be provided to guarantee the patient's privacy;

4-3) Only the patient and the treatment group and authorized persons on behalf of the patient and persons who are considered authorized by the law can have access to information;

4-4) The patient has the right to be accompanied by a trusted person during the diagnostic procedures, including examinations, Children have the right to be accompanied by one of the parents during all the treatment procedures unless this is against medical requirements.

5. Access to an efficient complaint handling system is the patients' right.

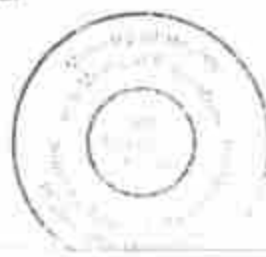
5-1) In case of violation of his rights, which is the subject of this Bill of Rights, every patient has the right to complain to competent authorities without any disturbance in the quality of receiving health services.

5-2) Patients have the right to be informed of the procedure and results of their complaint.

5-3) The damage caused by the error of the health service providers must be compensated in the shortest possible time after being investigated and proven in accordance with the regulations.

In implementing the provisions of this Bill of Rights, if the patient lacks decision-making capacity for any reason, applying all the rights of the patient mentioned in this Bill of Rights, will be the responsibility of the alternative legal decision maker. Of course, if the alternative decision maker, prevents the treatment of the patient against the doctor's decision, the doctor can appeal the decision through the relevant authorities.

If a patient who lacks sufficient capacity to make a decision, but can make a reasonable decision in a part of the treatment process, his decision should be respected.



## Appendix 5

### Dress code and students' professional ethics

#### **In laboratory-clinical environments**

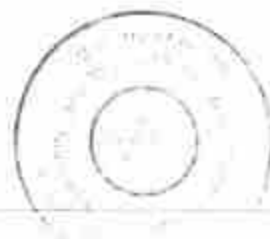
The dress code and behavior of all the staff in the professions related to medical sciences department needs to be in a way that besides maintaining the professions' dignity, provides effective professional communication with patients, patients' companions, colleagues, and others in educational settings.

Therefore, it is morally necessary for all ones who are studying or providing services in clinical and laboratory educational settings to observe the following rules.

#### **Chapter 1: Dressing and Dress Code**

The students' clothes to enter educational environments, especially clinical and laboratory environments, should be uniform and include the following set of features:

- 1- White knee-high tight-fitting laboratory coat with long sleeves.
- 2- The laboratory coat must be sealed with the logo of Medical Sciences University and the relevant medical health services.
- 3- All buttons on the laboratory coat must be completely closed during the entire period of attendance in educational environments.
- 4- Using a valid identification card (ID) with a photo attached (containing first name, last name, faculty name, field of study) on the cover, in the left chest area during the entire period of attendance in educational environments is mandatory.
- 5- Female students should cover the entire head, neck, under the neck and hair with a suitable cover.
- 6- Pants should be long, conventional, plain, and tight-fitting; use of ripped jeans and the like is not appropriate for the medical dignity.
- 7- It is essential to wear simple socks that cover the entire foot and leg.
- 8- It is forbidden to wear lace socks with embellishments.
- 9- Shoes should be comfortable and appropriate, there should be no noise when walking.
- 10- The cape, dress, and shoes must be comfortable, clean, neat, and conventional, and they should not have sharp and inappropriate colors.
- 11- It is forbidden to use inappropriate badges for the medical field and hang them on the laboratory coat, pants, and shoes.
- 12- It is forbidden to use and expose any ring, bracelet, necklace, and earrings (except wedding ring) in educational environments.
- 13- The use of slippers and sandals in educational environments except in operating room and delivery room is prohibited.





**Dress code and students' professional ethics  
In laboratory-clinical environments**

**Chapter 2: Personal health and make-up standards in educational environments of the country**

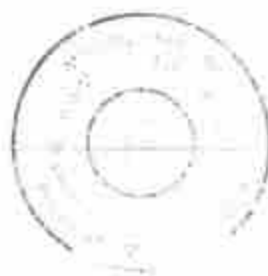
- 1- Those related to the medical professions are models for personal cleanness and hygiene. Thus, cleanness in appearance and hygiene are essential in medical science educational environments.
- 2- Nails should be short and clean. Using nail polish and nail stickers in any form is prohibited. The use of artificial nails and long nails increases the chances of transmitting the infection and the possibility of damage to others and medical equipment.
- 3- Unconventional make-up of the head and face is far from the practice of the medical profession.
- 4- It is forbidden to show any make-up in the form of a tattoo and using a ring with a jewel in the nose or any part of the hands and face.
- 5- It is forbidden to use cologne and perfumes with a strong and allergenic smell in the testing environment.

**Chapter 3: Criteria for students' behavior in medical educational environments**

- 1- Observance of the principles of professional ethics, humility and modesty in dealing with patients, patients' companions, professors, students and staff is mandatory.
- 2- Speaking in educational settings should be accompanied by calm and courtesy, and making any loud noise or uttering words that are not appropriate in the medical profession is prohibited.
- 3- Smoking at all times when a person is present at educational environments is prohibited.
- 4- Chewing gum and the like are prohibited in laboratories, conference halls, patient rounds and in the presence of professors, staff and patients.
- 5- When attending classes, laboratories and rounds of patients, the mobile phone should be turned off and at other times, its use should be reduced as necessary.
- 6- Any discussion or joke in related public places such as elevators, coffee shops and restaurants are prohibited.

**Chapter 4: Supervising the administration and follow-up cases of violations of regulations**

- 1- Supervising the principles of this regulations in educational hospitals and other clinical education medical environments is the responsibility of the deputy of the hospital, director of the department, chairman of the department, and educational and student experts.
- 2- People who do not observe the professional ethics and principles of this regulation will be warned first and if they insist on committing a violation, they will be referred to the Student Disciplinary Council.



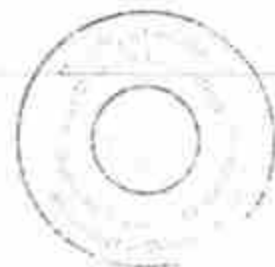


## Appendix 6

### Rules of Working with Laboratory Animals

Animals have a very important role in promoting and expanding medical research, and the ethical principles and instructions of the divine religions dictate that we adhere to their rights. Therefore, researchers are required to observe the relevant ethical principles in the researches they conduct on animals. Consequently, according to the approvals of the Publications Commission, it is mandatory to mention the code of the Ethics Committee in research articles submitted to scientific journals. The following are the principles and rules of working with laboratory animals:

- 1- The storage space and building have the necessary facilities for animal health.
- 2- Before the arrival of the animals, depending on the type and species, the necessary conditions should be provided for keeping them.
- 3- Cages, walls, floors and other building parts should be washable and disinfectable.
- 4- In indoor conditions, the required conditions such as light, oxygen, humidity, and temperature should be provided.
- 5- If kept outdoors, the animal should have a shelter.
- 6- The space and cage should fit the animal species.
- 7- Cages allow the animal to rest.
- 8- In animal transportation, the heating and cooling conditions, light and breathing air from the place of purchase to the permanent place of the animal need to be observed.
- 9- The animal transport vehicle has appropriate conditions and has the necessary license.
- 10- The health of the animal should be monitored by the recipient.
- 11- The quarantine of the newly arrived animal should be observed.
- 12- Animals should not be placed near their predators.
- 13- Cages should be kept at the sight of the observer.
- 14- There should be no possibility of animal escape from the cage.
- 15- Remove extra noises from the environment that annoy the animal.
- 16- There should be no possibility of injury to the animal as a result of movement.
- 17- The bed and resting place of the animal should be cleaned regularly.
- 18- Storage space should be regularly washed and disinfected.
- 19- Use standard disinfectants to clean the environment and sanitize work equipment.
- 20- The animal's food and water should be appropriate and hygienic.
- 21- Ventilation and evacuation of excretion should be done continuously so that there is no annoying odor and no possibility of allergens and disease transmission to staff, as well as laboratory animals.
- 22- There should be a suitable space for disposal of corpses and carcasses of animals.
- 23- There should be adequate, comfortable and hygienic space for office staff, technicians, and caregivers.
- 24- Do not use sick animals or animals with special conditions such as pregnancy and lactation in research.



25- Before conducting any research, the necessary opportunity should be provided for the animal to adapt to the environment and the people.

26- Employees must have received training in working with animals.

#### **Conditions for Conducting Animal Research**

- ✓ The specific animal species selected needs to be appropriate for testing and research.
- ✓ The minimum animal required be used for statistical and true research accuracy.
- ✓ It should not be possible to use optimal replacement programs instead of using the animal.
- ✓ Minimal harassment should be used in different stages of research and in the method of animal death after research.
- ✓ Observe animal labor codes throughout the study.
- ✓ The results should lead to improving the health of the community.

