

****Islamic Republic of Iran****

****Ministry of Health, Treatment and Medical Education****

****Supreme Council of Medical Sciences Planning****

****Islamic Republic of Iran****

****Educational Program for the Doctor of Medicine Degree****

(General Specifications, Course Syllabus, and Evaluation Methods)

Approved at the Sixty-Seventh Meeting of the Supreme Council of Medical Sciences Planning, dated 1st of Shahrivar, 1396 (August 23, 2017).

Chapter One:

Educational Program for the Doctor of Medicine Degree

In the Name of God

****Field of Medicine****

****Educational Program for the Doctor of Medicine Degree****

****Doctor of Medicine Program****

****Specialized Secretariat of the General Medical Education Council****

In its Sixty-Seventh Meeting dated 1st of Shahrivar, 1396 (August 23, 2017), the Supreme Council of Medical Sciences Planning approved the educational program of this course in five chapters (General Specifications, Program, Course Syllabus, Standards, and Evaluation) based on the Doctor of Medicine program that the Secretariat of the General Medical Education Council confirmed. It is stipulated that:

1. The educational program for the Doctor of Medicine degree shall be implemented for all universities and higher education institutions in the country that meet the following criteria from the date of notification:

- a. Universities and higher education institutions operating under the Ministry of Health, Treatment and Medical Education.

- b. Institutions established with the official permission of the Ministry of Health, Treatment, and Medical Education are thus subject to the resolutions of the Supreme Council of Medical Sciences Planning.

- c. Other higher education institutions are formed according to specific laws that must comply with the academic regulations of the Islamic Republic of Iran.

2. From the date of notification of this program, all educational courses and similar programs of institutions in the field of the Doctor of Medicine degree in all universities and higher education institutions mentioned in Article 1 shall be annulled. The aforementioned universities and higher education institutions may establish this program and implement the new curriculum according to regulations.

The general specifications of the curriculum, course syllabi, standards, and evaluation for the Doctor of Medicine program will be communicated for implementation **in five chapters**.

Introduction

Over the past 30 years since the formulation of the professional doctorate program in medicine, in accordance with Clause 21 of Principle Three and Principles Twenty-Nine and Thirty, and Clause 2 of Principle Forty-Three of the Constitution of the Islamic Republic of Iran, and its approval in 2031, medical schools in Iran have undergone extensive quantitative and qualitative changes. Among the changes considered in the program review are the growth in the number of medical schools, the significant increase in the number and variety of specialized and sub-specialized postgraduate courses, the development of the country's accumulated knowledge and experience in medical education, and changes in information technology and ease of access to up-to-date knowledge, along with overall changes in approaches to acquiring knowledge and skills in the third millennium.

On the other hand, changes in the health services system, including the expansion of the family physician program in the health system, changes in the age composition of the country's population and disease burden, increased access to specialists in various medical fields in small towns, the growth in the use of diagnostic and therapeutic technologies in daily care and consequently, the rising costs of care, increased international interactions in health care, and the expansion of evidence-based medicine and new practical concepts in medicine, necessitate attention to corresponding changes in the expected competencies of general practitioners and the curriculum required to achieve those competencies.

The present program, considering the aforementioned changes in the needs of the health system, the structure of medical schools, developments in medical knowledge at the national and global levels, and the experiences of the past thirty years of medical schools in general medical education and quality improvement interventions in schools, has been formulated. In this review, efforts have been made to avoid fundamental changes that would be challenging to implement in most medical schools in the country. The program is organized in such a way that leading and capable schools can implement innovative and more effective educational strategies while maintaining the core objectives and content of the program, and at the same time, ensure the implementation of the main program in all medical schools in the country.

This program is presented as the national curriculum for general medicine, and each school will be required to develop its university curriculum based on this program and the regulations and guidelines issued by the Ministry of Health, Treatment, and Medical Education. Among the most important features of this program as a national program are a greater emphasis on core objectives and content aligned with the expected competencies of general practitioners, flexibility in implementation, limiting mandatory courses in the national program and delegating

the development of elective courses to schools, and the ability to choose program implementation strategies based on the school's conditions. Formalizing the education of important concepts and skills such as professionalism, evidence-based medicine (EBM), traditional and complementary medicine, family medicine, and formalizing skill and practical exams as one of the graduation requirements are features of this program compared to the previous program. It is expected that with the proper implementation of this program in the predicted fields (according to the standards mentioned in Chapter 1 of this document), especially in outpatient and community clinical fields, a higher level of responsive education will be achieved.

Definition of the Field

Medicine is a branch of applied sciences aimed at preserving and promoting health through diagnosing, treating, and preventing diseases. Rabi' ibn Ahmad Akhvini, in his book **Hedayat al-Muta'allimin**, which is the oldest Persian medical text (4th century AH), defines medicine as follows: "Medicine is a profession that maintains the health of mankind and, when it is lost, restores it through knowledge and practice."

The field of medicine at the Doctor of Medicine (MD) level is the foundation for all specialized branches of medicine. Therefore, acquiring the expected skills during this period is essential for providing appropriate services to the community by general practitioners and succeeding in specialized and subspecialized courses, which requires a solid understanding of the medical process during the general medicine phase.

Graduates of general medicine acquire the knowledge, art, and skills necessary for diagnosing, treating, and preventing diseases through essential knowledge in basic medical sciences and various clinical sciences. They practice and apply this knowledge in dealing with patients and clients and through repeated practice of clinical skills. Additionally, it is necessary to achieve the requisite social and professional growth to qualify for the medical profession through guided, purposeful, and reflective participation in professional interactions throughout their education, especially during internships and clinical rotations. The standards outlined in Chapter 4 of this document must be implemented precisely to realize these objectives.

****Conditions and Admission Process****

Acceptance into the program is contingent upon passing the entrance examination according to the regulations and guidelines set by the Ministry of Health, Treatment, and Medical Education.

History and Evolution of the Field in the World and Iran

✓ History of Medicine in the World

The academic training of medicine globally has advanced alongside human civilizations, with scientific authority in medicine shifting according to the presence of various civilizations and their ability to communicate and influence the global arena. Flexner's report at the beginning of the 20th century can be considered a turning point in the organized teaching of modern medicine worldwide. The impact of this report and the dynamism of medical education in the 20th century and the present have had clear consequences for medical schools, including the development of various teaching and evaluation strategies, the structuring of educational processes, and the establishment of medical education as a specialized field of educational science focused on documenting evidence related to the processes and organizations involved in medical training.

Alongside these advancements in academic education, significant changes in the content and structure of medical science and services, often accompanied by paradigm shifts, have profoundly influenced general medical education, especially in the third millennium.

✓ History of Medicine in Iran

The history of academic medical education in Iran dates back to Islam's advent. The renowned Jundishapur School and Hospital in the 6th century CE served both as a center for studying medicine and philosophy and as a hospital for patients seeking care. The Jundishapur University was one of the most important educational and research centers of its time, where many scholars and physicians were engaged in teaching, studying, and practicing medicine. In this center, in addition to the works authored by Iranian scholars, many Greek and Indian texts were translated into Pahlavi and taught.

Studying and examining this university reveals Iran's long-standing tradition of formal medical education. Additionally, the invention of hospital treatment methods can largely be attributed to the innovations of Iranians, as Islamic-era hospitals were often modeled after the principles and examples set by Jundishapur.

****Famous Hospitals****

The renowned hospitals of 'Ozdol-Dowleh in Shiraz and Baghdad, as well as subsequent hospitals in Damascus, were built based on the Jundishapur model. The first Islamic pharmaceutical product also originated from this major medical center. During the Arab

conquests, Jundishapur was the most important medical center in the world, and this university remained one of the most famous institutions for centuries.

After the advent of Islam, with the flourishing of Islamic civilization and its growth in Iran, Iranian physicians continued to lead in academic medical education and the compilation of reference books. The place of teaching (where Avicenna taught) is regarded as the oldest academy of medical education, having published the authoritative textbook **Al-Qanun fi al-Tibb**. This book remained a valid educational resource for physicians worldwide for centuries.

Modern medical education in Iran lacked a specific organization until the establishment of the Dar al-Funun School. The **Canon of Medicine** by Avicenna and the **Sharh Asbab Nafisi** were considered reputable classical texts for medical studies. There was no specific institution for medical education, and learners, after completing preliminary studies in grammar, logic, and divine wisdom, would learn natural philosophy (medicine) and other subjects in the offices of renowned (old) physicians. Without any barriers, they could start treating patients as doctors after gaining some initial knowledge in medicine.

This situation persisted until Naser al-Din Shah's reign and Amir Kabir's premiership. During this period, at the behest of Naser al-Din Shah, Dr. Klookey, the court physician, was tasked with improving medical education by training several individuals. In 1266 AH, Amir Kabir allocated part of the royal citadel to establish the Dar al-Funun School, which was partially ready by 1267 AH. In 1290 AH, Naser al-Din Shah ordered the construction of a hospital, and the first hospital in Iran, Sina Hospital, was inaugurated in 1298 AH under the leadership of the late Nazem al-Atibba. Subsequently, other faculties branched off from the Dar al-Funun School.

In 1297 AH, the medical school was separated from Dar al-Funun, and the late Luqman al-Dawlah Adham was appointed as its head. From this period, especially from 1307 AH, medical education in the (medical) school gained more structure and was divided into basic and clinical science courses. In 1313 AH, the law for establishing Tehran University was approved by the parliament, and each school was designated as a faculty, one of which was the Faculty of Medicine. Now, nearly 100 years after the establishment of the first medical school in Iran, 63 medical schools across the country are responsible for educating students in general medicine.

****Career Opportunities for Graduates****

Graduates of this program can work in the following positions:

- Healthcare centers, private practices, and hospitals

- Organizations and institutions related to health services
- Educational and research centers related to medical sciences
- Ministry of Health and Medical Education

The general practitioner stands at the forefront of providing health services to the community and is constantly subject to societal judgment and evaluation. Therefore, they must possess desirable professional qualities and skills while adhering to societal norms.

Humans are multidimensional beings with diverse physical, mental, and cultural concerns and needs. This necessitates that human resource training programs for health care be layered with diverse values. A General practitioner cannot solely focus on the body and its diseases; they are the only professionals who can access the most private domains of individuals needing health services, often knowing the patient's secrets better than their closest companions. Therefore, physicians must be committed to ethical standards and professional conduct.

Medicine is constantly changing, and physicians need to prioritize lifelong learning and continuous professional development to ensure the accuracy of clinical decision-making and service delivery, aligning their actions with credible evidence. Consequently, fostering critical thinking and self-directed learning skills is essential in the general medical program and should be a focal point in the implementation strategies of the program. The most important value and key element in general medical programs should be the education of physicians committed to ethics and professional conduct is essential. The field of medicine is in a state of constant change, and physicians need to prioritize lifelong learning and continuous professional development to ensure the accuracy of clinical decision-making and service delivery, aligning their actions with credible evidence. Therefore, fostering critical thinking and self-directed learning skills is necessary in the general medical program, particularly in the implementation strategies.

Based on educational principles, appropriate instructional design and content organization in learning areas are essential. Strengthening interaction between instructors and learners, early and purposeful contact between students and the clinical environment, defining opportunities for practice and skill acquisition, and assigning greater responsibilities to students according to their stage of education in basic sciences, clinical preparation, and internships—while ensuring patient safety and rights—are emphasized in the program.

✓ **Vision**

The vision of the general medical program, utilizing the latest findings in medical education, aims to maintain feasibility by less privileged faculties while achieving globally accepted standards for medical education in Iran. Ultimately, this program will produce committed, capable, and responsive graduates who can meet the health system needs of Iran.

✓ **Mission**

The mission of the general medical curriculum is to outline the objectives, learning opportunities, and regulations that will lead to fulfilling the expected competencies of graduates. While considering the concerns of all stakeholders, this program presents educational objectives in a pragmatic and flexible manner so that all universities in the country can implement the training of general practitioners with maximum alignment with the national program, considering all resources and educational characteristics.

We believe that graduates of this program should be trained using up-to-date knowledge and skills in medicine to serve as the first point of contact for people within the healthcare system. Graduates should be able to fulfill their professional roles by providing direct and effective services to patients or coordinating services with other providers, per the health needs and available resources in the community. In doing so, they will contribute to realizing an integrated service delivery system.

The care provided by these graduates should be inclusive, regardless of age, gender, race, or social and cultural levels, while considering the cultural, social, economic, and psychological backgrounds of patients. They should also be trained to identify community problems that extend beyond individual health service seekers and to play a more effective role in supporting social efforts to protect the community's health.

We believe that graduates of this program should be responsible, compassionate, humanitarian, and self-empowered individuals who actively and committedly work toward enhancing community health. Medical schools, as the implementers of this program, are committed to upholding the values and principles of the Islamic Republic of Iran throughout the program's implementation, creating an environment for the growth and development of students based on rich Islamic culture while respecting human dignity. They should be able to train physicians committed to Islam and adhere to scientific standards.

Providing a foundation for evaluating the program's implementation, along with determining the extent of achievement of all educational objectives and establishing appropriate mechanisms for assessing the competencies of graduates, will be among the most important missions of the program.

✓ **Objectives of the Program**

The ultimate goal of the general medical education program is to equip graduates with the expected competencies, enabling them to adhere to professional, ethical standards while providing care for the health of individuals under their supervision and treating patients according to service standards. They should acquire the ability to manage information and engage in lifelong learning, effectively serving as the frontline providers of services within the health system.

✓ **Professional Responsibilities of Graduates in Society**

The professional responsibilities of graduates in this field include:

- Technical responsibility for personal clinics and authorized health service centers.
- Providing health services in accordance with the regulations approved by the Ministry of Health, Treatment, and Medical Education.
- Offering health education and consultation services to individuals and target groups while adhering to specific regulations for each target group.
- Participating in all educational and research activities approved by relevant authorities (Ministry of Health, Treatment, and Medical Education or other authorized organizations employing general practitioners).
- Providing expert services on health issues as needed by their organization within the professional competence of general practitioners.
- Participating in health management processes.

✓ **Expected Competencies and Core Skills:**

The main axes of the expected competencies from general medical graduates are as follows:

1. Clinical Skills
2. Communication Skills
3. Patient Care (Diagnosis, Treatment, Rehabilitation)
4. Health Promotion and Prevention in the Health System and the Role of the Physician in It
5. Personal Development and Continuous Learning
6. Professional Commitment, Ethics, and Medical Law
7. Decision-Making, Reasoning, and Problem-Solving Skills

A detailed explanation of the competencies and the list of practical skills expected from graduates of this field are elaborated in the document "Expected Competencies of General Medical Graduates in the Islamic Republic of Iran," approved in the 62nd session of the Supreme Council of Planning (Appendix No. 2)/ (20/10/1394).

****Educational Strategies****

This program is developed using a systematic planning strategy and considers the expected competencies (competency-oriented) in such a way that various components can be implemented using one or more of the following educational strategies in universities:

- ✓ Integrated student and instructor-centered education
- ✓ Community-Oriented education
- ✓ Subject-Based Education
- ✓ Outpatient-Based Education
- ✓ Hospital-Based Education
- ✓ Problem-Based Education
- ✓ Task-Based Education

Teaching Methods and Techniques:

In this course, various teaching methods and techniques will be utilized according to the learning objectives of each lesson and the facilities and conditions of the faculties.

The program emphasizes the alignment of methods and techniques with learning objectives and contexts, and therefore, no specific method or technique is prescribed for the entire national program. However, it is recommended that in addition to evidence regarding the educational outcomes of each method or technique, attention should also be paid to its developmental outcomes, the readiness of students and instructors for proper implementation, and the economic and practical issues of applying these methods. In some cases, necessary recommendations regarding specific methods for certain courses are provided in the course descriptions (Chapter Three of this document). Additionally, the educational methods for delivering the program are further explained in the program standards (Chapter Four of this document).

Examples of types of methods and techniques that can be used include:

- Various intra-departmental, inter-departmental, hospital, interdisciplinary, inter-university, and international conferences and seminars
- Small group discussions, workshops, journal clubs and book reading, case presentations
- Morning reports, work and educational rounds
- Individual and group practice in the Clinical Skills Learning Center (Skill Lab)
- Blended learning, use of simulation techniques according to facilities
- Laboratory work according to facilities

- Self-study
- Other methods and techniques according to needs and educational objectives

Ethical Expectations from Learners:

Medical students are expected to:

- Strictly adhere to the Patient Rights Charter (Appendix 1) in patient care.
- Strictly follow the regulations related to patient protection and safety (Patient Safety), which will be developed and provided by the relevant educational group.
- Carefully observe the ethical codes related to mothers, fetuses, and newborns, which will be provided by the educational group.
- Strictly adhere to the regulations related to drug safety (Drug Safety), including related chemical and non-chemical compounds, which will be developed and provided by the relevant educational group.
- Adhere to the professional dress code (Appendix 5).
- Follow the regulations for working with laboratory animals (Appendix 3).
- Be committed and adhere to their professional oath.
- Protect the resources and equipment they work with under any circumstances.
- Respect professors, staff, colleagues, and other learners and contribute to creating a friendly and respectful work environment.
- Observe social and professional ethical considerations in program critiques.
- Adhere to research ethics in conducting research related to their field.

Learner Evaluation:

A. Evaluation Method

The selection of the evaluation method for learners is the responsibility of the faculty curriculum committee based on learning objectives and the conditions of each faculty. It is expected that the evaluation methods be chosen and implemented in a way that ensures the validity and reliability of the method and tools used, ultimately encouraging deeper and continuous learning among students. Evaluation methods in this course may include:

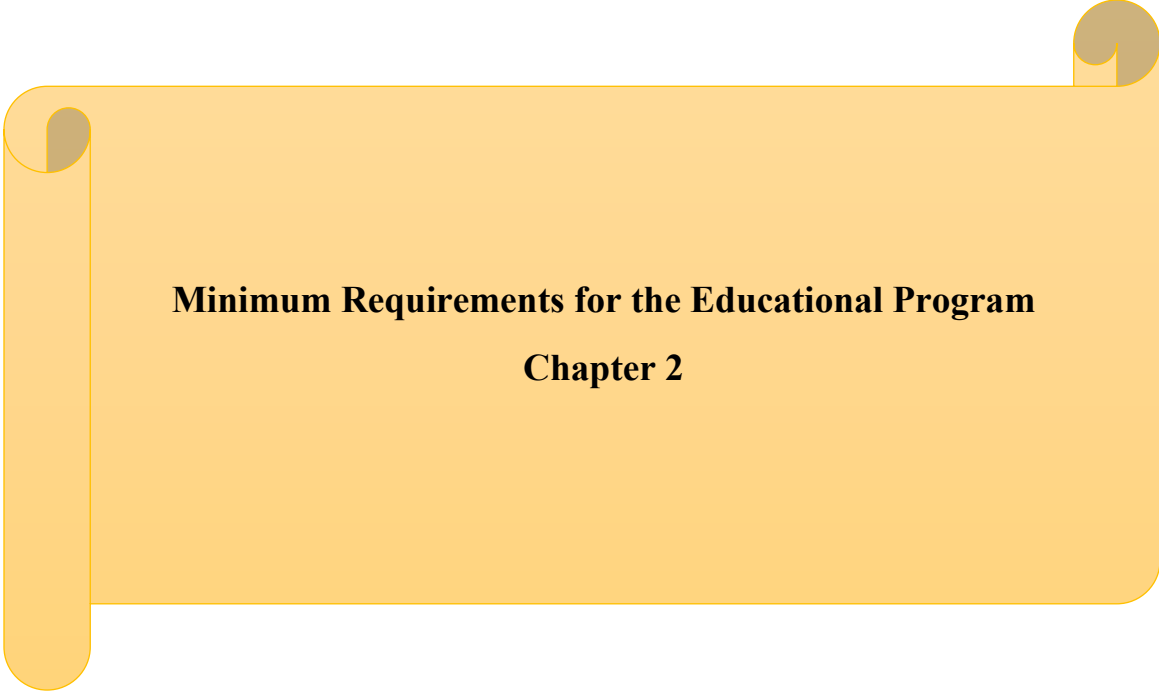
For theoretical courses: written exams, assignments in the form of written reports or presentations, oral exams, interactive computer-based exams. For practical and clinical courses: observation of clinical performance throughout the course, structured objective exams such as OSCE, OSLE, OSFE, DOPS, 360-degree evaluations, portfolio assessments including logbook evaluations, and similar methods.

Given the educational objectives in the domain of professional behavior and conduct, it is necessary to include the evaluation of students' professional behaviors in the learner evaluation program developed by each medical faculty. Further explanation of this is provided in the general medical program standards (Chapter 1 of this document).

B. Evaluation Frequency and Stages

- The scheduling and planning of continuous internal evaluations of students are the responsibility of the medical faculty curriculum committee.
- Comprehensive exams for the general medical program include:
 - Comprehensive Basic Sciences Exam: at the end of the basic sciences course
 - Comprehensive Pre-Internship Exam: at the end of the internship course
 - Final Skills Exam: after six months of the internship course

Success in the comprehensive basic sciences and pre-internship exams is mandatory for students to progress to the next stage of education, and passing the final skills exam is required for graduation.

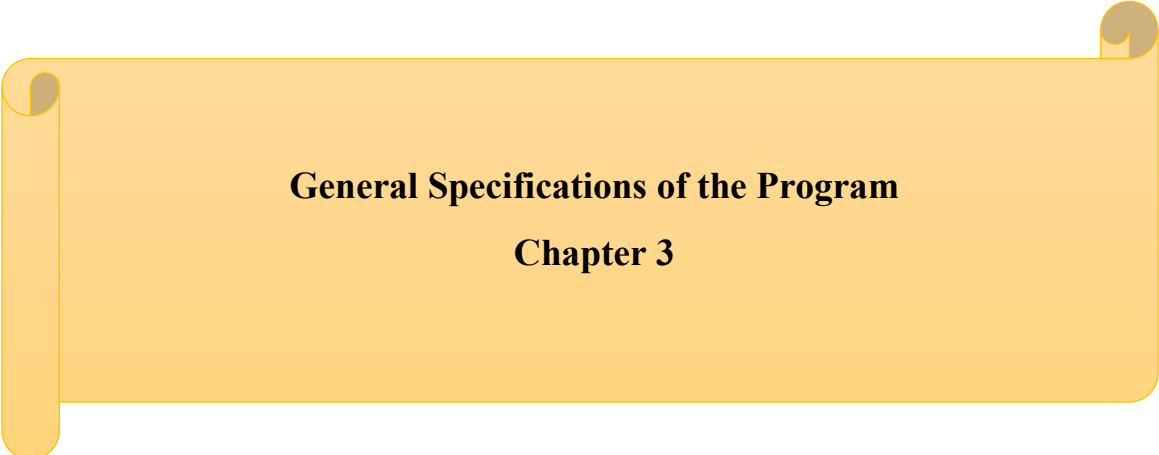
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Minimum Requirements for the Educational Program

Chapter 2

Minimum Requirements for the Educational Program

1. The Secretariat of the Supreme Council for Planning in Medical Sciences defines the minimum faculty and supporting staff necessary for implementing the program, as well as the required educational spaces and facilities, including general and specialized laboratory and clinical resources and essential equipment and supplies for executing the general medical education program based on the structural standards approved in the 249th meeting of the Council for the Development of Universities and Medical Sciences Schools in the country, dated 26/07/1394 (October 18, 2015).

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General Specifications of the Program

Chapter 3

Program Name:** Doctor of Medicine (MD)

The educational system and regulations are based on the educational guidelines for the Doctor of Medicine program approved by the Supreme Council for Planning in Medical Sciences.

****Total Credit Units:****

The total number of credit units in this program is 293 units, detailed as follows:

General Courses	24 units
Mandatory Basic Courses	69.5 units
Mandatory Specialized Courses	177.5 units
Elective Specialized Course	16 units
Thesis	6 units
Total	293 units

Stages:

The general medical program consists of four stages: Basic Sciences, Clinical Foundations, Internship and residenc.

Mandatory Courses:

Mandatory courses include essential content (core curriculum) that all general medical students must learn to achieve the expected competencies of general practitioners. The medical school must ensure the provision of these courses and the achievement of the stated objectives.

The mandatory courses of the program are offered in four stages of the general medical program as follows:

1. Stage One (Basic Sciences):

- General Courses: At least 8 out of 24 mandatory credits before the Comprehensive Basic Sciences Exam.
- Basic Courses: At least 46.5 out of 69.5 mandatory basic credits before the Comprehensive Basic Sciences Exam.

Entry to the Clinical Foundations stage is contingent upon passing the Comprehensive Basic Sciences Exam.

2. Stage Two (Clinical Foundations):

- The number of specific credits for the Clinical Foundations stage is 29 credits.
- The number of floating credits between the Basic Sciences and Clinical Foundations stages is 15 credits.

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3. Stage Three (internship):

- The minimum duration of the Clerkship stage is 21 months, which can be divided into internship 1 (or Student) and 2 (or Externship) according to the faculty's program.
- Number of specific theoretical credits for the internship stage (mandatory): 31 credits.
- Number of mandatory clinical internship credits: 63 credits (equivalent to 21 months).
- The number of floating theoretical credits between Clinical Foundations and the internship (mandatory) is seven credits.

At the end of the third stage, the student must pass the Comprehensive Pre-Internship Exam to enter the Internship stage. To take the Comprehensive Pre-Internship Exam, the student must have successfully completed all general courses and all basic and specific courses related to the Clinical Foundations and Clerkship stages.

4. Stage Four (externship/residency):

- Duration of the Internship stage: 18 months.
- Number of mandatory internship credits: 56 credits.
- Graduation from the medical program is contingent upon passing the Clinical Competency (Skills) Exam.

Elective Courses:

Elective courses include non-mandatory program topics that allow universities and students to offer diverse content and learning opportunities as supplements to help achieve the expected competencies of general practitioners according to the university's conditions, specific regional needs, and the interests of educational groups and students. The total number of specific elective credits throughout the general medical program is 20 credits:

- The number of specific elective credits the student must complete before the Pre-Internship Exam is 15.
- The number of specific elective credits that must be completed during the internship stage according to the university's program and the intern's choice is seven credits.

Floating Courses:

A. Floating courses between the Basic Sciences or Clinical Foundations stages: Equivalent to 25 credits of basic courses (course names are specified in the table) can be offered in the Basic Sciences or Clinical Foundations stages. These courses will not be considered in the Comprehensive Basic Sciences Exam. Therefore, taking these courses is not mandatory for the Comprehensive Basic Sciences Exam, and on the other hand, taking these courses, unlike the Clinical Foundations stage courses, is not contingent upon passing the Comprehensive Basic Sciences Exam.

B. Floating courses between the Clinical Foundations or Clerkship stages: Equivalent to 7 credits of specific courses (course names are specified in the table) can be offered in the Clinical Foundations or Clerkship stages.

Table A - General Courses in the Doctor of Medicine Program

Lesson code	Course Title	Units	Theory Hours	Practical Hours	Prerequisites
1-4	Two Courses from Islamic Theoretical Foundations	4	68	-	-
5-8	One Course from Islamic Ethics	2	34	-	-
9-11	One Course from Islamic Revolution	2	34	-	-
12-13	One Course from Islamic History and Civilization	2	34	-	-

14-15	One Course on Familiarity with Islamic Sources	2	34	-	-
16	Persian Literature	2	51	-	-
17	General English	3	34	-	-
18 ¹	Physical Education 1	1	-	34	-
19	Physical Education 2	1	-	34	Physical Education 1
20	Family and Population Studies	2	34	-	-
21	Culture and Civilization of Islam and Iran	2	34	-	-
	Total	24	374	68	

Code	Specialization	Course Title	Units	Theory Hours	Practical Hours	Prerequisites	Total Units
1	Islamic Theoretical Foundations	Islamic Thought 1 (Origin and Resurrection)	2	34	-	-	34
2	Islamic Theoretical Foundations	Islamic Thought 2 (Prophethood and Imamate)	2	34	-	-	34
3	Islamic Theoretical Foundations	Humanity in Islam	2	34	-	-	34
4	Islamic Theoretical Foundations	Social and Political Rights in Islam	2	34	-	-	34
5	Islamic Ethics	Philosophy of Ethics with Emphasis on Educational Topics	2	34	-	-	34
6	Islamic Ethics	Islamic Ethics: Foundations and Concepts	3	34	-	-	34
7	Islamic Ethics	Practical Ethics	2	34	-	-	34
8	Islamic Mysticism	Practical Mysticism in Islam	2	34	-	-	34
9	Islamic Revolution	Iranian Islamic Revolution	2	34	-	-	34
10	Islamic Revolution	Familiarity with the Constitution of the Islamic Republic of Iran	2	34	-	-	34

11	Islamic Revolution	Political Thought of Imam Khomeini (RA)	2	34	-	-	34
12	History and Civilization of Islam	Analytical History of Early Islam	2	34	-	-	34
13	History and Civilization of Islam	History of Imamate	2	34		-	34
14	Familiarity with Islamic Sources	Thematic Interpretation of the Quran	2	34	-	-	34
15	Familiarity with Islamic Sources	Thematic Interpretation of Nahj al-Balagha	2	34	-	-	34

Table B - Specialized Courses in the Educational Program for the Doctorate in General Medicine

Course Number	Course Name	Credits (Hours)	Theory Hours	Practical Hours	Internship/Clinical Training	Type of Course (Core/Specialized)
101	Introduction to Anatomy	46	38	8	-	Core
102	Skeletal-Muscle Anatomy	50	30	20	-	Core
103	Head and Neck Anatomy	37	20	17	-	Core
104	Cardiovascular Anatomy	33	17	16	-	Core
105	Respiratory Anatomy	16	8	8	-	Core
106	Gastrointestinal Anatomy	43	26	17	-	Core

107	Endocrine Anatomy	10	4	6	-	Core
108	Nervous System Anatomy	39	25	14	-	Core
109	Special Senses Anatomy	18	14	4	-	Core
110	Urinary and Reproductive Anatomy	22	14	8	-	Core
111	Cell Physiology	14	14	-	-	Core
112	Cardiac Physiology	10	8	2	-	Core
113	Respiratory Physiology	14	10	4	-	Core
114	Nervous and Special Senses Physiology	38	34	4	-	Core
115	Circulatory Physiology	23	19	4	-	Core
116	Digestive Physiology	14	10	4	-	Core
117	Blood Physiology	7	5	2	-	Core
118	Endocrine and Reproductive Physiology	24	20	4	-	Core
119	Kidney Physiology	16	12	4	-	Core
120	Molecular-Cell Biochemistry	37	22	15	-	Core
121	Biochemistry of Hormones	12	12	-	-	Core
122	Biochemistry of the Kidney	4	4	-	-	Core
123	Medical Genetics	34	34	-	-	Core
124	General Principles of Nutrition	34(2)	34	-	-	Core
125	Medical Physics	38	30	8	-	Core
126	Medical Microbiology	61	41	20	-	Core
127	Medical Bacteriology	40	28	12	-	Core
128	Parasitology	40	28	12	-	Core
129	Medical Mycology	19	15	4	-	Core
130	Virology	17	17	-	-	Core
131	Medical Immunology	38	30	8	-	Core

132	Clinical Immunology	17	17			Core
133	Principles of Health Services	26	26			Core
134	Principles of Epidemiology	34	34			Core
135	Medical Statistics	17	17			Core
136	Evidence-Based Medicine	26	7	19		Core
137	Epidemiology of Common Non-Communicable Diseases	17	17			Core
138	Clinical Foundations	17	17			Core
139	Principles of Demography and Health	34	34			Core
140	Health Psychology	34	34			Core
141	Medical Ethics 1	17		17		Core
142	Medical Ethics 2	17		17		Core
143	Medical Ethics 3	17		17		Core
144	Medical Ethics 4	17		51		Core
145	Medical English 2	51	51			Core
146	Medical English 1	51	51			Core
147	General Pathology and Cellular Injury	9	9			Core
148	Pathology of Inflammation and Tissue Repair	10	10			Core
149	Pathology of Hemodynamic Disorders	8	8			
150	Pathology of Neoplasia	10	0			

151	Pathology of Genetic Disorders and Childhood Diseases	8	8			
152	Pathology of Environmental, Nutritional, and Infectious Diseases	6	6			
153	Practical Pathology	34		34		
154	Clinical Pathology	18	16	2		
155	Pathology of the Heart and Blood Vessels	8	6	2		
156	Pathology of the Respiratory System	8	6	2		
157	Pathology of the Kidney and Upper Urinary Tract	8	6	2		
158	Pathology of the Digestive System	12	8	4		
159	Pathology of the Liver and Biliary Tract	8	6	2		
160	Pathology of the Reproductive System, Lower Urinary Tract, and Breast					
161	Pathology of Blood Disorders					

	and Endocrine Glands					
162	Pathology of Skin, Bones, Soft Tissues, and Joints					
163	Pathology of the Central and Peripheral Nervous System					
164	Basic Principles of Medical Pharmacology					
165	Pharmacology of Cardiovascular and Respiratory Drugs					
166	Pharmacology of Antimicrobial Drugs					
167	Pharmacology of Gastrointestinal, Blood, and Rheumatology Drugs					
168	Pharmacology of Endocrine Drugs					
169	History Taking and Physical Examination 2					
170	Internship in History Taking and Physical Examination 2					

171	History Taking and Physical Examination 1					
172	Internship in History Taking and Physical Examination 1					
173	Clinical Reasoning in Approach to Common Symptoms and Signs					
174	Introduction to Cardiovascular Diseases					
175	Introduction to Respiratory Diseases					
176	Introduction to Blood Diseases					
177	Introduction to Gastrointestinal and Liver Diseases					
178	Introduction to Endocrine and Metabolic Diseases					
179	Medical English 2					
180	Medical English 1					
181	General Pathology and Cellular Injury					

182	Pathology of Inflammation and Tissue Repair					
183	Pathology of Hemodynamic Disorders					
184	Pathology of Neoplasia					
185	Pathology of Genetic Disorders and Childhood Diseases					
186	Pathology of Environmental, Nutritional, and Infectious Diseases					
187	Practical Pathology					
188	Clinical Pathology					
189	Pathology of the Heart and Blood Vessels					
190	Pathology of the Respiratory System					

Secretariat of the Supreme Council for Medical Science Planning**

The courses listed in Table D are merely examples of elective rotations in the internship program. The organization of theoretical courses and elective rotations is the responsibility of the

universities implementing the medical program. Universities may also design additional elective courses based on regional conditions and university capabilities and in accordance with established regulations, subject to approval by the Secretariat of the General Medical Education Council, while adhering to the maximum credit limit for each student.

The maximum number of elective course credits for each student during the internship phase is 12 credits.

Explanation Regarding Course Identification:

The course identification in the national curriculum is intended to clarify each course's general objectives, volume, and essential topics. It is understood that a complete course syllabus must be prepared under the supervision of the General Medical Curriculum Committee of each university. The complete syllabus should include specific objectives, learning strategies, teaching methods, student evaluation methods, course resources, and other regulations related to course delivery.

Determining and updating reference materials for comprehensive examinations for the courses included in the comprehensive basic sciences examinations, pre-internship assessments, and practical competency examinations are the responsibility of the Joint Committee for Determining Reference Materials for National Examinations for the Doctor of Medicine program. The Secretariat of the General Medical Education Council is required to announce updated resources for the following academic year at the beginning of each academic year through appropriate means such as the Council's website, correspondence with universities, and other suitable methods.

Educational groups responsible for delivering the courses may also determine additional resources for student learning throughout the program, beyond those specified for comprehensive examinations, subject to the discretion and approval of the General Medical Curriculum Committee of the university.

Introduction to Anatomy

☐ **Musculoskeletal
Anatomy of the Limbs**

☐ **Anatomy of the Head
and Neck**

☐ **Cardiovascular
Anatomy**

- | | | |
|---|---|---|
| <input type="checkbox"/> Respiratory Anatomy | <input type="checkbox"/> Nervous System Anatomy | <input type="checkbox"/> Endocrine Anatomy |
| <input type="checkbox"/> Gastrointestinal Anatomy | <input type="checkbox"/> Special Senses Anatomy | <input type="checkbox"/> Urogenital Anatomy |

Course Code:	101		
Course Title	Introduction to Anatomy		
Course Level	Basic Medical Sciences		
Prerequisites	no		
Course Type	Theoretical	Practical	Total
Total Hours:	38	8	46
General Objectives	<p>By the end of this course, students should be able to:</p> <ol style="list-style-type: none"> 1. Recognize the principles and nomenclature of anatomy and apply them in visualizing and describing body parts in various positions and movements. 2. Identify the main general structures of the body, including the skeletal, muscular, vascular, and nervous systems, and determine the position of important organs and systems in relation to one another. 3. Understand the types of cells and general tissues in the body, including epithelial, muscular, and connective tissues (along with their derivatives), and be familiar with the formation and development of the embryo, placenta, and the origin of vital organs. <p>Attitudinal Domain</p> <ol style="list-style-type: none"> 1. Be aware of and respect human dignity in working with cadavers. 2. Value the educational significance and vital importance of each cadaver. 3. Present learned knowledge and questions from studying models before working on the cadaver. 4. Actively participate in collaborative learning processes while working on the cadaver. 		
Course Description	This course covers the principles and nomenclature of anatomy, the general structures of the body, including the skeletal, muscular, and nervous systems; the relative position and relationships of organs; types of cells and general tissues including epithelial, muscular, and connective		

	tissues (along with their derivatives); and the formation and development of the embryo and placenta.
Essential Content	<ol style="list-style-type: none"> 1. Introduction (History and Key Figures): Overview of the history of anatomy and introduction to notable figures in the field. 2. Definitions and Principles: Working with cadavers, including ethical principles governing the medical profession and cadaver use. 3. Anatomical Position, Planes, and Axes: Terminology and movements of the body. 4. Overview of General Body Systems: Including skeletal structure, joints, muscular, and nervous systems. 5. Normal Anatomy and Variations: Understanding normal anatomical structures and variations. 6. Radiologic and Clinical Anatomy Principles: Basic principles of anatomy as applied in radiology and clinical practice. 7. Introduction to Histology: Methods of studying tissue. 8. Cell and Cytology: Basic understanding of cells. 9. Epithelial Tissue: Characteristics and functions. 10. Connective Tissue and Adipose Tissue: Structure and functions. 11. Blood and Hematopoiesis: Understanding blood composition and formation. 12. Bone, Cartilage, and Joints: Structure and function of these tissues. 13. Muscle Tissue: Types and functions of muscle tissue. 14. Nervous Tissue: Structure and functions of nervous tissue. 15. Ovulation, Fertilization, and Zygote Formation (Week 1) 16. Implantation and Formation of Embryonic Membranes and Maternal-Fetal Blood Connection (Week 2) 17. Formation of the Three-Layered Embryonic Disc, Gastrulation, and Body Axis Formation (Week 3) 18. Derivatives of Ectoderm, Mesoderm, Endoderm, and Neural Crest (Week 3 to Week 8) 19. Fetal Period (Week 8 to Week 38), Placenta, Embryonic Membranes, and Twins 20. Principles of Teratology and Congenital Anomalies 21. Postnatal Growth

Essential explanations	It is necessary to emphasize the attitudinal aspects in all anatomy courses. If the topic of skin anatomy is not covered in this course, it must be included in the endocrine anatomy course.
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Course Code:	102		
Course Title	Musculoskeletal Anatomy of the Limbs		
Course Level	Basic Medical Sciences		
Prerequisites	<i>Introduction to Anatomy</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	30	20	50
General Objectives	<p>**Cognitive Domain:** By the end of this course, the student should understand the following and recognize the importance of superficial and radiological findings related to their natural and clinical conditions:</p> <ol style="list-style-type: none"> 1. Types of joints, their structure, and function. 2. Bones of the upper and lower limbs, their positions, and muscle attachments, ligaments. 3. Anatomical structure and function of the muscular, vascular, and nervous systems and their relevant proximities. 4. Dominant myotomes of muscles and joints, sensory innervation of different limb regions. 5. Applied, superficial, clinical, and radiological anatomy of the musculoskeletal system. 6. Development of the musculoskeletal system. 7. Vertebral column. <p>**Skill Domain:** <ol style="list-style-type: none"> 1. Identify bones of different limb regions and their important clinical features in the skeleton. 2. Identify bones of different limb regions and their important clinical features in radiological images. 3. Recognize important clinical bone signs in a living person and cadaver. </p>		

	<p>4. Identify clinically important muscles of different limb regions and their functions in a living person (accessible muscles), cadaver, and model.</p> <p>5. Perform limb movements in various joints on a living person.</p> <p>6. Identify important clinical sensory innervation in the limbs on a living person or cadaver.</p> <p>7. Demonstrate important clinical superficial vessels in limbs and the positions of limb nerves on a cadaver and model.</p> <p>8. Palpate common arterial pulses in different limb regions on a living person.</p>
Course Description	"This integrated course is part of the basic medical sciences curriculum for medical students. It focuses on teaching the principles, concepts, and knowledge related to the boundaries of each region, structure, proximities, surface anatomy, radiological anatomy, and clinical anatomy of the musculoskeletal system and limb joints, to the extent that it prepares the student to understand and analyze this system."
Essential Content	<ol style="list-style-type: none"> 1. Vertebral Column 2. Osteology of the Upper Limb 3. Shoulder Girdle and Axillary Walls and Their Contents 4. Anterior and Posterior Arm and Cubital Fossa 5. Anterior and Posterior Forearm 6. Hand 7. Surface, Clinical, and Radiological Anatomy of Joints 8. Osteology of the Lower Limb 9. Anterior and Medial Thigh 10. Gluteal Region and Posterior Thigh 11. Popliteal Fossa and Posterior Leg 12. Continuation of the Leg and Foot 13. Surface, Clinical, and Radiological Anatomy of Joints 14. Development of the Musculoskeletal System
Essential explanations	It is necessary to emphasize the attitudinal aspects in all anatomy courses. If this course is taught before the cardiovascular and respiratory systems courses, the topic of the "diaphragm" must also be covered.

Course Code:	103		
Course Title	Anatomy of the Head and Neck		
Course Level	Basic Medical Sciences		
Prerequisites	<i>Introduction to Anatomy</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	20	17	37
General Objectives Cognitive Domain Attitudinal Domain* Skill Domain	**Cognitive Domain:** By the end of this course, the student should understand the following and recognize the importance of superficial and radiological findings related to their natural and clinical conditions: 1. Anatomical structure and components of cranial and facial bones. 2. Anatomical structure, position, and proximities of neck elements. 3. Blood supply and innervation of the neck region. 4. Anatomical structure, position, and proximities of facial components, viscera, and cavities. 5. Development of different neck and face region parts and their developmental anomalies. **Skill Domain:** 1. Identify important clinical and superficial signs related to each bone. 2. Identify clinically important parts of the neck region along with relevant vessels and nerves in a cadaver and model. 3. Identify clinically important parts of the face region, viscera, and cavities along with relevant vessels and nerves in a cadaver and model. 4. Identify clinically important parts of the skull and face in radiological images.		
Course Description	This integrated course is part of the basic medical sciences curriculum for medical students. It focuses on teaching the principles, concepts, and knowledge related to the anatomical musculoskeletal structure, proximities, and natural development of the head and neck region, to the extent that it prepares the student to understand and analyze disorders in this area. This course also covers the surface and radiological anatomy of the head and neck structures.		
Essential Content	1. Examination of Cranial Bones 2. Examination of Facial Bones 3. Views of the Skull and Development of the Infant Skull 4. Superficial Elements and Neck Fascia 5. Posterior Triangle of the Neck 6. Anterior Triangles of the Neck		

	7. Face and Parotid Region 8. Temporal and Infratemporal Fossa 9. Development of Pharyngeal Arches, Pouches, and Clefts 10. Development of the Face, Tongue, and Teeth 11. Clinical, Applied, and Radiological Anatomy of the Head and Neck
Essential explanations	It is necessary to emphasize the attitudinal aspects in all anatomy courses.

Course Code:	104		
Course Title	Cardiovascular Anatomy		
Course Level	Basic Medical Sciences		
Prerequisites	<i>Introduction to Anatomy</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	17	16	33
General Objectives Cognitive Domain Attitudinal Domain* Skill Domain	By the end of this course, the student should understand the following and recognize the importance of superficial and radiological findings related to their natural and clinical conditions: <ol style="list-style-type: none"> 1. Structure of the thoracic cage, including bones, muscles, vessels, and nerves of the wall. 2. Definition, divisions, and contents of the mediastinum. 3. Anatomical structure, position, and proximities of the heart. 4. Overview of the anatomy of the circulatory system. 5. Microscopic structure of the cardiovascular, lymphatic, and immune systems. 6. Microscopic differences in various parts of the cardiovascular, lymphatic, and immune systems. 7. Development of the heart and vessels. 8. Development of the arterial and venous systems during the embryonic period and after birth. 		

	<p>9. Developmental anomalies of the cardiovascular system.</p> <p>Skill Domain:</p> <ol style="list-style-type: none"> 1. Identify the boundaries of the thoracic cage, ribs, and Sternum on a living body and model. 2. Identify clinically important muscles, vessels, and nerves of the thoracic wall on a cadaver and model. 3. Identify clinically important divisions and contents of the mediastinum on a cadaver and model. 4. Demonstrate the surfaces, borders, and different parts of the heart on a cadaver and model. 5. Identify clinically important main vessels in the circulatory system on a cadaver and model. 6. Recognize clinically important microscopic structures of the heart, vessels, and lymphatic organs under a microscope. 7. Demonstrate the surface anatomy of the heart (borders, valves, and their auscultation points) and vessels on a living body or cadaver.
Course Description	<p>This integrated course is part of the basic medical sciences curriculum for medical students. It focuses on teaching the principles, concepts, and knowledge related to the structure (at both microscopic and macroscopic levels), proximities, and natural development of the cardiovascular system to the extent that it prepares the student to understand and analyze disorders in this system. This course also covers the surface and radiological anatomy of the cardiovascular system.</p>
Essential Content	<ol style="list-style-type: none"> 1. Ribs and Sternum 2. Muscles, Vessels, and Nerves of the Thoracic Wall 3. Superior Mediastinum 4. Middle Mediastinum 5. Posterior Mediastinum 6. Main Vessels of the Circulatory System 7. Histology of the Heart and Blood Vessels 8. Histology of the Lymphatic System 9. Development of the Cardiogenic Region, Heart Tube, and Heart 10. Development of the Arterial and Venous Systems 11. Clinical, Applied, and Radiological Anatomy of the Cardiovascular System
Essential explanations	<p>It is necessary to emphasize the attitudinal aspects in all anatomy courses. If this course is taught before the musculoskeletal and respiratory systems courses, the topic of the "diaphragm" must also be covered.</p>

Course Code:	105		
Course Title	Respiratory Anatomy		
Course Level	Basic Medical Sciences		
Prerequisites	<i>Introduction to Anatomy</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	8	8	16
General Objectives Cognitive Domain Attitudinal Domain* Skill Domain	Cognitive Domain: By the end of this course, the student should understand the following and recognize the importance of superficial and radiological findings related to their natural and clinical conditions: Pleural space and its recesses, anatomical structure, position, and proximities of the respiratory system (nose, pharynx, larynx, trachea, bronchial tree, and lungs). Histological structure of different parts of the respiratory system. Development of different parts of the respiratory system. Developmental anomalies of the respiratory system. Skill Domain: Identify different parts of the respiratory system (nose, pharynx, larynx, and lungs), the pleural space, and its recesses in a cadaver and model. In radiological images, identify different parts of the respiratory system and their relevant vessels and nerves. Recognize the histological structure of different respiratory system parts under a microscope.		

	Identify the surface anatomy of the lungs and pleura on a living body or cadaver.
Course Description	This integrated course is part of the basic medical sciences curriculum for medical students. It focuses on teaching the principles, concepts, and knowledge related to the structure (at both microscopic and macroscopic levels), proximities, and natural development of the respiratory system to the extent that it prepares the student to understand and analyze disorders in this system. This course also covers the surface and radiological anatomy of the respiratory system.
Essential Content	<ol style="list-style-type: none"> 1. Anatomical structure and proximities of the nose, pharynx, larynx, and trachea. 2. Anatomical structure and proximities of the lungs and pleura. 3. Histology of the respiratory system (trachea, bronchial tree divisions, and lungs). 4. Development of the respiratory system. 5. Applied and radiological anatomy of the respiratory system.
Essential explanations	<p>It is necessary to emphasize the attitudinal aspects in all anatomy courses.</p> <p>If this course is taught before the musculoskeletal and cardiovascular systems courses, the topic of the "diaphragm" must also be covered.</p>

Course Code:	106		
Course Title	Gastrointestinal Anatomy Course		
Course Level	Basic Medical Sciences		
Prerequisites	<i>Introduction to Anatomy</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	13	27	40

<p>General Objectives</p> <p>Cognitive Domain</p> <p>Attitudinal Domain*</p> <p>Skill Domain</p>	<p>Cognitive Domain: By the end of this course, the student should understand the following and recognize the importance of superficial and radiological findings related to their natural and clinical conditions:</p> <p>Oral cavity and its elements, summary of the pharyngeal space, esophagus, and their important clinical proximities, tissue structure, and development of these elements, and the four abdominal quadrants.</p> <p>Structure of the anterior abdominal wall (muscles, vessels, and nerves) and the inguinal canal.</p> <p>Peritoneum, peritoneal spaces, gutters, and important clinical recesses.</p> <p>Anatomical structure, position, and important clinical proximities of abdominal viscera (gastrointestinal tract and accessory glands).</p> <p>Blood supply, innervation, and lymphatic drainage of important clinical abdominal viscera (gastrointestinal tract and accessory glands).</p> <p>Microscopic structure of important clinical parts of the gastrointestinal tract and accessory glands.</p> <p>Microscopic differences in important clinical parts of the gastrointestinal tract and accessory glands.</p> <p>Development of important clinical parts of the gastrointestinal tract and accessory glands.</p> <p>Developmental anomalies of the gastrointestinal system.</p> <p>Skill Domain:</p> <p>Identify the oral cavity and its elements, summary of the pharyngeal space, esophagus, and their important clinical proximities, tissue structure, development of these elements, superficial signs, four abdominal quadrants, and the superficial position of each abdominal viscus in a living person.</p> <p>Identify the peritoneal cavity and its contents in a cadaver or model.</p> <p>Identify important clinical parts of the gastrointestinal tract and accessory glands along with their relevant vessels and nerves in a cadaver and model.</p> <p>Identify important clinical parts of the gastrointestinal tract and accessory glands in radiological images.</p>
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	<p>Recognize and differentiate the histological structure of important clinical parts of the gastrointestinal tract and accessory glands under a microscop.</p>
Course Description	<p>This integrated course is part of the basic medical sciences curriculum for medical students. It focuses on teaching the principles, concepts, and knowledge related to the structure (at both microscopic and macroscopic levels), proximities, and natural development of the gastrointestinal system to the extent that it prepares the student to understand and analyze disorders in this system. This course also covers the structure of the abdominal wall, abdominal cavity, and the surface and radiological anatomy of the gastrointestinal system</p>
Essential Content	<ol style="list-style-type: none"> 1. Anatomy of the Oral Cavity and Salivary Glands 2. Histology of the Oral Cavity and Salivary Glands 3. Pharynx and Esophagus (Anatomy) 4. Histology of the Pharynx and Esophagus 5. Abdominal Wall and Inguinal Canal 6. Peritoneum 7. Stomach and Small Intestine (Anatomy) 8. Stomach (Histology) 9. Large Intestine, Rectum, and Anal Canal (Anatomy) 10. Small and Large Intestine (Histology) 11. Rectum and Anal Canal (Histology) 12. Vessels, Lymphatics, and Nerves of the Gastrointestinal System 13. Liver, Gallbladder, Spleen, and Pancreas (Anatomy and Histology) 14. Embryology of the Gastrointestinal System 15. Clinical, Applied, and Radiological Anatomy

Essential explanations	<ol style="list-style-type: none"> 1. It is necessary to emphasize the attitudinal aspects in all anatomy courses. 2. The musculoskeletal system course can teach the topic of the abdominal wall and inguinal canal.

Course Code:	107		
Course Title	Endocrine Anatomy		
Course Level	Basic Medical Sciences		
Prerequisites	<i>Introduction to Anatomy</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	4	6	10
General Objectives Cognitive Domain Attitudinal Domain* Skill Domain	<p>By the end of this course, the student should understand the following and recognize the importance of superficial and radiological findings related to their natural and clinical conditions:</p> <ol style="list-style-type: none"> 1. Anatomical structure and important clinical proximities of the hypothalamus, pituitary, adrenal, pancreas, thyroid, and parathyroid glands. 2. Important clinical vessels and nerves in the hypothalamus, pituitary, adrenal, pancreas, thyroid, and parathyroid glands. 3. Important clinical microscopic structure of the hypothalamus, pituitary, adrenal, pancreas, thyroid, and parathyroid glands. 4. Development of the hypothalamus, pituitary, adrenal, pancreas, thyroid, and parathyroid glands. 5. Congenital anomalies of the endocrine glands. <p>Skill Domain:</p> <ol style="list-style-type: none"> 1. Identify the location of the hypothalamus, pituitary, adrenal, pancreas, thyroid, and parathyroid glands in a cadaver and model. 		

	<ol style="list-style-type: none"> Identify the superficial signs of endocrine glands on a living person or cadaver. Identify the location of the glands in radiological images. Under a microscope, recognize the histological structure of the hypothalamus, pituitary, adrenal, pancreas, thyroid, and parathyroid glands.
Course Description	This integrated course is part of the basic medical sciences curriculum for medical students. It focuses on teaching the principles, concepts, and knowledge related to the structure (at both microscopic and macroscopic levels), proximities, and natural development of the endocrine glands to the extent that it prepares the student to understand and analyze disorders in the endocrine system. This course also covers the surface and radiological anatomy of the endocrine glands.
Essential Content	<ol style="list-style-type: none"> Anatomy of the Hypothalamus, Pituitary, Adrenal, Pancreas, Thyroid, and Parathyroid Glands Histology of the Hypothalamus, Pituitary, Adrenal, Pancreas, Thyroid, and Parathyroid Glands Development of the Hypothalamus, Pituitary, Adrenal, Pancreas, Thyroid, and Parathyroid Glands Clinical, Applied, and Radiological Anatomy of the Endocrine Glands
Essential explanations	It is necessary to emphasize the attitudinal aspects in all anatomy courses.

Course Code:	108		
Course Title	Nervous System Anatomy		
Course Level	Basic Medical Sciences		
Prerequisites	<i>Introduction to Anatomy</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	25	14	39

<p>General Objectives</p> <p>Cognitive Domain</p> <p>Attitudinal Domain*</p> <p>Skill Domain</p>	<p>Cognitive Domain: By the end of this course, the student should understand the following and recognize the importance of clinical and radiological signs related to their natural and clinical conditions:</p> <ol style="list-style-type: none"> 1. Types of nervous system divisions. 2. Normal function of neurons and glial cells. 3. Appearance, structure, and function of the white and gray matter of the spinal cord. 4. Components of a spinal nerve and nerve plexuses. 5. Appearance, important clinical structure, and function of the nuclei and neural pathways of the medulla oblongata, pons, and midbrain. 6. Anatomical structure and important clinical function of the cerebellum, diencephalon, and cerebral cortex. 7. Anatomical structure and important clinical function of the basal nuclei, limbic system, and reticular formation. 8. Structure of the meninges and important clinical vessels of the brain. 9. Histological structure of important clinical parts of the central nervous system. 10. Development of important clinical parts of the central nervous system. 11. Developmental anomalies of the nervous system. <p>Skill Domain:</p> <ol style="list-style-type: none"> 1. Identify the important clinical relationship between the spinal cord and vertebral column in longitudinal and transverse sections in radiological images. 2. Demonstrate important clinical dermatomes on a living human body. 3. Identify the spinal cord and its meninges in a cadaver and model. 4. Identify important clinical parts of the nervous system (brainstem, diencephalon, and cerebral hemispheres) in a cadaver and model. 5. Identify the vessels and meninges of the brain and important clinical exit points of cranial nerves in a cadaver and model. 6. Identify important clinical parts of the nervous system and their relevant vessels and nerves in radiological images. 7. Recognize the histological structure of important clinical parts of the nervous system under a microscope.
<p>Course Description</p>	<p>This integrated course is part of the basic medical sciences curriculum for medical students. It focuses on teaching the principles, concepts, and knowledge related to the structure (at both microscopic and macroscopic levels), proximities, and natural development of the central nervous system to the extent that it prepares the student to understand and analyze disorders in the central nervous system. This course also covers the surface and radiological anatomy of the central nervous system.</p>

Essential Content	<ol style="list-style-type: none"> 1. Divisions of the Nervous System, Vertebral Canal, and Appearance and Internal Structure of the Spinal Cord 2. Neural Pathways 3. Medulla Oblongata, Pons, and Midbrain 4. Cerebellum 5. Diencephalon 6. Cerebral Hemispheres 7. White Matter Connections and Basal Nuclei 8. Limbic System and Reticular Formation 9. Vessels and Meninges of the Brain 10. Autonomic Nervous System 11. Structure of Cranial Nerves 12. Formation of the Neural Tube 13. Histology of the Central Nervous System 14. Clinical, Applied, and Radiological Anatomy of the Brain and Spinal Cord (including vessels, meninges, and venous sinuses of the skull)
Essential explanations	<p>It is necessary to emphasize the attitudinal aspects in all anatomy courses.</p>

Course Code:	109		
Course Title	Special Senses Anatomy		
Course Level	Basic Medical Sciences		
Prerequisites	<i>Introduction to Anatomy</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	14	4	18
General Objectives Cognitive Domain Attitudinal Domain* Skill Domain	<p>Cognitive Domain: By the end of this course, the student should understand the following and recognize the importance of clinical and radiological signs related to their natural and clinical conditions:</p> <ol style="list-style-type: none"> 1. Anatomical structure of the orbit, eyeball, and visual system appendages. 2. Vessels and nerves of the eye and visual system appendages. 3. Anatomical structure of the external, middle, and inner ear. 4. Surface and radiological anatomy of the visual and auditory-vestibular systems. 5. Microscopic structure of the eye and visual system appendages. 6. Microscopic structure of the ear. 7. Development of different parts of the visual system. 8. Development of different parts of the auditory-vestibular system. 9. Congenital anomalies of the visual and auditory-vestibular systems. <p>Skill Domain:</p> <ol style="list-style-type: none"> 1. Identify important clinical parts of the visual system (orbit, eyeball, and its appendages) in a cadaver and model. 2. Identify important clinical parts of the auditory-vestibular system (external, middle, and inner ear) in a cadaver and model. 3. Identify the superficial signs of important clinical parts of the visual and auditory-vestibular systems on a living person or cadaver. 4. Identify important clinical parts of these two systems in radiological images. 5. Recognize eye movements in a living person and determine their neuro-muscular connections. 6. Recognize the histological structure of different parts of the visual and auditory-vestibular systems under a microscope. 		

Course Description	This integrated course is part of the basic medical sciences curriculum for medical students. It focuses on teaching the principles, concepts, and knowledge related to the structure (at both microscopic and macroscopic levels), proximities, and natural development of the special senses of vision, hearing, and balance to the extent that it prepares the student to understand and analyze disorders in these systems. This course also covers the surface and radiological anatomy of the special senses.
Essential Content	<ol style="list-style-type: none"> 1. Anatomy of the Orbit, Eyeball, and Visual System Appendages 2. Vessels and Nerves of the Eye and Visual System 3. External, Middle, and Inner Ear 4. Histology of the Ear and Eye 5. Development of the Visual System 6. Development of the Auditory System 7. Clinical and Radiological Anatomy of the Eye and Ear 8. Visual and Auditory Neural Pathways
Essential explanations	<input type="checkbox"/> It is necessary to emphasize the attitudinal aspects in all anatomy courses.

Course Code:	110		
Course Title	Urogenital Anatomy		
Course Level	Basic Medical Sciences		
Prerequisites	<i>Introduction to Anatomy</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	14	8	22
General Objectives	Cognitive Domain: By the end of this course, the student should understand the following and recognize the importance of clinical and radiological findings related to their natural and clinical conditions:		
Cognitive Domain	<ol style="list-style-type: none"> 1. Anatomical structure of the pelvis, including bones, joints, muscles, vessels, and important clinical nerves. 		

Attitudinal Domain* Skill Domain	<ol style="list-style-type: none"> 2. Pelvic dimensions, measurement methods, and differences between male and female pelvises. 3. Anatomical structure, position, and proximities of important clinical parts of the male reproductive system (internal and external structures). 4. Anatomical structure, position, and proximities of important clinical parts of the female reproductive system (internal and external structures). 5. Blood supply, innervation, and lymphatic drainage of important clinical parts of the male and female reproductive systems. 6. Dimensions and contents of the perineum. 7. Surface and radiological anatomy of the male and female reproductive systems. 8. Microscopic structure of important clinical parts of the male and female reproductive systems. 9. Microscopic differences in important clinical parts of the male and female reproductive systems. 10. Development of important clinical parts of the male and female reproductive systems. 11. Developmental anomalies of the urogenital system. <p>Skill Domain:</p> <ol style="list-style-type: none"> 1. Identify important clinical structures of the pelvis, including bones, joints, muscles, vessels, and nerves in a cadaver and model. 2. Measure pelvic dimensions and distinguish between male and female pelvises. 3. Identify important clinical parts of the male reproductive system (internal and external structures) in a cadaver and model. 4. Identify important clinical parts of the female reproductive system (internal and external structures) in a cadaver and model. 5. Demonstrate important clinical vessels, nerves, and proximities related to the male and female reproductive systems in a cadaver and model. 6. Identify the dimensions and contents of the perineum in males and females and their differences in a cadaver. 7. Identify different parts of the male and female reproductive systems in radiological images. 8. Recognize the histological structure of different parts of the male and female reproductive systems under a microscope.
Course Description	<p>This integrated course is part of the basic medical sciences curriculum for medical students. It focuses on teaching the principles, concepts, and knowledge related to the structure (at both microscopic and macroscopic levels), proximities, and natural development of the pelvis and reproductive systems in males and females to the extent that it prepares the student to understand and analyze disorders in the reproductive</p>

	systems. This course also covers the surface and radiological anatomy of the male and female reproductive systems.
Essential Content	<ol style="list-style-type: none"> 1. Anatomy of the Pelvis 2. Anatomy and Histology of the Kidneys 3. Anatomy and Histology of the Ureters, Bladder, and Urethra 4. Embryology of the Urogenital System 5. Clinical, Applied, and Radiological Anatomy of the Urogenital System 6. Anatomy and Histology of the Testes, Epididymis, and Vas Deferens 7. Anatomy and Histology of the Prostate, Seminal Vesicles, and Bulbourethral Glands 8. Anatomy and Histology of the Ovaries, Uterus, and Fallopian Tubes 9. Perineum and Superficial and Deep Perineal Spaces 10. Penis/External Female Genitalia and Vagina
Essential explanations	It is necessary to emphasize the attitudinal aspects in all anatomy courses.

Topics in Physiology

- Cell Physiology
- Respiratory Physiology
- Cardiac Physiology
- Nervous System and Special Senses Physiology
- Circulatory Physiology
- Gastrointestinal Physiology
- Hematology (Blood Physiology)
- Endocrine Physiology and Reproduction
- Renal Physiology

Course Code:	112		
Course Title	Cell Physiology		
Course Level	Basic Medical Sciences		
Prerequisites	<i>Introduction to Anatomy</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	10	4	14
General Objectives	<p>In this course, students are expected to learn the concepts, principles, and physiological mechanisms related to cellular function in each of the following areas and be able to identify them in natural and altered physiological processes:</p> <ol style="list-style-type: none"> 1. Physiology, cellular signaling 2. Cell membrane and its components, transport of substances across the cell membrane 3. Resting potential, action potential 4. Skeletal muscle contraction, smooth muscle contraction 5. Internal environment and homeostasis, and the role of various body systems in maintaining it 6. Differences in the composition of intracellular and extracellular fluids and the reasons for these differences 7. Intracellular signaling 8. Components of the cell membrane and their functions 9. Methods of substance transport across the cell membrane 10. Resting membrane potential, action potential 11. Absolute and relative refractory periods and their causes 12. Skeletal muscle contraction 13. Smooth muscle contraction and its differences from skeletal muscle contraction 		
Course Description	<p>The main objective of this course is to learn general topics related to cell structure and their normal functions, resting potential and action potential, characteristics of muscle cells, and their physiological functions.</p>		

Essential Content	<ol style="list-style-type: none"> 1. Homeostasis and regulatory mechanisms of body systems 2. Cell membrane and its components, transport of substances across the membrane and its methods (diffusion, facilitated diffusion, active transport, osmosis) 3. Resting membrane potential and its physical basis 4. Action potential and its stages, how it arises and propagates 5. Physiological description of skeletal muscle 6. Muscle contraction and its mechanism 7. Motor unit and muscle tension, classification of different motor units 8. Neuromuscular synapse 9. Excitation-contraction coupling in skeletal muscle and its mechanism 10. Smooth muscle and its types 11. Mechanism of contraction in smooth muscle and its comparison with skeletal muscle 12. Membrane potential and action potential in smooth muscle and the effect of hormonal and local factors on it
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Course Code:	112		
Course Title	Cardiac Physiology		
Course Level	Basic Medical Sciences		
Prerequisites	<i>Cellular Physiology</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	14	8	22
General Objectives	<p>In this course, students are expected to learn the concepts, principles, and physiological mechanisms related to cellular function in each of the following areas and be able to identify them in natural and altered physiological processes:</p> <ol style="list-style-type: none"> 1. Physiology, cellular signaling 2. Cell membrane and its components, transport of substances across the cell membrane 3. Resting potential, action potential 		

	<ol style="list-style-type: none"> 4. Skeletal muscle contraction, smooth muscle contraction 5. Internal environment and homeostasis, and the role of various body systems in maintaining it 6. Differences in the composition of intracellular and extracellular fluids and the reasons for these differences 7. Intracellular signaling 8. Components of the cell membrane and their functions 9. Methods of substance transport across the cell membrane 10. Resting membrane potential, action potential 11. Absolute and relative refractory periods and their causes 12. Skeletal muscle contraction 13. Smooth muscle contraction and its differences from skeletal muscle contraction.
Course Description	The main objective of this course is to learn general topics related to cell structure and their normal functions, resting potential and action potential, characteristics of muscle cells, and their physiological functions.
Essential Content	<ul style="list-style-type: none"> <input type="checkbox"/> Homeostasis and regulatory mechanisms of body systems <input type="checkbox"/> Cell membrane and its components, transport of substances across the membrane and its methods (diffusion, facilitated diffusion, active transport, osmosis) <input type="checkbox"/> Resting membrane potential and its physical basis <input type="checkbox"/> Action potential and its stages, how it arises and propagates <input type="checkbox"/> Physiological description of skeletal muscle <input type="checkbox"/> Muscle contraction and its mechanism <input type="checkbox"/> Motor unit and muscle tension, classification of different motor units <input type="checkbox"/> Neuromuscular synapse <input type="checkbox"/> Excitation-contraction coupling in skeletal muscle and its mechanism

	<input type="checkbox"/> Smooth muscle and its types <input type="checkbox"/> Mechanism of contraction in smooth muscle and its comparison with skeletal muscle <input type="checkbox"/> Membrane potential and action potential in smooth muscle and the effect of hormonal and local factors on it
Essential explanations	

Course Code:	113		
Course Title	Respiratory Physiology		
Course Level	Basic Medical Sciences		
Prerequisites	<i>Cellular Physiology</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	10	4	14
General Objectives	<p>In this course, students are expected to learn the concepts, principles, and physiological mechanisms related to the respiratory system in each of the following areas and be able to identify them in natural and altered physiological processes:</p> <ol style="list-style-type: none"> 1. Components of the respiratory system (airways and their divisions, alveoli and their cell types) and their functions 2. Pulmonary ventilation 3. Gas exchange between alveoli and blood, and between blood and body cells 4. Gas transport in blood, respiratory centers, and regulation of respiration 5. Pulmonary circulation and its differences from systemic circulation 6. Pleura and its role in the respiratory system 7. Non-respiratory functions of the lungs 8. Bronchial circulation and its differences from pulmonary circulation 		

	<ol style="list-style-type: none"> 9. Respiratory cycle, inhalation, and exhalation 10. Changes in intrapulmonary pressure and pleural pressure during a respiratory cycle 11. Surfactant secretion and its role in reducing surface tension 12. Pulmonary function tests and lung volumes and capacities 13. Pulmonary ventilation, alveolar ventilation, differences, and calculation methods 14. Ventilation-perfusion ratio and its effect on arterial gas pressure 15. Gas exchange between blood and alveoli 16. Gas exchange between blood and tissue cells 17. Methods of oxygen and carbon dioxide transport in blood 18. Oxyhemoglobin dissociation curve and its characteristics 19. Respiratory control centers and their role in regulating respiration 20. Peripheral chemoreceptors and their role in regulating respiration 21. Central chemoreceptors and their role in regulating respiration
Course Description	The main objectives of this course are to familiarize students with the physiological anatomy of the respiratory system, pulmonary ventilation and its mechanisms, gas exchange and transport in the lungs and tissues, and the mechanisms of respiratory regulation and respiratory centers.
Essential Content	<ol style="list-style-type: none"> 1. Mechanics of lung ventilation 2. Pleura, pleural pressure, and its changes during respiration 3. Compliance of the lungs and chest wall 4. Lung volumes and capacities 5. Alveolar ventilation, dead space 6. Respiratory airways and their functions 7. Cough, sneeze, and speech reflexes 8. Pulmonary circulation and its characteristics 9. Pulmonary edema and its mechanisms 10. Gas diffusion in alveoli and body tissues and influencing factors 11. Ventilation-perfusion ratio and its changes 12. Concept of shunt and physiological dead space 13. Oxygen transport in blood and the role of hemoglobin 14. Oxyhemoglobin dissociation curve and influencing factors 15. Carbon dioxide transport in blood 16. Carbon dioxide dissociation curve 17. Respiratory control 18. Membrane potential and action potential in smooth muscle and the effect of hormonal and local factors on it

Essential explanations	
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Course Code:	114		
Course Title	Nervous System and Special Senses Physiology		
Course Level	Basic Medical Sciences		
Prerequisites	<i>Cellular Physiology</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	24	4	28
General Objectives	<p>By the end of this course, the student should understand the following and recognize the importance of clinical and radiological findings related to their natural and clinical conditions:</p> <ol style="list-style-type: none"> 1. Structure of the nervous system, synapses, and neurotransmitters 2. Sensory system 3. Types of sensations, sensory pathways, and perception 4. Motor system 5. Motor centers and how they control movement 6. Higher brain functions, limbic system, speech, memory, and sleep 7. Structure and functions of the autonomic system 8. Special senses 9. Types of neurons 10. Types of synapses, ionic events in synapses, synaptic transmission 11. Neuronal assemblies, synaptic plasticity 12. Types of neurotransmitters 13. Types of nerve fibers and their conduction speeds 14. Sensory receptors, their types, and roles 15. Concept of receptor potential, adaptation, and differential sensitivity 16. Electrical events and mechanisms of receptor potential generation 17. Sensory pathways to the central nervous system and their differences 18. Pain, types of pain, and their neural pathways 19. Referred or radiating pain 		

	<ul style="list-style-type: none"> 20. Brain and spinal cord pain control systems 21. Temperature receptors and their pathways 22. Structure of the spinal cord and its organization for motor functions 23. Reflexes and their types 24. Different parts of the brainstem and the roles of its components and nuclei 25. Role of the vestibular apparatus, utricle, saccule, and semicircular canals in balance 26. Structure of the cerebellum and its functional anatomical divisions 27. Cerebellar neuronal circuits and their disorders 28. Structure of the basal nuclei and their disorders 29. Different areas of the motor cortex and their functions 30. Motor pathways, corticospinal tract, and the relationship between sensation and movement 31. Limbic system and its components 32. Speech-related areas and their roles 33. Learning and memory 34. Sleep, its types, and characteristics 35. Brain waves and their changes during different stages of sleep and wakefulness 36. Physiological structure of the autonomic nervous system 37. Sympathetic pathways, neuronal transmitters, and their functions 38. Parasympathetic pathways, neuronal transmitters, and their functions 39. Differences between the sympathetic and parasympathetic systems and the differences between the autonomic and somatic motor systems 40. Physiological structure of the eye, visual receptors, and their pathways 41. Physiological structure of the ear and its pathways 42. Physiology of olfactory and gustatory senses and their sensory pathways 43. Cerebrospinal fluid, blood-brain barrier, and their roles 44. Cerebrospinal fluid, blood-brain barrier, and their roles
Course Description	The main objectives of this course are to understand the physiological anatomy of the nervous system, learn the physiology of sensation and movement, the pathways and centers that control and regulate them, the sympathetic and parasympathetic systems, and higher brain functions.
Essential Content	<ul style="list-style-type: none"> 1. Introduction to the physiological structure of the nervous system 2. Functional levels of the central nervous system 3. Types of synapses and neurotransmitters 4. Types of nerve fibers and their conduction and processing 5. Conduction and processing of neural messages, spatial and temporal summation 6. Somatic senses and their characteristics, sensory receptors 7. Sensory signal pathways and their features, and related brain areas 8. Physiology of pain, receptors, and their pathways

	9. Temperature receptors and their stimulation mechanisms 10. Sensory receptors in muscles and their roles 11. Various spinal reflexes and their roles in muscle control 12. Motor cortices, motor signal pathways 13. Physiological anatomy of the cerebellum, its role in movement control 14. Basal nuclei and their roles in movement 15. Different areas of the cerebral cortex related to motor functions 16. Limbic system and its role, functions of the hippocampus and amygdala 17. Memory, its types, and mechanisms 18. Sleep and its types, brain waves and their changes in sleep and epilepsy 19. Role of the sympathetic and parasympathetic systems in the body and their control, 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. Vestibular senses and their role in balance 24. Metabolism and blood flow in the brain and its regulation 25. Cerebrospinal fluid and its functions
Essential explanations	

Course Code:	115		
Course Title	Circulatory Physiology		
Course Level	Basic Medical Sciences		
Prerequisites	<i>Cellular Physiology</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	19	4	23

General Objectives	<p>In this course, students are expected to learn the concepts, principles, and physiological mechanisms related to the circulatory system in each of the following areas and be able to identify them in natural and altered physiological processes:</p> <ol style="list-style-type: none"> 1. Basic physical concepts of the circulatory and pulmonary systems 2. Structure of blood vessels, their similarities and differences 3. Mechanisms of fluid and substance exchange between blood and body cells 4. Structure and functions of the lymphatic system 5. Blood pressure, factors affecting it, and its regulation 6. Coronary circulation and its control mechanisms 7. Systemic and pulmonary circulation, their components, and differences 8. Relationships between blood pressure, blood flow, and vascular resistance in relation to Ohm's and Poiseuille's laws 9. Measurement of blood flow, differences between laminar and turbulent flow, and their determination and differentiation 10. Exchange of substances between plasma and interstitial fluid 11. Capillary filtration and factors affecting it in relation to Starling's law 12. Lymphatic system, its structure, and functions 13. Blood pressure, mean arterial pressure, pulse pressure, and factors affecting them 14. Local control of blood flow in the short and long term 15. Neural and hormonal control of blood flow 16. Short-term and long-term regulation of blood pressure 17. Role of the kidneys and the renin-angiotensin system in long-term blood pressure regulation 18. Hormonal control of blood pressure and their roles in its regulation 19. Changes in coronary blood flow with changes in the cardiac cycle 20. Neural and chemical regulation of coronary blood flow
Course Description	<p>The main objectives of this course are to understand the physiological structure of blood vessels, hemodynamics, substance exchange in blood vessels, tissue blood flow and its regulation, blood pressure and its short-term and long-term regulation mechanisms, and the physiology of coronary blood flow.</p>
Essential Content	<ol style="list-style-type: none"> 1. Physical components of the circulatory system and their characteristics 2. Hemodynamics 3. Vascular resistance and factors affecting it 4. Vascular compliance in the arterial and venous systems and the volume-pressure curve 5. Pulse pressure and its abnormal forms 6. Measurement of blood pressure 7. Veins and their functions

	8. Structure and role of capillaries 9. Capillary filtration and factors affecting it 10. Lymph, lymphatic system, and their physiological roles 11. Acute and chronic control of tissue blood flow and its regulation 12. Factors affecting blood pressure 13. Short-term and long-term regulation of blood pressure 14. Role of the kidneys in blood pressure regulation 15. Essential and secondary hypertension 16. Cardiac output and its regulation 17. Cardiac output curve and factors affecting it 18. Blood flow in skeletal muscle and its control 19. Coronary circulation and factors affecting it 20. Definition of shock and its stages 21. Types of shock and their characteristics
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Course Code:	116		
Course Title	Gastrointestinal Physiology		
Course Level	Basic Medical Sciences		
Prerequisites	<i>Cellular Physiology</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	10	4	14
General Objectives	<p>In this course, students are expected to learn the concepts, principles, and physiological mechanisms related to the gastrointestinal system in each of the following areas and be able to identify them in natural and altered physiological processes:</p> <ol style="list-style-type: none"> 1. Structure and function of the gastrointestinal system 2. Movements of the gastrointestinal system 3. Secretions of the gastrointestinal tract and their functions 4. Processes of digestion and absorption of substances in different parts of the gastrointestinal tract 5. Functions of bile, saliva, pancreas, and liver 6. Neural and hormonal control of the gastrointestinal system 7. Swallowing and its stages 		

	<ol style="list-style-type: none"> 8. Mixing and propulsive movements of the gastrointestinal tract and their roles 9. Movements of the stomach and their roles in food digestion 10. Migrating myoelectric complex and hunger contractions 11. Mechanisms regulating gastric emptying 12. Types of small intestine movements, their roles, and control mechanisms 13. Movements of different parts of the large intestine, their characteristics, and control mechanisms 14. Defecation reflex 15. Salivary glands, composition of saliva, and regulation of saliva secretion 16. Types of gastric cells and their secretions 17. Mechanism of gastric acid production 18. Mechanisms regulating gastric secretions and their stages 19. Pancreatic secretions, their effects, and regulation 20. Bile and its role in the digestion and absorption of fats 21. Enterohepatic circulation of bile 22. Secretions of the small and large intestines and their regulation 23. Mechanisms of carbohydrate digestion and absorption 24. Protein digestion and absorption 25. Fat digestion and absorption in the gastrointestinal tract 26. Reabsorption of water, sodium, calcium, iron, and vitamins in different parts of the gastrointestinal tract 27. Short-term, medium-term, and long-term regulation of nutrition 28. Role of the liver in the metabolism of various substances
Course Description	<p>The main objectives of this course are to understand the physiological anatomy of the gastrointestinal system, movements and secretions in different parts of the gastrointestinal system, mechanisms of substance absorption in different parts of the gastrointestinal tract, and the roles of the salivary glands, bile, pancreas, and liver.</p>
Essential Content	<ol style="list-style-type: none"> 2. Functional anatomy of the gastrointestinal system 3. Movements of different parts of the gastrointestinal system and their neural and hormonal control 4. Defecation reflex and its control 5. Secretions of different parts of the gastrointestinal system and their regulation 6. Bile and its role in the digestion and absorption of substances 7. Pancreatic secretions and their roles 8. Digestion and absorption of carbohydrates, fats, and proteins 9. Functions of the liver in the metabolism of various substances

Course Code:	117		
Course Title	Blood Physiology		
Course Level	Basic Medical Sciences		
Prerequisites	<i>Cellular Physiology</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	5	5	7
General Objectives	<p>In this course, students are expected to learn the concepts, principles, and physiological mechanisms related to blood function in each of the following areas and be able to identify them in natural and altered physiological processes:</p> <ol style="list-style-type: none"> 1. Blood and its components, plasma components, and the difference between plasma and serum 2. Physiology of red blood cells, their synthesis and destruction, hemoglobin structure and synthesis, iron metabolism, anemia, and polycythemia and their effects on the cardiovascular system 3. Physiology of white blood cells, types of white blood cells, their characteristics, synthesis, and maturation sites, the role of neutrophils and tissue macrophages in the immune system 4. Physiology of platelets, coagulation factors, and the mechanism of blood coagulation, stages of hemostasis, and the role of platelets in it 		
Course Description	<p>The main objectives of this course are to understand the physiology of blood, red blood cells, white blood cells, and platelets, their functions, and the mechanism of blood coagulation.</p>		

Essential Content	<input type="checkbox"/> Red blood cells, their production and maturation, the role of erythropoietin, vitamin B12, and folic acid <input type="checkbox"/> Hemoglobin formation <input type="checkbox"/> Iron metabolism <input type="checkbox"/> Anemias, their types, and their effects on the cardiovascular system <input type="checkbox"/> Polycythemia and its effects on the cardiovascular system <input type="checkbox"/> White blood cells and their types <input type="checkbox"/> Reticuloendothelial system <input type="checkbox"/> Inflammation and the role of white blood cells <input type="checkbox"/> Functions of basophils, eosinophils, and macrophages <input type="checkbox"/> Platelets and their role in blood coagulation <input type="checkbox"/> Mechanism of blood coagulation - intrinsic and extrinsic pathways <input type="checkbox"/> Blood coagulation tests - coagulation disorders
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Course Code:	118		
Course Title	Endocrine and Reproductive Physiology		
Course Level	Basic Medical Sciences		
Prerequisites	<i>Cellular Physiology</i>		
Course Type	Theoretical	Practical	Total

Total Hours:	20	4	24
General Objectives	<p>In this course, students are expected to learn the concepts, principles, and physiological mechanisms related to the endocrine and reproductive systems in each of the following areas and be able to identify them in natural and altered physiological processes:</p> <ol style="list-style-type: none"> 1. Role of endocrine glands in body homeostasis - structure of hormones, their synthesis, and mechanisms of action 2. Pituitary hormones and their control by the hypothalamus 3. Thyroid hormones and their metabolic effects 4. Adrenal cortex hormones and their metabolic effects 5. Pancreatic hormones and their physiological effects 6. Parathyroid hormone and mechanisms controlling extracellular calcium and phosphate 7. Sex hormones and their roles in the body 		
Course Description	<p>The main objectives of this course are to understand the physiology of hormones and their mechanisms of action, hormones secreted by the pituitary, thyroid, adrenal cortex, pancreas, male and female gonads, and hormones affecting calcium and phosphate metabolism.</p>		
Essential Content	<ol style="list-style-type: none"> 1. Mechanisms of hormone action 2. Pituitary gland and its physiological relationship with the hypothalamus 3. Physiological functions of growth hormone and its regulation 4. Posterior pituitary hormones and their physiological roles 5. Synthesis and secretion of thyroid hormones 6. Physiological functions of thyroid hormones and their regulation 7. Physiological functions of adrenal cortex hormones 8. Insulin, its metabolic effects, and regulation 9. Glucagon, its physiological functions, and regulation 10. Calcium and phosphate metabolism and their physiological roles 11. Bone formation and resorption mechanisms 12. Mechanisms of action and roles of parathyroid hormone and vitamin D 13. Physiological anatomy of male reproductive organs 14. Testosterone, its regulation, and physiological functions 15. Physiological anatomy of female reproductive organs 16. Physiological changes in the menstrual cycle 17. Physiological functions of estrogen and progesterone 		

Course Code:	119		
Course Title	Renal Physiology		
Course Level	Basic Medical Sciences		
Prerequisites	<i>Cellular Physiology</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	12	4	16
General Objectives	<p>In this course, students are expected to learn the concepts, principles, and physiological mechanisms related to kidney function in each of the following areas and be able to identify them in natural and altered physiological processes:</p> <ol style="list-style-type: none"> 1. Structure of the kidneys, nephrons, and urinary system 2. Renal processes 3. Regulation of glomerular filtration and factors affecting it 4. Reabsorption and secretion of substances in different parts of the nephron 5. Neural and hormonal control of body fluid volume and osmolality 6. Mechanisms regulating body pH 7. Concept of GFR autoregulation and its mechanisms 8. Components of the juxtaglomerular apparatus and its role in GFR autoregulation 9. Neural and hormonal regulation of GFR 10. Reabsorption and secretion of substances in the proximal tubule 11. Maximum transport and renal threshold for glucose excretion 12. Reabsorption and secretion of substances in the loop of Henle, distal tubule, and collecting ducts 13. Mechanism of urine concentration 14. Factors involved in creating and maintaining high medullary osmolality 15. Role of the sympathetic system in maintaining body fluid volume 16. Mechanism of action of angiotensin II, aldosterone, and ANP in regulating body fluid volume 17. Role of osmoreceptors in regulating extracellular fluid osmolality 18. Mechanisms regulating body fluid pH and the roles of the respiratory and renal system 		

Course Description	The main objectives of this course are to understand the nephron and its components, glomerular filtration and its regulation, reabsorption, and secretion of substances in different parts of the nephron, regulation of blood osmolality, and renal control of acid-base balance in the body.
Essential Content	<ol style="list-style-type: none"> 1. Body fluids and their compartments 2. Osmosis, osmotic pressure, and body fluid osmolality 3. Effects of hypo- and hypernatremia on body fluid volume regulation 4. Edema, its causes, and contributing factors 5. Physiological description of the kidneys and nephrons 6. Urination reflex and its control 7. Glomerular filtration and factors affecting it 8. Reabsorption of substances in different parts of the nephron: proximal tubule, loop of Henle, distal tubule, and collecting ducts 9. Renal clearance in estimating glomerular filtration and renal blood flow 10. Renal mechanisms in excreting dilute and concentrated urine 11. Osmolality control and regulation of extracellular fluid sodium concentration 12. Antidiuretic hormone, its role, and factors affecting its secretion 13. Regulation of extracellular potassium concentration 14. Control of calcium concentration and its renal absorption and secretion 15. Definition of acids and bases and the body's defense mechanisms against changes 16. Respiratory control of acid-base disorders 17. Renal control of acid-base disorders

Medical Biochemistry Courses:

1. **Molecular-Cellular Biochemistry**
2. **Discipline Biochemistry**
3. **Hormonal Biochemistry**
4. **Renal Biochemistry**

Course Code:	120
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Course Title	Molecular-Cellular Biochemistry		
Course Level	Basic Medical Sciences		
Prerequisites	<i>None</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	32	15	47
General Objectives	By the end of this course, students should be familiar with the clinical importance, structure, classification, properties, and functions of biomolecules. These biomolecules include water and buffers, amino acids, carbohydrates, lipids, proteins, enzymes, vitamins, and nucleotides. Additionally, students should understand the process of gene replication using nucleic acids.		
Course Description	In this course, students will become acquainted with vital molecules to understand their metabolism in discipline biochemistry. This set of structural and functional information is presented in a way that can play a role in assessing health and disease.		
Essential Content	<ol style="list-style-type: none"> 1. Water and Buffers: Structure of water, hydrogen bonds, Henderson-Hasselbalch equation, acids and bases, definition of buffers, important body buffers, definition of acidosis and alkalosis, and their clinical importance. 2. Amino Acids and Proteins: Structure of amino acids, physicochemical properties, classification of amino acids, essential and non-essential amino acids, titration of amino acids, primary, secondary, tertiary, and quaternary structures of proteins, protein folding and denaturation, structure and function of myoglobin, hemoglobin, collagen, and their clinical importance. 3. Carbohydrates: Definition, structure of carbohydrates, physicochemical properties, monosaccharide derivatives, disaccharides, homopolysaccharides, heteropolysaccharides, glycoproteins, and their clinical importance. 4. Lipids and Lipoproteins: Structure, types, and physicochemical properties of fatty acids, types of lipids (triacylglycerols, esterified and free cholesterol, phospholipids, sphingolipids), liposomes, micelles, emulsions, specific proteins (apolipoproteins), types of lipoproteins, and their clinical importance. 		

	<p>5. Enzymes: Definition, classification, structure, nomenclature, active site, mechanism of enzyme action, determination of enzyme activity, factors affecting enzyme activity, Michaelis-Menten equation, types of enzyme inhibitors, isoenzymes, types of ordered and random enzyme reactions, regulation of enzyme activity, and their clinical importance.</p> <p>6. Vitamins: Definition, classification, structure of vitamins, coenzyme roles, water-soluble vitamins, fat-soluble vitamins, disorders resulting from vitamin deficiencies, and their clinical importance.</p> <p>7. Nucleic Acids: Components of nucleic acids (DNA, RNA), nucleosides, nucleotides, structure of DNA and its types, structure of RNA and its types.</p> <p>8. Replication: Process of replication in prokaryotes and eukaryotes, repair mechanisms, and their clinical importance.</p>		
Course Code:	121		
Course Title	Discipline Biochemistry		
Course Level	Basic Medical Sciences		
Prerequisites	<i>Molecular-Cellular Biochemistry</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	22	15	37
General Objectives	<p>By the end of this course, students should be familiar with the importance of oxidative phosphorylation, metabolic pathways of carbohydrates, lipids, amino acids, non-protein nitrogenous compounds, and clinical blood enzymes. Additionally, students should understand the quantitative and qualitative changes in molecules and metabolites in the clinical manifestations of various diseases related to each metabolic pathway and the clinical importance of measuring blood enzymes and other body fluids, including blood. Students should also understand the importance of metabolic integration of the three macronutrients under physiological conditions.</p>		
Course Description	<p>In this course, students will learn about the importance of oxidative phosphorylation, the metabolic pathways of carbohydrates, lipids, amino acids, and non-protein nitrogenous compounds under physiological conditions, and the role of these pathways in relation to diseases.</p>		

Essential Content	<ol style="list-style-type: none"> 1. Oxidative Phosphorylation: Thermodynamic laws, free energy changes, redox potential, electron transport chain, chemiosmotic theory, electron transport chain inhibitors. 2. Carbohydrate Metabolism: Digestion and absorption, glycolysis pathway, pyruvate oxidation, Krebs cycle, gluconeogenesis, glycogenesis, glycogenolysis, fructose metabolism, galactose metabolism. 3. Amino Acid Metabolism: Digestion and absorption, general reactions of amino acid catabolism, urea cycle, specific reactions of amino acid catabolism (aromatic, branched-chain, and sulfur-containing amino acids), biosynthesis of non-essential amino acids, biosynthesis of compounds derived from amino acids. 4. Clinical Enzymology: Causes of increased and decreased serum activity of intracellular enzymes, criteria for clinical application of enzymes, clinical importance of enzymes (alkaline phosphatase, acid phosphatase, 5'-nucleotidase, gamma-glutamyl transpeptidase, aminotransferases, lactate dehydrogenase, creatine phosphokinase, cholinesterase, aldolase, amylase, lipase). 5. Lipid and Lipoprotein Metabolism: Digestion and absorption of fats, chylomicron metabolism, VLDL metabolism, LDL metabolism, HDL metabolism, diseases of lipoprotein metabolic pathways, fatty acid biosynthesis pathway, beta-oxidation of fatty acids, cholesterol biosynthesis, ketone body biosynthesis. 6. Nucleotide Metabolism: De novo purine biosynthesis pathway, purine salvage pathway, regulation of purine biosynthesis pathway, purine catabolism, diseases of purine metabolic pathways, de novo pyrimidine biosynthesis pathway, pyrimidine salvage pathway, regulation of pyrimidine biosynthesis pathway, pyrimidine catabolism, diseases of pyrimidine metabolic pathways. 7. Non-Protein Nitrogenous Compound Metabolism: Heme biosynthesis, diseases related to heme biosynthesis, porphyria, heme catabolism, diseases of heme catabolism. 8. Metabolic Pathway Integration: Importance of key regulatory sites in metabolic pathways, importance of different tissues in metabolic pathways, metabolic pathways in the liver, metabolic pathways in adipose tissue, metabolic pathways in muscle tissue, metabolic pathways postprandially, metabolic pathways during fasting, metabolic pathways after prolonged starvation.
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Course Code:	122
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Course Title	Hormonal Biochemistry		
Course Level	Basic Medical Sciences		
Prerequisites	1. Molecular-Cellular Biochemistry 2. Discipline Biochemistry		
Course Type	Theoretical	Practical	Total
Total Hours:	12	-	12
General Objectives	By the end of this course, students should be familiar with the importance of hypothalamic hormones, posterior and anterior pituitary hormones, pancreatic hormones, thyroid hormones, adrenal cortex and medulla hormones, calcium-regulating hormones, and sex hormones. Students should understand the significance of the endocrine system's integration as a coordinating tool for maintaining homeostasis and its role in controlling overall body exchanges and needs.		
Course Description	In this course, students will learn about the importance and role of each of the hypothalamic and posterior and anterior pituitary hormones, pancreatic hormones, thyroid hormones, adrenal cortex and medulla hormones, calcium-regulating hormones, and sex hormones in related diseases.		
Essential Content	<ol style="list-style-type: none"> 1. Introduction to Hormones (General): Types of hormone classification, chemical structure of hormones. 2. Hypothalamic and Pituitary Hormones: Chemical structure of hormones secreted by the anterior pituitary, role of anterior pituitary hormones in the metabolism of proteins, fats, and carbohydrates, chemical structure of posterior pituitary hormones, role of posterior pituitary hormones, diseases related to anterior pituitary hormones, synthesis of growth hormone. 3. Pancreatic Hormones: Endocrine hormones of the pancreatic islets with emphasis on insulin and glucagon, chemical structure of insulin, role of insulin in the metabolism of proteins, fats, and carbohydrates, function of somatostatin. 4. Thyroid Hormones: Stages of thyroid hormone production and secretion, structure of thyroid hormones, mechanism of thyroid hormone synthesis, importance of thyroxine to triiodothyronine conversion, actions of thyroid hormone with emphasis on cellular metabolic activity, and on carbohydrate, fat, and protein metabolism, factors regulating thyroid hormone secretion, feedback effects of thyroid hormone on the pituitary and hypothalamus, antithyroid 		

	<p>substances and their mechanisms of action, hyperthyroidism and hypothyroidism.</p> <p>5. Adrenal Cortex and Medulla Hormones: Types of mineralocorticoids and glucocorticoids of the adrenal cortex with emphasis on aldosterone and cortisol, chemical structure of adrenal cortex hormones, disorders related to adrenal cortex hormones with emphasis on adrenal insufficiency (Addison's disease) and adrenal hyperfunction (Cushing's syndrome).</p> <p>6. Adrenal Medulla Hormones: Chemical structure of adrenal medulla hormones, mechanism of action of adrenal medulla hormones, factors regulating adrenal medulla hormone secretion, function of adrenal medulla hormones, effect of cortisol on the metabolism of proteins, fats, and carbohydrates, regulation of adrenal medulla hormone secretion.</p> <p>7. Calcium-Regulating Hormones: Importance of calcium in the body and its levels, general calcium homeostasis, chemical structure of calcium-regulating hormones (parathyroid hormone, calcitonin, and 1,25-dihydroxycholecalciferol), disorders related to calcium-regulating hormones (parathyroid hormone, calcitonin, and 1,25-dihydroxycholecalciferol).</p> <p>8. Sex Hormones: Androgens as hormones secreted by the testes, chemical structure of androgens, biosynthesis and secretion of androgens, regulation of androgen synthesis and secretion, estrogens as hormones secreted by the ovaries, chemical structure of estrogens, biosynthesis and secretion of estrogens, function of estrogens, progestins as hormones secreted by the ovaries, chemical structure of progestins, biosynthesis and secretion of progestins, diseases related to sex hormones.</p>
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Course Code:	123
Course Title	Renal Biochemistry

Course Level	Basic Medical Sciences		
Prerequisites	1. Molecular-Cellular Biochemistry 2. Discipline Biochemistry		
Course Type	Theoretical	Practical	Total
Total Hours:	4	-	4
General Objectives	By the end of this course, students should be familiar with the clinical importance of maintaining water balance, blood pH balance, and the function of elements. These elements include major and trace elements. Additionally, students should understand the disorders resulting from water and sodium imbalance and be able to calculate the water or sodium deficit in patients. They should also be familiar with the types of acid-base disorders and how to diagnose them using laboratory reports and ABG data. Students should know how to calculate osmolality and anion gap and use them in determining acid-base disorders. They will learn the importance and activity of approximately 15 elements and the disorders and diseases resulting from their deficiency or toxicity.		
Course Description	In this course, students will learn about water and sodium and acid-base disorders in patients and how to diagnose them. They will also learn how to interpret ABG results. The importance of electrolytes and elements such as sodium and potassium (a total of 15 elements) and the disorders resulting from their deficiency in the body will be covered.		
Essential Content	<ol style="list-style-type: none"> 1. Water Metabolism: Introduction and classification of major and trace elements, definition of electrolytes, role of elements in determining plasma water and total body water, calculation of blood osmolality, regulation and maintenance of water balance in the body and plasma, water balance disorders, sodium balance disorders. 2. Blood pH Regulation: Types of buffers, sites of buffer activity, role of different buffers in regulating blood pH, types of acid-base disorders, discussion of compensation. 3. ABGs: Arterial blood gases (ABG), diagnosis of acid-base disorders in patients using ABG results with various examples, diagnosis of primary disorder and determination of the presence or absence of compensation and whether it is adequate, calculation of anion gap and delta gap, use of anion gap and delta gap in diagnosing the cause and type of acid-base disorder, calculation of delta ratio, Davenport diagrams and their benefits in interpreting ABG results. 4. Other Elements and Minerals: Review of the periodic table and major and trace elements, noting that deficiency or excess of each element can lead to disease, interactions between elements in the body, 		

	potassium and factors involved in maintaining its balance, addressing approximately 11 other elements briefly with a discussion of diseases resulting from their deficiency and toxicity.
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Course Code:	124		
Course Title	Medical Genetics		
Course Level	basic Medical Sciences/Clinical Introduction (depending on the university's approved curriculum)		
Prerequisites	<i>Molecular-Cellular Biochemistry</i> <i>Cellular Physiology</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	34	-	34
General Objectives	<p>By the end of this course, students are expected to gain a proper understanding of the following fundamental topics in medical genetics and be able to identify them in natural inheritance processes, common diseases, and congenital anomalies using the main current techniques in medical and molecular genetics:</p> <ol style="list-style-type: none"> 1. Strategic position of medical genetics in the health system 2. Types of inheritance, their similarities and differences, and the ability to distinguish between them 3. Major and common human diseases in each type of inheritance discussed in medical genetics 4. Types of congenital anomalies, teratogens, and twins, and their relationship with medical genetics 5. Application of the most important methods in prenatal and postnatal genetic diagnosis 6. Epigenetics and human diseases 7. Cytogenetics and molecular genetics in humans and their powerful methods in diagnosing human diseases 8. Cellular and molecular bases of genetic diseases in humans 9. Principles of genetic counseling and its strategic role in risk assessment and determining the inheritance pattern of diseases 10. Powerful genetic engineering methods in medicine 		

	11. Powerful gene therapy methods and their main techniques 12. Powerful cancer genetics methods and their main diagnostic and therapeutic techniques 13. Position of pharmacogenetics and the necessity of personalized medicine 14. Important genetic approaches and methods in the prevention, identification, and treatment of diseases
Course Description	this course introduces students to cellular and molecular genetics, various inheritance patterns, the role and application of genetic counseling in disease identification, determining inheritance patterns and risk assessment, and powerful cellular and especially molecular methods in identifying, diagnosing, and preventing major genetic diseases. Topics include gene therapy, cancer genetics, epigenetics, and pharmacogenetics.
Essential Content	1. History, Position, Importance, Applications, and Prospects of Medical Genetics 2. Clinical Cytogenetics: Necessary introductions, methods of chromosomal abnormalities 3. Molecular Genetics and Gene Mutations: Importance and applications 4. Gene Function/Expression and Regulation 5. Principles of Genetic Counseling: Analysis and application of pedigrees in monogenic diseases 6. Monogenic Inheritance Patterns in Human Diseases (Mendelian Inheritance) 7. Monogenic Inheritance Patterns in Human Diseases, Holandric Inheritance 8. Multifactorial Inheritance, Cytoplasmic Inheritance, and Immune Inheritance 9. Congenital Anomalies, Teratogens, and Twins 10. Genetic Engineering and Its Applications in Medicine 11. Latest Molecular Diagnostic Methods Pre- and Postnatal 12. Epigenetics and Human Diseases 13. Gene Therapy in Humans: Main current methods with important examples 14. Application of Viral and Non-Viral Vectors in Gene Therapy 15. Cancer Genetics: Current gene therapy methods in cancer with important examples 16. Pharmacogenetics and Personalized Medicine

Essential explanations	<ol style="list-style-type: none"> 1. A clinical genetics internship can be designed and conducted optionally in centers that meet the necessary conditions approved by the genetics and general medical boards. In this case, genetic counseling can be conducted as a workshop. 2. The genetics course is removed from the comprehensive basic sciences exam and included in the comprehensive pre-internship exam.
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Course Code:	125		
Course Title	General Principles of Nutrition		
Course Level	basic Medical Sciences/Clinical Introduction (depending on the university's approved curriculum)		
Prerequisites	<i>Molecular-Cellular Biochemistry</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	34	-	34
General Objectives	<p>By the end of this course, students should understand the fundamental concepts of nutrition:</p> <ol style="list-style-type: none"> 1. The general impact of nutrition on health 2. Food groups and nutrients (macronutrients and micronutrients including vitamins and minerals), their dietary sources, and signs of deficiency and toxicity 3. General nutrition for different population groups 4. Formulating dietary recommendations for various individuals 		
Course Description	<p>In this course, students will become familiar with the basics of nutrition, the nutritional characteristics of energy and food groups, and the general principles of nutrition for pregnant and lactating mothers, children, and the elderly. This knowledge will enable them to conduct nutritional assessments.</p>		

Essential Content	<ol style="list-style-type: none"> 1. <input type="checkbox"/> General Nutrition and Health: Nutritional recommendations 2. <input type="checkbox"/> Food Groups 3. <input type="checkbox"/> Carbohydrates: Sweetness of sugars, dietary fibers, nutritional importance of different types of carbohydrates, carbohydrate requirements 4. <input type="checkbox"/> Fats: Nutritional importance of different types of fats, fat requirements 5. <input type="checkbox"/> Proteins: Complete and incomplete proteins, protein quality, nitrogen balance, protein requirements 6. <input type="checkbox"/> Energy 7. <input type="checkbox"/> Fat-Soluble Vitamins: Dietary sources, deficiency, and toxicity 8. <input type="checkbox"/> Water-Soluble Vitamins: Dietary sources, deficiency 9. <input type="checkbox"/> Minerals and Water: Dietary sources, deficiency 10. <input type="checkbox"/> Obesity and General Malnutrition: Diseases resulting from malnutrition 11. <input type="checkbox"/> Nutrition for Pregnant and Lactating Mothers 12. <input type="checkbox"/> Nutrition for Children 13. <input type="checkbox"/> Nutrition for the Elderly 14. <input type="checkbox"/> Nutritional Status Assessment 15. <input type="checkbox"/> Principles of Diet Planning
Essential explanations	<ol style="list-style-type: none"> 1. This course can be offered during the basic sciences or clinical introduction period. 2. Questions from this course will be removed from the comprehensive basic sciences exam and included in the pre-internship exam.

Course Code:	126		
Course Title	Medical Physics		
Course Level	basic Medical Sciences/Clinical Introduction (depending on the university's approved curriculum)		
Prerequisites	<i>Molecular-Cellular Biochemistry</i>		
Course Type	Theoretical	Practical	Total

Total Hours:	30	8	38
General Objectives	<ol style="list-style-type: none"> 1. Familiarize medical students with the physical principles and foundations of imaging methods and the measurement of anatomical and physiological changes within the human body. 2. Understand how to select common diagnostic imaging methods for patients. 3. Learn how to analyze and interpret changes resulting from diseases using diagnostic devices. 		
Course Description	<p>In this course, students will become familiar with the basics of nutrition, the nutritional characteristics of energy and food groups, and the general principles of nutrition for pregnant and lactating mothers, children, and the elderly. This knowledge will enable them to conduct nutritional assessments.</p>		
Essential Content	<ol style="list-style-type: none"> 1. Optical Physics: <ul style="list-style-type: none"> ○ Importance and properties of visible light, infrared radiation, ultraviolet radiation, and their medical applications. ○ Physical study of the eye, diagnosis, and correction of spherical abnormalities. ○ Basics of astigmatism physics and correction methods. ○ Basics of retinal characteristics, visual field, acuity, color vision, ophthalmoscopy. ○ Basics of binocular vision, hyperopia, depth perception. ○ Basics of common lens equipment used in medicine. ○ Practical program. 2. Ultrasound Waves and Their Medical Applications: <ul style="list-style-type: none"> ○ Production and properties of ultrasound waves. ○ Chemical and biological properties of ultrasound waves. ○ Medical applications of ultrasound waves. ○ Basics of common ultrasound equipment used in medicine. ○ Practical program. 3. Applications of Frequency Currents in Medicine: <ul style="list-style-type: none"> ○ Production and properties of high-frequency currents. ○ Physiological properties and medical uses of high-frequency currents (electrosurgery, heat therapy). ○ Adverse effects of electricity on the body and protection methods. ○ Basics of MRI imaging (mechanism of image formation). ○ Various contrasts in MRI. ○ Diagnostic applications of MRI. ○ Basics of common high-frequency current equipment used in medicine. 4. Nuclear Medicine: 		

	<ul style="list-style-type: none"> ○ Structure of the atom and nuclear energy. ○ Radioactivity and its properties (ionizing radiation). ○ Natural radioactivity. ○ Neutrons, artificial radioactivity. ○ Detection and measurement of radioactivity. ○ Labeled molecules and their medical applications. ○ Applications of radioisotopes in diagnosis and treatment. ○ Practical program. <p>5. Physical Principles of Radiology and Radiotherapy:</p> <ul style="list-style-type: none"> ○ Nature and properties of X-rays in diagnosis and treatment. ○ X-ray generators. ○ Absorption and measurement of X-rays. ○ Radiobiology. ○ Protection and principles of X-ray and gamma dosimetry. ○ Practical program. <p>6. Applications of Robotics in Medicine</p>
Essential explanations	<p>3. This course can be offered during the basic sciences or clinical introduction period.</p> <p>4. Questions from this course will be removed from the comprehensive basic sciences exam and included in the pre-internship exam.</p>

Microbiology and Parasitology Courses:

1. Medical Bacteriology
2. Medical Parasitology
3. Medical Mycology
4. Medical Virology

Course Code:	127
Course Title	Medical Bacteriology

Course Level	Basic Medical Sciences		
Prerequisites	<i>None</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	41	20	6
General Objectives	<p>Cognitive Objectives: By the end of this course, students are expected to have achieved the following skills:</p> <ol style="list-style-type: none"> 1. Understanding the role of microbes in nature, their nomenclature and classification, and the differences between prokaryotic and eukaryotic cells. 2. Familiarity with the anatomical, biochemical, metabolic, growth physiology, and genetic exchange characteristics of microorganisms. 3. Understanding the mechanisms of action and effects of various antimicrobial agents (antibiotics, etc.), chemical agents, and physical factors on microorganisms, as well as the mechanisms of drug resistance in pathogenic bacteria. 4. Comprehending the concepts of the human body's normal microflora, nosocomial infections, mechanisms of disease causation by microbes, infection transmission, and pathogen persistence in the body. 5. Familiarity with the classification of families and genera of bacteria that cause diseases in humans. 6. Understanding the major pathogenicity factors and mechanisms of infection by bacteria. 7. Knowing how to select samples, the timing of sampling, and how to send samples to the laboratory for the diagnosis of pathogenic bacteria. 8. Recognizing contamination in test results. <p>Skill Objectives: By the end of this course, students are expected to be able to:</p> <ol style="list-style-type: none"> 1. Prepare smears from samples taken from the pharynx, wounds, urine, and mucous membranes and stain them using the Gram method. 2. Culture clinical samples taken from wounds, urine, feces, and mucous membranes. 3. Perform antibiotic susceptibility testing (antibiogram) with appropriate antibiotics and interpret the results. 		

Course Description	<p>in this course, students will become familiar with the general concepts of bacteria and their classification, especially important human pathogenic bacteria. Based on this information, they will learn various aspects of bacterial infectious diseases. Students will gain knowledge about the beneficial and harmful effects of microorganisms on human life, become familiar with various pathogenic bacteria, their classification, structure, growth physiology, metabolism, biochemical characteristics, genetics, antigenic and molecular properties, disease causation mechanisms, transmission methods, and how to control, prevent, and eradicate bacterial diseases.</p>
Essential Content	<p>The essential content is detailed in the theoretical bacteriology topics and the essential practical activities in the bacteriology laboratory.</p> <p>Theoretical Topics in Bacteriology:</p> <ol style="list-style-type: none"> 1. Classification of microorganisms, anatomical and chemical structure of bacteria 2. Physiology of growth and metabolism of microorganisms 3. Genetics of microorganisms 4. Antibiotics (mechanism of action and classification) 5. Mechanisms of antibiotic resistance 6. Effects of chemical and physical factors on microorganisms 7. Microbiome, normal flora, probiotics, and host-parasite relationship 8. Mechanisms of disease causation by bacteria, types of infections (nosocomial and community-acquired) 9. Gram-positive cocci 10. Gram-negative cocci 11. Corynebacteria, Listeria, Lactobacillus, Actinomyces, and Nocardia 12. Enterobacteriaceae (Escherichia, Proteus, Enterobacter, Klebsiella, and Serratia) 13. Enterobacteriaceae (Salmonella, Shigella, and Yersinia) 14. Mycobacterium tuberculosis, Mycobacterium leprae, and other mycobacteria 15. Pseudomonas, Acinetobacter, and other non-fermenters 16. Vibrionaceae, Campylobacter, and Helicobacter 17. Bacillus (Bacillus anthracis) and anaerobic Gram-negative bacilli (Bacteroides) 18. Clostridium tetani, Clostridium botulinum, Clostridium perfringens, and Clostridium difficile 19. Brucella, Haemophilus, Chlamydia, and Mycoplasma 20. Treponema, Borrelia, Leptospira, Bordetella, and Legionella

	Essential Practical Activities in the Bacteriology Laboratory: <ol style="list-style-type: none"> 1. Laboratory safety guidelines 2. Clinical sampling methods 3. Preparation and staining of smears using Gram, Giemsa, and Wright stains 4. Culturing selected Gram-positive cocci and Gram-negative bacilli 5. Observing stained smears of common diseases 6. Laboratory diagnosis of common bacteria and interpretation of tests 7. Interpretation of antibiogram samples
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Course Code:	128		
Course Title	Medical Parasitology		
Course Level	Basic Medical Sciences		
Prerequisites	<i>None</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	28	12	40
General Objectives	<p>By the end of this course, students are expected to be familiar with the parasitic agents causing diseases. They should recognize important pathogenic parasites, distinguishing between protozoa and helminths. Students should understand the morphology, life cycles, transmission routes, reservoirs, hosts, and the role of arthropods as biological and mechanical vectors in transmission, pathogenicity, and specific clinical symptoms of each parasite. They should be aware of the geographical distribution, incidence, and prevalence of parasitic infections, especially in different regions of Iran, and know the prevention and control methods for each parasitic disease.</p>		

Course Description	In this course, students will learn about the etiological agents, life cycles, transmission routes, pathogenesis, sampling methods, test requests, laboratory diagnosis, prevention, and control methods of parasitic diseases (with clinical case examples).
Essential Content	<ol style="list-style-type: none"> 1. General Parasitology 2. General Helminthology 3. Liver Trematodes 4. Lung Trematodes 5. Intestinal Trematodes 6. Blood Trematodes 7. Intestinal Cestodes 8. Diseases Caused by Larval Cestodes 9. Nematodes 10. Blood-Tissue Nematodes 11. General Protozoology 12. Agents of Blood-Tissue Protozoal Diseases 13. Agents of Intestinal-Genital Protozoal Diseases 14. Common Parasites: Toxoplasma, Leishmania, Malaria, Opportunistic Protozoa, Hydatid Cyst 15. Interpretation of Serological Tests for Parasitic Diseases 16. Principles of Sampling for Parasites 17. General Arthropodology 18. Methods of Controlling Various Arthropods <p>Practical Topics in Parasitology:</p> <ol style="list-style-type: none"> 1. Observation of Prepared Slides of Common Parasites and Their Eggs Under the Microscope (Case Presentation) 2. Sampling Methods and Preparation of Parasite Smears and Their Microscopic Examination 3. Interpretation of Serological Tests for Parasitic Diseases (Case Presentation and Real Tests)

Course Code:	129
Course Title	Medical Mycology

Course Level	Basic Medical Sciences		
Prerequisites	<i>None</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	15	4	19
General Objectives	By the end of this course, students are expected to be able to identify important pathogenic fungi. They should recognize fungal agents causing diseases, be aware of the geographical distribution, incidence, and prevalence of each fungal infection, especially in different regions of Iran. Students should be able to diagnose diseases caused by significant fungi using clinical signs and know the prevention and control methods for each fungal disease.		
Course Description	In this course, students will learn about the etiological agents of fungal diseases, their transmission routes, pathogenesis, and prognosis. They will be trained in laboratory diagnosis, test requests, and treatment principles using effective and common drugs in the country. Additionally, they will become familiar with the prevention and control methods of these diseases.		
Essential Content	<ol style="list-style-type: none"> General Medical Mycology Agents of Superficial Fungal Diseases Agents of Cutaneous Fungal Diseases Agents of Subcutaneous Fungal Diseases Agents of Systemic Fungal Diseases, including fungal infections in immunocompromised patients Food Molds, Candida albicans, Aspergillus, Mucormycosis, Dermatophytes, and other common cases Morphological and Biological Characteristics of Fungal Agents Life Cycle of Fungal Agents, Biological, Environmental, and Other Individual Behaviors Influencing Their Development Main Reservoirs, Final and Intermediate Hosts of Each Parasite, and the Biological Role of Vectors in the Development and Evolution of Fungal Agents Epidemiological Characteristics, Geographical Distribution, Clinical and Pathological Symptoms of Fungal Diseases Various Laboratory Diagnostic Methods for Fungal Infections Principles of Treatment for Fungal Diseases and Their Sensitivity to Common Drugs Methods of Control and Prevention of Pathogenic Fungal Agents 		

	Practical Topics: <ol style="list-style-type: none"> 1. Observation of Prepared Slides of Common Fungi Under the Microscope with Clinical Case Presentations 2. Sampling, Preparation of Smears Using the KOH Method, Microscopic Examination, and Sample Diagnosis for Fungi
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Course Code:	130		
Course Title	Medical Virology		
Course Level	Basic Medical Sciences		
Prerequisites	<i>None</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	17	0	17
General Objectives	<ol style="list-style-type: none"> 1. Familiarize with the general principles of medical virology. 2. Understand the structure, characteristics, properties, and replication of pathogenic viruses concerning clinical phenomena (symptoms, pathology, incidence, and epidemiology) of human viral infections. 3. Learn the diagnostic methods and application of virology techniques in understanding clinical and epidemiological phenomena of viral infections. 		
Course Description	This course is designed to introduce the general principles of medical virology, understand the characteristics of pathogenic viruses, diagnostic methods, and the epidemiology of viral infections in Iran.		

Essential Content	<p>☐ General Virology:</p> <ol style="list-style-type: none"> 1. Definition and history 2. Structure and molecular biology of viruses 3. Properties of viruses 4. Virus replication 5. Relationships between viruses and host cells 6. Laboratory methods for diagnosing viral diseases 7. Bacteriophages <p>☐ Systematic Virology:</p> <ol style="list-style-type: none"> 1. Classification of viruses 2. Understanding the characteristics and pathogenic roles of DNA viruses in diseases 3. Understanding the characteristics and pathogenic roles of RNA viruses in diseases 4. Common pathogenic viruses in body systems 5. Role of viruses in cancer development 6. General mechanisms of drug effects on viruses
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Immunology Courses:

Medical Immunology

Clinical Immunology

Course Code:	131		
Course Title	Medical Immunology		
Course Level	Basic Medical Sciences/Clinical Introduction		
Prerequisites	<i>None</i>		
Course Type	Theoretical	Practical	Total

Total Hours:	30	8	38
General Objectives	<p>Cognitive Domain: By the end of this course, students should be familiar with the fundamentals of immunology, the organs, molecules, and cells involved in the immune system, and understand the different mechanisms of the immune system in response to foreign agents. They should also learn how the immune response functions in various diseases, including infectious diseases, cancer, autoimmune diseases, and transplantation, and understand the immune mechanisms in identifying and diagnosing different diseases.</p> <p>Skill Domain: Students should become familiar with the diagnostic methods in immunology and serology and their application in diagnosing various diseases. They should learn how to analyze immunological and serological tests (in terms of positivity and negativity) and perform various immunological and serological tests, including agglutination, precipitation, hemolysis, etc.</p>		
Course Description	<p>The Medical Immunology course aims to familiarize medical students with the basic principles of immunology, the cells and molecules involved in the immune system, the role of the immune system in various diseases, and the functioning of different immune system components (innate and adaptive immunity). Students will learn to identify effective immune cells, including innate and specific immune cells, understand B and T lymphocytes and their response to antigens, learn about tolerance and its role in autoimmune diseases, understand the immune response to pathogens, the immune system's role in transplantation, the immune response in cancer, hypersensitivity and allergy reactions, and the use of molecules, antibodies, and immune cells in diagnosing and treating various diseases.</p> <p>The practical part of the immunology course is designed to familiarize medical students with common serological diagnostic methods for diagnosing infectious diseases (parasitic, bacterial, viral, and fungal), blood groups, autoimmune diseases, cancer, etc. In this course, students will perform simple serological laboratory methods and observe the interpretation of test results. They will also become familiar with more specialized tests and their application in diagnosing diseases through descriptive explanations.</p>		
Essential Content	<p><input type="checkbox"/> The essential content is detailed in the table of theoretical topics in medical immunology.</p>		

Essential explanations	Questions from this course will be removed from the comprehensive basic sciences exam and included in the pre-internship exam.
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Theoretical Topics in Medical Immunology:
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| <ol style="list-style-type: none"> 1. General Overview of the Immune System: History, general concepts of innate and adaptive immunity, general concepts of humoral and cellular immunity, types of immunization and immunity. 2. Cells and Tissues of the Immune System, Mucosal and Skin Immunology: <ul style="list-style-type: none"> ○ Cells: Overview of lymphocytes, monocytes, granulocytes. ○ Tissues: Central and peripheral lymphoid organs. ○ Introduction to the anatomical and cellular structure of mucosal systems, familiarity with organized and scattered mucosal lymphoid organs, the role of IgA, and maternal milk immunity. |
| <ol style="list-style-type: none"> 3. Introduction to Antigens and Their Characteristics: Immunogens, haptens, tolerogens, allergens, superantigens, mitogens, thymus-dependent and thymus-independent antigens. 4. Introduction to Antibodies and Their Types: Structure of antibodies, types of immunoglobulins, functions of immunoglobulins. 5. Innate Immunity and Inflammation: Recognition methods in innate immunity, cellular and soluble receptors of innate immunity, innate immune cells, molecules of innate immunity, acute and chronic inflammation processes. 6. Complement System and Its Role in Body Defense: Pathways of complement activation, complement functions, inhibitory receptors. 7. Introduction to MHC System and Immunogenetics: Basics of MHC genetics and digestion, structure of MHC molecules, maintenance methods, their role in the immune system. 8. Phagocytosis and Antigen Presentation to T Cells: Phagocytosis, respiratory burst, antigen processing and presentation in endocytic and cytosolic pathways. 9. Humoral Immunity Mechanisms: Overview of B lymphocyte development, B lymphocyte activation, role of T lymphocytes in humoral immunity, antigen elimination process in humoral response. 10. Cellular Immunity Mechanisms: Overview of T lymphocyte development, T lymphocyte activation, different patterns of cellular immune response, antigen elimination process in cellular response. 11. Tolerance and Autoimmunity Mechanisms: Types of tolerance (central and peripheral), central tolerance in T and B cells, peripheral tolerance in T and B cells, mechanisms of tolerance breakdown and autoimmunity development. 12. Cytokines |

Practical Topics in Medical Immunology:
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| <ol style="list-style-type: none"> 1. Introduction to Serology Methods and Antigen-Antibody Reactions 2. Performing CRP (C-Reactive Protein) Test: Understanding its applications and interpretation. 3. Performing Latex-RA (Latex Rheumatoid Arthritis) Test: Understanding its applications, interpretation, and false positives/negatives. 4. Performing Widal and Wright Tests: Understanding their applications, interpretation, and false positives/negatives. 5. Performing Direct and Indirect ABO Blood Grouping Tests: Understanding their applications, performing du-Rh test, and its application in blood transfusion. 6. Demonstration of Direct and Indirect Coombs Tests: Complete understanding of their applications. 7. Performing Crossmatch Tests: Understanding their interpretation and application, and considering necessary factors in blood transfusion. 8. Anti-CCP Test for Rheumatoid Arthritis 9. RPR Test for Syphilis 10. Diagnostic Tests for Various Diseases Based on Active Agglutination, Passive Agglutination, Latex Agglutination, Flocculation, and ELISA: Theoretical explanation and practical performance. |
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Course Code:	132		
Course Title	Clinical Immunology		
Course Level	Clinical Introduction		
Prerequisites	<i>Medical Immunology</i>		
Course Type	Theoretical	Practical	Total
Total Hours:	17	0	17
General Objectives	<ol style="list-style-type: none"> 1. Familiarize with the fundamentals of applied immunology. 2. Understand the importance and applications of immunology in treating various diseases. 3. Learn about immune molecules and cells currently used in diagnosing and treating different diseases. 		

Course Description	The Clinical Immunology course aims to familiarize medical students with the importance and applications of immunology, the immune system's role in various diseases, the immunopathogenesis of autoimmune diseases, infectious diseases, organ transplant rejection, cancer, and the application of immunological agents in their treatment. It also covers the immunopathogenesis of hypersensitivity and allergy diseases, and the use of immune molecules, antibodies, and cells in diagnosing and treating various diseases.
Essential Content	<ol style="list-style-type: none"> 1. Vaccination and Immunization 2. Allergy and Immediate Hypersensitivity: Types II, III, IV hypersensitivity 3. Immunohematology 4. Autoimmune Diseases 5. Cancer and Common Immunotherapies 6. Immunodeficiency Diseases 7. Immune Responses Against Bacteria, Viruses, Parasites, and Fungi
Essential explanations	<p>Non-Core Topics in Immunology:</p> <ol style="list-style-type: none"> 1. Nutritional and Exercise Immunology 2. Psychoneuroimmunology 3. Geriatric Immunology 4. Immunotherapy and Its Types 5. Transplant Immunology 6. Pregnancy Immunology <p>These topics can be offered as an elective "Advanced Applied Immunology" course for 4 hours (half a unit) in the general medical doctorate program.</p>

Social Medicine and Health Sciences Courses:

- Principles of Health Services
- Principles of Epidemiology
- Medical Statistics
- Research Methods and Evidence-Based Medicine

- Epidemiology of Common Non-Communicable Diseases in Iran
- Principles of Demography and Family Health
- Epidemiology of Common Communicable Diseases in Iran

Course Code:	133		
Course Title	Principles of Health Services		
Course Level	Basic Medical Sciences		
Prerequisites	None		
Course Type	Theoretical	Practical	Total
Total Hours:	26	0	26
General Objectives	<p>In this course, students should become familiar with the general concepts and history of health in Iran and the world and with various health delivery systems globally. They should understand the concepts of health and disease, recognize health threats and health transitions in the world and Iran, and become acquainted with the concept of health for all and levels of prevention. Students should be able to apply primary health care, manage and assess risk based on prevention levels, and understand the role of national and international organizations in health development. They should also become familiar with basic health education and health promotion concepts, be able to communicate health information and educate clients about health services. Additionally, students should understand sustainable development goals, recognize social determinants of health, and apply them in patient management. They should be aware of the importance of environmental and occupational health and their roles in population health promotion. Students should also understand food hygiene and the role of nutrition in health and be able to apply these principles in related fields. They should recognize the importance of oral and dental health, become familiar with health technology assessment, and understand immunization programs and how to guide their implementation.</p>		

Course Description	In this course, students will become acquainted with the basic and foundational principles of health to be able to work as physicians in maintaining and promoting individual and population health.
Essential Content	<ol style="list-style-type: none"> 1. General Concepts and History of Public Health in Iran and the World: Evolution including Development Millennium Goals (MDGs), Health for All (HFA), primary healthcare (PHC), universal health coverage (UHC). 2. Concepts of Health and Disease and Levels of Prevention 3. Primary Health Care System – Part 2 (PHC) 4. Primary Health Care System – Part 1 (PHC) 5. Health Status in the World and Iran Based on Indicators 6. Local, National, and International Health Organizations 7. Environmental Factors Related to Health: Air, water, solid waste, and food. 8. Social Factors Related to Health 9. Occupational Health and Safety 10. Principles and General Concepts of Immunization 11. Principles of Health Services Management 12. Health Education and Promotion 13. Rights of Health Service Recipients
Essential explanations	Social determinants of health and sustainable development goals are based on the annual report of the World Health Organization.

Course Code:	134		
Course Title	Principles of Epidemiology		
Course Level	Basic Medical Sciences		
Prerequisites	None		
Course Type	Theoretical	Practical	Total

Total Hours:	34	0	34
General Objectives	<p>By the end of this course, students are expected to achieve the following objectives:</p> <ol style="list-style-type: none"> 1. Understand the definition, applications, history, and concepts of epidemiology. 2. Comprehend and apply the methods of disease transmission, epidemic identification, and control. 3. Understand the concepts of disease incidence, health and disease measures, and health surveillance systems. 4. Calculate and interpret disease measures. 5. Understand the natural history and prognosis of diseases. 6. Identify and apply the classification of various study types in medical research. 7. Understand and apply risk measurement methods. 8. Understand the difference between association and causation and the principles of Hill's criteria. 9. Identify the validity criteria of diagnostic tests. 10. Calculate the validity and reliability indices of tests and establish the relationship between them and the principles of disease screening. 		
Course Description	<p>In this course, students will become familiar with the basic and foundational principles of epidemiology to be able to work as physicians in recognizing the epidemiological profile of diseases and related indicators and measures in maintaining and promoting individual and population health.</p>		
Essential Content	<ol style="list-style-type: none"> 1. Introduction, History, and Applications of Epidemiology 2. Disease Transmission, Epidemics, and Their Control 3. Disease Occurrence: Surveillance and Incidence Measures 4. Disease Occurrence: Mortality Measures and Other Health Measures 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 Estimation 9. Principles of Interventional Studies 10. Evaluation of Diagnostic Tests 11. Principles and Applications of Screening 12. Statistical Association and Causation 		

Essential explanations	
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Course Code:	135		
Course Title	Medical Statistics		
Course Level	Basic Medical Sciences		
Prerequisites	Principles of Epidemiology		
Course Type	Theoretical	Practical	Total
Total Hours:	17	0	17
General Objectives	The aim of offering a statistics course for medical students is to understand the fundamentals of statistics, identify common terms and concepts, and comprehend considerations related to statistical inferences. Therefore, performing detailed calculations and mastering statistical techniques, except for those necessary to achieve the above goal, are not within the scope of this course.		
Course Description	In this course, students will become familiar with the basic and foundational principles of biostatistics to be able to conduct various studies and evaluate the studies conducted, finding solutions to maintain and promote individual and population health..		
Essential Content	<ol style="list-style-type: none"> 1. Descriptive Statistics: Measures of central tendency and dispersion. 2. Probability: 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 Intervals) 6. Hypothesis Testing and the Application of Statistical Software 7. Independent and Paired t-Tests and the Application of Statistical Software 		

	8. Chi-Square Test and Correlation and the Application of Statistical Software
Essential explanations	

Course Code:	136		
Course Title	Research Methods and Evidence-Based Medicine		
Course Level	Clinical Introduction/Internship		
Prerequisites	<input type="checkbox"/> Principles of Epidemiology <input type="checkbox"/> Medical Statistics		
Course Type	Theoretical	Practical	Total
Total Hours:	7	19 (workshop)	26
General Objectives	<input type="checkbox"/> Explain the framework of a research proposal. <input type="checkbox"/> Prepare a research proposal with all its stages. <input type="checkbox"/> Conduct electronic health resource searches. <input type="checkbox"/> Describe the general framework and methodology of writing a scientific article. <input type="checkbox"/> Explain the importance and role of evidence-based medicine. <input type="checkbox"/> Formulate clinical and other health-related questions into searchable and structured queries.		

	<input type="checkbox"/> Conduct evidence searches based on formulated questions. <input type="checkbox"/> Critically analyze and review several medical articles in terms of statistics and research methods. <input type="checkbox"/> Understand and apply the principles of research ethics.
Course Description	In this course, students will learn how to conduct research, search for articles, and apply evidence-based medicine methods, including critical appraisal of evidence.
Essential Content	<ol style="list-style-type: none"> 1. Selecting a Title and Formulating a Research Problem 2. Electronic Search of Medical Resources (Part 2) 3. Objectives, Questions, Hypotheses, and Types of Variables 4. Population, Sampling, and Sampling Methods 5. Qualitative Study Methods 6. Choosing the Type of Study 7. Data Collection and Presentation Methods 8. Ethics in Research 9. Research Management 10. Scientific Writing and Publishing Results (Optional) 11. Principles of Evidence-Based Medicine 12. Formulating a Searchable Question 13. Electronic Search of Medical Resources (Part 1) 14. Practical Principles of Article Critique and Their Application in Medicine
Essential explanations	

Course Code:	137
Course Title	Epidemiology of Common Communicable Diseases in Iran

Course Level	Clinical Introduction/Internship		
Prerequisites	Principles of Epidemiology Medical Statistics		
Course Type	Theoretical	Practical	Total
Total Hours:	17	0	17
General Objectives	By the end of this course, students are expected to explain the epidemiology of communicable diseases in Iran in terms of spatial and geographical distribution, individual characteristics, risk factors, and methods of prevention and control. They should be able to apply this knowledge clinically to determine the best prevention methods and estimate the prognosis.		
Course Description	n this course, students will become familiar with the epidemiology of common communicable diseases in the country to be able to work as physicians in maintaining and promoting individual and population health.		
Essential Content	<ol style="list-style-type: none"> 1. Introduction to the Epidemiology of Communicable Diseases, Principles of Disease Surveillance, and Surveillance Systems 2. Sexually Transmitted Diseases 3. Acquired Immunodeficiency Syndrome (AIDS) 4. Hepatitis 5. Vaccine-Preventable Diseases 6. Influenza and Emerging and Re-emerging Diseases 7. Gastrointestinal Infections (Salmonella, Shigella, Giardiasis, Amebiasis, Toxoplasmosis, and Cholera) 8. Tuberculosis and Leprosy 9. Epidemiology of Zoonotic Diseases 10. Reservoir-Borne Diseases (Malaria, Leishmaniasis) 11. Nosocomial Infections and Antimicrobial Resistance 		

Essential explanations	It is recommended that this course be offered concurrently or close to the time of the infectious diseases internship.
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Course Code:	138		
Course Title	Epidemiology of Common Non-Communicable Diseases in Iran		
Course Level	Clinical Introduction/Internship		
Prerequisites	Principles of Epidemiology Medical Statistics		
Course Type	Theoretical	Practical	Total
Total Hours:	17	0	17
General Objectives	By the end of this course, students are expected to explain the epidemiology of non-communicable diseases in Iran in terms of spatial and geographical distribution, individual characteristics, risk factors, and methods of prevention and control. They should be able to apply this knowledge clinically to determine the best prevention methods and estimate the prognosis.		
Course Description	In this course, students will become familiar with the epidemiology of common non-communicable diseases in the country to be able to work as physicians in maintaining and promoting individual and population health.		
Essential Content	<ol style="list-style-type: none"> 1. Introduction to the Epidemiology of Non-Communicable Diseases, Principles of Disease Surveillance, and Surveillance Systems 2. Epidemiology of Atherosclerosis and Hypertension 3. Epidemiology of Diabetes, Obesity, and Hyperlipidemia 4. Epidemiology of Accidents and Injuries 5. Epidemiology of Malignancies (Breast, Lung, Stomach, Prostate, Esophagus, Colon, and Skin Cancer) 6. Epidemiology of Mental Health Disorders (Depression, Anxiety, Suicide, Domestic Violence, etc.) and Addiction 		

	7. Epidemiology of Iron Deficiency Anemia and Thyroid Diseases
Essential explanations	

Course Code:	139		
Course Title	Principles of Demography and Family Health		
Course Level	Internship		
Prerequisites	Principles of Health Services		
Course Type	Theoretical	Practical	Total
Total Hours:	34	0	34
General Objectives	By the end of this course, students are expected to explain the evolution and demographic indicators of Iran and the world, the concepts of sustainable development, and population policies. They should be able to explain the principles of family health and fertility, describe the related care programs, and explain the national healthy child program. Additionally, they should be able to describe health programs for schools, adolescents, young adults, middle-aged adults, and the elderly. Students should understand the importance of mental health and be able to explain its programs.		

Course Description	In this course, students will become familiar with the basic principles of demography and family health to be able to work as physicians in maintaining and promoting the health of individuals, families, and populations.
Essential Content	<ol style="list-style-type: none"> 1. Population, Sustainable Development, and Population Policies 2. General Principles of Family Health 3. General Reproductive Health and Demographic Indicators 4. Preconception Health and Counseling 5. Care During Pregnancy, Childbirth, and Postpartum 6. Birth Spacing and Methods 7. Healthy and Vulnerable Newborns 8. Promotion of Breastfeeding 9. Physical Growth of Children from Prenatal to Post-Puberty (Indicators and Evaluation Methods) 10. Comprehensive Early Childhood Development and Screening for Developmental Disorders 11. National Healthy Child Program (Part 2): Health Care and Immunization 12. National Healthy Child Program (Part 1): Health Promotion 13. Student Health and School Hygiene 14. Adolescent and Youth Health 15. Middle-Aged Adult Health (Men and Women) 16. Elderly Health 17. Mental Health 18. Violence and Social Injuries (This topic can be included in any age group)
Essential explanations	Social determinants of health and sustainable development goals are based on the annual report of the World Health Organization.

Course Code:	140
Course Title	Health Psychology

Course Level	Basic Medical Sciences/Clinical Introduction		
Prerequisites	none		
Course Type	Theoretical	Practical	Total
Total Hours:	34	0	34
General Objectives	<p>By the end of this course, students should:</p> <ol style="list-style-type: none"> 1. Recognize various fields of psychology. 2. Understand general psychological characteristics of humans, including intelligence, personality, memory, cognition, emotions, and learning, and define their relationship with the promotion of physical and mental health. 3. Gain a comprehensive understanding of the role of psychological factors in enhancing health, improving quality of life, and preventing physical and mental disorders. 		
Course Description	<p>Using the concepts from this course, students will gain a broad understanding of the interrelationship between mind and body and consider the role of psychological factors in preventing, manifesting, and accelerating the treatment process in their clinical practice.</p>		
Essential Content	<ol style="list-style-type: none"> 1. Psychology, Medicine, and Health 2. Brain, Cognition, Emotion, and Behavior 3. Psychological Development 4. Health and Behavior 5. Motivation, Emotion, and Health 6. Memory, Learning, and Health 7. Stress, Immunology, and Health 8. Psychological Disorders 9. Rehabilitation and Psychological Interventions 10. Personality and Health 11. Addiction: Pathology and Consequences 12. Suicide: Etiology and Consequences 13. Intelligence 14. Psychometrics 		

Essential explanations	<input type="checkbox"/> Emphasis on health dimensions including physical, mental, social, and spiritual health (Spiritual Health/Psychology of Self). <input type="checkbox"/> Familiarity with the application of psychometric tests in medicine, including: <ul style="list-style-type: none"> • General Health Questionnaire (GHQ) • Minnesota Multiphasic Personality Inventory (MMPI) • Mindful Cognitive Movement Therapy (MCMT)
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Medical Ethics Courses:

1. **Medical Ethics 1**
2. **Medical Ethics 2**
3. **Medical Ethics 3**
4. **Medical Ethics 4**

Course Code:	141		
Course Title	Medical Ethics 1		
Course Level	Basic Medical Sciences		
Prerequisites	none		
Course Type	Theoretical	Practical	Total

Total Hours:	0	17	17
General Objectives	<p>Cognitive Domain:</p> <ul style="list-style-type: none"> • Familiarize with the expected competencies of general medical graduates. • Understand ethical concepts and principles of professional behavior in medicine. • Learn the basic principles of medical education and effective planning for its implementation. • Acquire basic interpersonal communication skills to establish effective communication with professors, staff, family, and friends. <p>Attitudinal Domain:</p> <ul style="list-style-type: none"> • Feel responsible for acquiring the expected competencies during their studies and commit to achieving them. • Recognize the special professional status and ethical sensitivities in the field of medicine. • Complete all educational tasks and assignments regularly and on time. • Apply study and time management skills (such as time management, learning style management, and study techniques) in organizing their educational activities. <p>Skill Domain:</p> <ul style="list-style-type: none"> • Adhere to professional behavior principles in their performance and maintain an appearance appropriate to a medical student. • Establish appropriate communication with professors, educational and administrative officials. • Exhibit effective and sincere interpersonal communication. • Establish appropriate verbal and eye contact. • Actively listen. • Provide effective learning plans using study and time management skills. 		
Course Description	<p>The Medical Ethics 1 course is part of the longitudinal theme of professional ethics in the general medical curriculum, organized and offered over one semester. The course, structured as a 0.5-unit practical workshop (17 hours), covers the key ethics and skills that a physician should possess in the medical profession. The course begins with an introduction to the competencies of the general medical program and their importance during the study period, followed by general principles of basic professional behavior, communication,</p>		

	<p>and effective learning skills that a medical student should learn at the beginning of their medical career. By the end of the course, students are expected to be familiar with these principles and acquire sufficient knowledge and skills to use them. This course can be offered as several workshops throughout the semester. To ensure the course's effectiveness, the university should consider appropriate processes and tools to evaluate how students apply the workshop learnings.</p>
Essential Content	<ul style="list-style-type: none"> <input type="checkbox"/> Introduction to the Expected Competencies of General Practitioners <input type="checkbox"/> Principles of Professional Behavior in Medicine (Part 1): <ol style="list-style-type: none"> 1. Explaining the importance of the student's role as a medical trainee and reviewing the principles of professional behavior in medicine. <input type="checkbox"/> Interpersonal Communication Skills (Part 1): <ol style="list-style-type: none"> 1. Communication components and barriers. 2. Principles of effective communication (active listening techniques and self-disclosure). 3. Use of body language (application of non-verbal communication techniques). <input type="checkbox"/> Basic Principles of Medical Learning: <p>Study skills.</p> <p>Time management skills.</p>
Essential explanations	<ol style="list-style-type: none"> 1. <input type="checkbox"/> This course is part of the longitudinal theme of professional ethics in the general medical curriculum. Therefore, the evaluation result is reported qualitatively (with four levels: exceeding expectations, satisfactory, acceptable "with a reminder to strive more in subsequent medical ethics courses," and unacceptable). The first three levels are passing, and the fourth level is failing, requiring the student to retake the course. 2. This course is not included in the comprehensive exam. 3. The proposed syllabus is suggestive, and the university curriculum committee can modify it up to 40% as necessary.

Course Code:	142		
Course Title	Medical Ethics 2		
Course Level	Basic Medical Sciences		
Prerequisites	none		
Course Type	Theoretical	Practical	Total
Total Hours:	0	17	17
General Objectives	<p>Cognitive Objectives:</p> <ol style="list-style-type: none"> 1. Familiarize with the general principles of teamwork, conflict resolution techniques, and empathy. 2. Explain the stages of reflection and its function in analyzing experiences. 3. Understand the general principles of scientific thinking and differentiate between thinking standards. <p>Attitudinal Objectives:</p> <ol style="list-style-type: none"> 1. Show interest in participating in team activities and tasks. 2. Demonstrate a receptive and logical attitude towards group members' criticisms. 3. Show attention to reflection on experiences and strive to improve performance when facing issues. 4. Commit to self-learning and keeping knowledge and skills up-to-date. 5. Apply goal-setting and effective planning principles (such as time management, learning process management, and study techniques) in organizing educational activities. <p>Skill Objectives:</p> <ol style="list-style-type: none"> 1. Work effectively as a team member with other students. 2. Apply reflection techniques in personal and professional experiences. 3. Find solutions for interpersonal conflicts. 4. Critically evaluate presented materials and related thinking components based on thinking standards. 5. Assess and analyze personal performance to identify educational needs and provide appropriate plans for improving learning. 		

Course Description	<p>his course, structured as a 0.5-unit practical workshop (17 hours), includes "Teamwork and Group Work Workshop" and "Reflection and Experience Analysis Workshop." It covers the key ethics and skills that a physician should possess in the medical profession. The course begins with an introduction to the general principles of teamwork, conflict resolution techniques, and the application of empathy skills compared to sympathy. It continues with general principles of personal growth skills, including the stages of effective reflection and stress identification and control. Finally, considering the necessity of enhancing practical thinking in medical students' study and learning, the course introduces the components and standards of thinking, providing an overview of different types of thinking and reasoning. By the end of the course, students are expected to be familiar with these principles and acquire sufficient knowledge and skills to use them.</p>
Essential Content	<ul style="list-style-type: none"> <input type="checkbox"/> Interpersonal Communication Skills (Part 2): <ol style="list-style-type: none"> 1. Principles of teamwork 2. Conflict resolution techniques <input type="checkbox"/> Basic Principles of Personal Growth (Part 1): <ol style="list-style-type: none"> 1. Self-learning management through planning 2. Reflection and experience contemplation skills <input type="checkbox"/> Basic Scientific Thinking Skills (Part 1): <ol style="list-style-type: none"> 1. Components of thinking 2. Types of thinking statements 3. Thinking standards
Essential explanations	<ol style="list-style-type: none"> 1. This course is part of the longitudinal theme of professional ethics in the general medical curriculum. Therefore, the evaluation result is reported qualitatively (with four levels: exceeding expectations, satisfactory, acceptable "with a reminder to strive more in subsequent medical ethics courses," and unacceptable). The first three levels are passing, and the fourth level is failing, requiring the student to retake the course. 2. This course is not included in the comprehensive exam. 3. The proposed syllabus is suggestive, and the university curriculum committee can modify it up to 40% as necessary.

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Course Code:	143		
Course Title	Medical Ethics 3		
Course Level	Basic Medical Sciences		
Prerequisites	none		
Course Type	Theoretical	Practical	Total
Total Hours:	0	17	17
General Objectives	<ol style="list-style-type: none"> 1. Familiarize with the rules and conditions governing the clinical environment. 2. Understand the roles and performance of team members in interprofessional collaboration. 3. Explain the professional status of a physician in society and the health system, including the structure, hierarchy, and duties of each component of the health and treatment network in the country. <ol style="list-style-type: none"> 1. Explain reasoning errors (fallacies) and cognitive errors. 2. Differentiate between the general principles of empathy and sympathy. 3. Familiarize with the professional ethics charter in the clinical setting. Attitudinal Objectives: <ol style="list-style-type: none"> 1. Maintain integrity and uphold the dignity of the medical profession in the virtual environment. 2. Pay attention to identifying and controlling cognitive errors and mistakes. 		

	<p>3. Value empathetic communication with friends, family, and patients and their families.</p> <p>Skill Objectives:</p> <ol style="list-style-type: none"> 1. Adhere to professional behavior principles in performance and in the virtual environment. 2. Maintain behavior and appearance appropriate to a physician in both academic and clinical settings (early clinical exposure). 3. Apply empathy skills effectively. 4. Engage in logical reasoning and discourse, considering reasoning errors (fallacies) and cognitive errors.
Course Description	<p>his course, structured as a 0.5-unit practical workshop (17 hours), includes "Teamwork and Group Work Workshop" and "Reflection and Experience Analysis Workshop." It covers the key ethics and skills that a physician should possess in the medical profession. The course begins with an introduction to the general principles of teamwork, conflict resolution techniques, and the application of empathy skills compared to sympathy. It continues with general principles of personal growth skills, including the stages of effective reflection and stress identification and control. Finally, considering the necessity of enhancing practical thinking in medical students' study and learning, the course introduces the components and standards of thinking, providing an overview of different types of thinking and reasoning. By the end of the course, students are expected to be familiar with these principles and acquire sufficient knowledge and skills to use them.</p>
Essential Content	<ol style="list-style-type: none"> 1. Familiarization with the Clinical Environment (Early Clinical Exposure 1) 2. Understanding the Roles of Team Members and Principles of Interprofessional Collaboration 3. Understanding the Professional Role of Physicians in Society and the Health System <p><input type="checkbox"/> Basic Scientific Thinking Skills (Part 2):</p> <p>Identifying and controlling cognitive and reasoning errors</p> <p><input type="checkbox"/> Interpersonal Communication Skills (Part 3):</p> <p>Empathy</p> <p><input type="checkbox"/> Principles of Professional Behavior in Medicine (Part 2):</p> <p>Principles of professional ethics in the virtual environment</p>

Essential explanations	<ol style="list-style-type: none"> 1. This course is part of the longitudinal theme of professional ethics in the general medical curriculum. Therefore, the evaluation result is reported qualitatively (with four levels: exceeding expectations, satisfactory, acceptable "with a reminder to strive more in subsequent medical ethics courses," and unacceptable). The first three levels are passing, and the fourth level is failing, requiring the student to retake the course. 2. This course is not included in the comprehensive exam. 3. The proposed syllabus is suggestive, and the university curriculum committee can modify it up to 40% as necessary.

Course Code:	144		
Course Title	Medical Ethics 4		
Course Level	Basic Medical Sciences		
Prerequisites	none		
Course Type	Theoretical	Practical	Total
Total Hours:	0	17	17
General Objectives	Cognitive Objectives: <ol style="list-style-type: none"> 1. Familiarize with the responsibilities and roles of a medical student within the healthcare team. 2. Recognize the signs and triggers of anger within oneself. 		

	<ol style="list-style-type: none"> Identify the signs of anxiety and describe stress management techniques. Understand the concepts, principles, and general methods and applications of counseling in medicine and patient education. Explain the principles of delivering an effective presentation. Familiarize with the principles of designing scientific audiovisual tools (including PowerPoint). Describe the principles of providing effective feedback. <p>Attitudinal Objectives:</p> <ol style="list-style-type: none"> Adhere to behaviors that demonstrate integrity and uphold the dignity of the medical profession. Value the principles of professional behavior in clinical settings. Feel responsible for maintaining an ethical approach when interacting with patients, their families, and in professional interactions. Show interest in providing and receiving effective feedback to improve personal and others' performance. <p>Skill Objectives:</p> <ol style="list-style-type: none"> Apply anger management techniques and express anger adaptively in relevant situations. Identify stressful situations and appropriately confront them using stress management skills. Deliver a suitable presentation in academic settings, considering the principles of effective speaking. Prepare the necessary audiovisual content for a presentation using scientific design principles. Apply the principles of providing effective feedback in relevant situations.
Course Description	<p>this course, structured as a 0.5-unit practical workshop (17 hours), includes "Teamwork and Group Work Workshop" and "Reflection and Experience Analysis Workshop." It covers the key ethics and skills that a physician should possess in the medical profession. The course begins with an introduction to the general principles of teamwork, conflict resolution techniques, and the application of empathy skills compared to sympathy. It continues with general principles of personal growth skills, including the stages of effective reflection and stress identification and control. Finally, considering the necessity of enhancing practical thinking in medical students' study and learning, the course introduces the components and standards of thinking, providing an overview of different types of thinking and reasoning. By the end of the course, students are expected to be familiar with these principles and acquire sufficient knowledge and skills to use them.</p>

<p>Essential Content</p>	<p>Familiarization with the Clinical Environment (Early Clinical Exposure 2)</p> <p>Basic Principles of Personal Growth (Part 2):</p> <ol style="list-style-type: none"> 1. Anger and Anger Management 2. Stress Management <p>Familiarization with Effective Feedback</p> <p>Counseling:</p> <ol style="list-style-type: none"> 1. Familiarization with Concepts, Principles, Rules, and Objectives of Counseling and Patient Education 2. Counseling Process 3. Essential Skills and Abilities in Counseling, Professional Role of the Physician in Counseling and Patient Education <p>Familiarization with Scientific Presentation Principles (Effective Presentation):</p> <ol style="list-style-type: none"> 1. Correct Principles of PowerPoint Preparation 2. Effective Speaking and Presentation Skills <p>Principles of Professional Behavior in Medicine (Part 3):</p> <ol style="list-style-type: none"> 1. Observing Professional Ethics in the Clinical Environment (Review of the Professional Ethics Charter): Observation, Case Discussion, Limited Research
<p>Essential explanations</p>	<ol style="list-style-type: none"> 4. This course is part of the longitudinal theme of professional ethics in the general medical curriculum. Therefore, the evaluation result is reported qualitatively (with four levels: exceeding expectations, satisfactory, acceptable, "with a reminder to strive more in subsequent medical ethics courses," and unacceptable). The first three levels are passing, and the fourth level is failing, requiring the student to retake the course. 5. This course is not included in the comprehensive exam. 6. The proposed syllabus is suggestive, and the university curriculum committee can modify it up to 40% as necessary.

Specialized English Language Courses:

1. Medical English 1
2. Medical English 2

Course Code:	145		
Course Title	Medical English 1		
Course Level	Basic Medical Sciences		
Prerequisites	General English		
Course Type	Theoretical	Practical	Total
Total Hours:	51	0	51
General Objectives	By the end of this course, students should be able to read and understand medical texts in English, comprehend and use academic and medical terminology, speak fluently about medical topics, and understand others' speech on medical topics at an appropriate speed. Additionally, students should recognize the importance of English in supplementary academic activities within a specified time and in collaboration with the group (as an attitudinal objective).		
Course Description	Given the increasing need for medical students and graduates to read medical books and articles to enhance and update their medical knowledge and conduct research on various topics related to this field, this course aims to improve students' ability and skills in reading and understanding medical texts. To this end, most of the class time (about two-thirds) is dedicated to teaching reading and comprehension techniques. The course also addresses the need for students to speak English in physical (in-person) and virtual environments, dedicating part of the class time to practicing listening and speaking skills. Therefore, the language class should be conducted in English.		

	Additionally, each student is required to give at least a 5-minute presentation in English during the class.
Essential Content	<ol style="list-style-type: none"> 1. Anatomy of the Human Body 2. Physiology of the Human Body 3. Molecular Change 4. Traditional Medicine 5. Hepatitis 6. Surgery 7. Ebola 8. Cardiovascular System (Part 1) 9. Cardiovascular System (Part 2) 10. HIV/AIDS 11. Cancer 12. Diagnosis 13. Epidemiology (Part 1) 14. Epidemiology (Part 2) 15. Public Health (Part 1) 16. Public Health (Part 2) 17. Pain (Part 1) 18. Pain (Part 2) 19. Medical Terminology (Part 1) 20. Medical Terminology (Part 2)
Essential explanations	<ol style="list-style-type: none"> 1. The language class should be conducted in English. 2. Throughout the semester, various texts related to medical topics that students encounter in basic and clinical sciences will be presented as reading and listening skills exercises.

Course Code:	146
Course Title	Medical English 2
Course Level	Basic Medical Sciences

Prerequisites	Medical English 1		
Course Type	Theoretical	Practical	Total
Total Hours:	51	0	51
General Objectives	By the end of this course, students should be able to read and understand more complex medical texts in English, comprehend and use more academic and medical terminology, speak more fluently about medical topics, and properly understand medical discourse. Additionally, students should be able to apply language skills in group activities focused on medical topics.		
Course Description	In this course (as a continuation and completion of the objectives of Medical English 2), students' reading, speaking, and listening abilities are strengthened so they can easily search for the concepts they need from specialized English sources and present their findings in English.		
Essential Content	<ol style="list-style-type: none"> 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 Diseases 14. Hospital Acquired Infections (Nosocomial) 		
Essential explanations	In this course, various specialized medical texts with greater diversity and higher difficulty levels are used.		

Pathology Courses:

General Pathology:

1. **General Pathology and Cellular Injury**
2. **Pathology of Inflammation, Tissue Repair, and Hemodynamic Disorders**
3. **Pathology of Immune System Disorders**
4. **Pathology of Neoplasia**
5. **Pathology of Genetic Disorders and Childhood Diseases**
6. **Pathology of Environmental, Nutritional, and Infectious Diseases**
7. **Practical Pathology**
8. **Clinical Pathology**

Special Pathology:

1. **Cardiovascular System**
2. **Respiratory System**
3. **Kidneys and Upper Urinary Tract**
4. **Gastrointestinal System**
5. **Liver and Biliary Tract**
6. **Reproductive System, Lower Urinary Tract, and Breast**
7. **Blood Diseases and Endocrine Glands**
8. **Skin, Bones, Soft Tissue, and Joints**
9. **Central and Peripheral Nervous System**

Course Code:	147		
Course Title	General Pathology and Cellular Injury		
Course Level	Basic Medical Sciences/Clinical Introduction		
Prerequisites	Introduction to Anatomical Sciences		
Course Type	Theoretical	Practical	Total
Total Hours:	9	0	9
General Objectives	This course teaches the processes of cellular injury, cell death, inflammation, and tissue repair.		

Course Description	In this course, the processes of cellular injury, cell death, inflammation, and tissue repair are taught
Essential Content	<p><input type="checkbox"/> General Pathology (1 hour):</p> <ol style="list-style-type: none"> 1. Definition of Pathology 2. History of Pathology 3. Definition of Disease 4. Key Points of a Disease (Definition, Etiology, Clinical Symptoms, etc.) 5. Pathogenic Mechanisms in the Human Body 6. Body's Defense Mechanisms in Various Diseases 7. Methods of Disease Diagnosis 8. Role of the Laboratory in Diagnosis, Treatment, and Follow-up of Diseases <p><input type="checkbox"/> Cellular Injury, Cell Death, and Adaptation (4 hours):</p> <ol style="list-style-type: none"> 1. Cellular and Tissue Responses to Injurious Agents 2. Cellular and Tissue Adaptation (Hypertrophy, Hyperplasia, Atrophy, Metaplasia) 3. Cellular and Tissue Injury and Death, Causes, Factors, Tissue Changes, and Examples (Types of Necrosis and Apoptosis) 4. Intracellular and Tissue Accumulations (Calcium Deposition, Fat, Protein, Glycogen, Various Pigments, and Amyloidosis) 5. Aging Process 6. Important Clinical Points Related to Cellular Injury, Causes, Factors, and Examples
Essential explanations	

Course Code:	148
Course Title	Pathology of Inflammation, Tissue Repair, and Hemodynamic Disorders

Course Level	Basic Medical Sciences/Clinical Introduction		
Prerequisites	general Pathology and Cellular Injury		
Course Type	Theoretical	Practical	Total
Total Hours:	10	0	10
General Objectives	In this course, students should thoroughly understand the changes in inflammation and tissue repair so that they can use this knowledge to comprehend the clinical phenomena of hemodynamic disorders, immune-related disorders in the human body, tumors, genetic disorders, environmental diseases, malnutrition, and infectious diseases.		
Course Description	This course teaches the changes in inflammation and the processes of tissue repair. Based on the processes of cellular injury and cell death, inflammation and tissue repair are covered.		
Essential Content	<p><input type="checkbox"/> Inflammation and Tissue Repair (6 hours):</p> <ol style="list-style-type: none"> 1. General and important points about inflammation and inflammatory phenomena in the human body 2. Types of inflammation and their classification 3. Tissue changes during various types of inflammation 4. Mechanisms of inflammation 5. Effects and outcomes of different types of inflammation in the human body 6. Tissue repair, mechanisms, outcomes, and their importance 7. Important clinical points related to inflammation and tissue repair with examples <p><input type="checkbox"/> Hemodynamic Disorders (9 hours):</p> <ol style="list-style-type: none"> 1. General and important points about blood and fluid circulation in the body 2. Hyperemia 3. Edema 4. Hemorrhage 5. Hemostasis 6. Thrombosis 7. Embolism 8. Infarction 9. Shock 		

	10. Important clinical points related to each hemodynamic disorder with examples
Essential explanations	The teaching of pathology topics can be organized and integrated into independent educational packages while maintaining the titles, content, and approved educational hours in the university's educational program.

Course Code:	149		
Course Title	Pathology of Immune System Disorders		
Course Level	Basic Medical Sciences/Clinical Introduction		
Prerequisites	Medical Immunology, Pathology of Inflammation and Tissue Repair		
Course Type	Theoretical	Practical	Total
Total Hours:	8	0	8
General Objectives	In this course, students should thoroughly understand immune-related disorders in the human body and be able to comprehend the clinical phenomena associated with these disorders.		
Course Description	In this course, immune-related disorders in the human body are taught based on the processes of cellular injury, cell death, inflammation, and tissue repair, as well as the pathological manifestations of hemodynamic disorders.		
Essential Content	Immune System Disorders: <ol style="list-style-type: none"> 1. General familiarity with the immune system, its functions, and its role in monitoring and protecting the human body. 2. Injuries resulting from immune system dysfunction. 		

	<ol style="list-style-type: none"> 3. Hypersensitivity: Causes, types, and resulting injuries. 4. Autoimmunity: Causes, types, and resulting injuries. 5. Immune Deficiency: Causes, types, and resulting injuries. 6. Tissue Transplantation: Definition, types, and mechanisms of graft rejection. 7. Amyloidosis. 8. Important clinical points and examples related to each immune system disorder.
Essential explanations	The teaching of pathology topics can be organized and integrated into independent educational packages while maintaining the titles, content, and approved educational hours in the university's educational program.

Course Code:	150		
Course Title	Pathology of Neoplasia		
Course Level	Basic Medical Sciences/Clinical Introduction		
Prerequisites	Pathology of Inflammation and Tissue Repair		
Course Type	Theoretical	Practical	Total
Total Hours:	10	0	10
General Objectives	In this course, students should recognize tumors and neoplastic changes.		
Course Description	In this course, tumors and neoplastic changes are taught based on the processes of cellular injury, cell death, inflammation, and tissue repair, as well as the pathological manifestations of hemodynamic disorders and immune-related disorders in the human body.		

Essential Content	<ol style="list-style-type: none"> 1. Tumor Nomenclature 2. Characteristics of Benign and Malignant Neoplasms 3. Various Stages of Carcinogenesis and Hallmarks 4. Etiology of Cancers 5. Host Response to Tumors 6. Clinical Perspective on Neoplasms
Essential explanations	<ul style="list-style-type: none"> • The teaching of pathology topics can be organized and integrated into independent educational packages while maintaining the titles, content, and approved educational hours in the university's educational program.

Course Code:	151		
Course Title	Pathology of Genetic Disorders and Childhood Diseases		
Course Level	Basic Medical Sciences/Clinical Introduction		
Prerequisites	Pathology of Inflammation and Tissue Repair		
Course Type	Theoretical	Practical	Total
Total Hours:	8	0	8
General Objectives	In this course, students should understand the pathology of genetic disorders and childhood diseases.		
Course Description	In this course, genetic disorders and childhood diseases are taught		

Essential Content	<ol style="list-style-type: none"> 1. Nature of Genetic Disorders in Humans 2. Mendelian Disorders 3. Polygenic Diseases 4. Cytogenetic Diseases 5. Single-Gene Disorders with Atypical Inheritance 6. Childhood Diseases, Including Congenital Anomalies 7. Perinatal Infections 8. Respiratory Distress Syndrome (RDS) 9. Sudden Infant Death Syndrome (SIDS) 10. Fetal Hydrops 11. Tumor and Tumor-Like Lesions in Children 12. Molecular Diagnosis of Genetic Diseases
Essential explanations	The teaching of pathology topics can be organized and integrated into independent educational packages while maintaining the titles, content, and approved educational hours in the university's educational program.

Course Code:	152		
Course Title	Pathology of Environmental, Nutritional, and Infectious Diseases		
Course Level	Basic Medical Sciences/Clinical Introduction		
Prerequisites	Pathology of Inflammation and Tissue Repair		
Course Type	Theoretical	Practical	Total
Total Hours:	6	0	6

General Objectives	In this course, students should understand the pathology of diseases caused by environmental factors, malnutrition, and infections.
Course Description	This course teaches genetic disorders, diseases caused by environmental factors, malnutrition, and infections.
Essential Content	<p>Diseases caused by Environmental Factors and Malnutrition (4 hours):</p> <ol style="list-style-type: none"> 1. Physical and Chemical Injurious and Toxic Agents 2. Environmental Pollutants 3. Tobacco 4. Alcohol 5. Drug Abuse 6. Injuries by Physical Trauma 7. Nutritional Diseases (including malnutrition, vitamin deficiencies, obesity, overeating, and anorexia nervosa) <p>Infectious Diseases (2 hours):</p> <ol style="list-style-type: none"> 1. General Principles of Microbial Pathogenesis 2. Specific Techniques for Identifying Infectious Agents 3. Emerging and Re-emerging Infectious Agents 4. Bioterrorism Agents 5. Mechanisms of Viral and Bacterial Injury 6. Microbial Evasion of the Immune System 7. Range of Inflammatory Responses to Infectious Agents
Essential explanations	The teaching of pathology topics can be organized and integrated into independent educational packages while maintaining the titles, content, and approved educational hours in the university's educational program.

Course Code:	153		
Course Title	Practical Pathology		
Course Level	Basic Medical Sciences/Clinical Introduction		
Prerequisites	General Pathology Courses (Prerequisite or Corequisite)		
Course Type	Theoretical	Practical	Total
Total Hours:	0	34	34
General Objectives	<ol style="list-style-type: none"> 1. Familiarize yourself with the pathology laboratory, its working methods, sample reception and preparation, reporting, and archiving. 2. Identify various types of samples for testing and the methods of sampling and evaluating samples in the pathology laboratory. 3. Understand the correct methods of sending various clinical samples to the pathology laboratory. 4. Develop the ability to communicate effectively between the clinical physician and the laboratory. 		
Course Description	This course includes the principles, processes, and correct general methods of clinical work related to the pathology laboratory, especially identifying the main types of clinical samples.		
Essential Content	<input type="checkbox"/> Familiarization with the pathology laboratory, its working methods, sample reception and preparation, reporting, and archiving. <input type="checkbox"/> Sampling methods and sample evaluation in the pathology laboratory. <input type="checkbox"/> Correct methods of sending various clinical samples to the pathology laboratory and communication between the clinical physician and the laboratory. <input type="checkbox"/> Identification of various types of samples for testing, including slides of: <ol style="list-style-type: none"> 8. Squamous Metaplasia 9. Acute Suppurative Inflammation with Liquefactive Necrosis 10. Non-specific Chronic Inflammation 11. Granulomatous Inflammation with Caseous Necrosis (Tuberculosis) 12. Coagulative Necrosis 		

	<ul style="list-style-type: none"> 13. Fatty Accumulation in the Liver 14. Melanin Accumulation 15. Calcium Deposition 16. Xanthoma (Accumulation) 17. Ulcer and Granulation Tissue 18. Scar or Keloid 19. Tissue Hyperemia 20. Thrombosis 21. Infarction 22. Allergic Inflammation 23. Amyloid Deposition 24. Adenoma 25. Papilloma 26. Osteochondroma 27. Lipoma 28. Adenocarcinoma 29. Squamous Cell Carcinoma 30. Sarcoma 31. Lymphoma 32. Teratoma (Three Germ Layers) 33. Plasmacytoma 34. Polyp 35. Dysplasia and Carcinoma in Situ 36. Metastasis 37. Cystic Lesions 38. Hydatid Cyst 39. Pap Smear 40. Immunohistochemistry Sample 41. Cytology Sample 42. Parasitic Disease (Aspergillosis, Mucormycosis, Leishmaniasis, etc.) 43. Other Group Slides
Essential explanations	

Course Code:	154		
Course Title	Clinical Pathology		
Course Level	Clinical Introduction/Internship		
Prerequisites	General Pathology Courses Practical Pathology		
Course Type	Theoretical	Practical	Total
Total Hours:	16	2	18
General Objectives	<p>Cognitive Domain:</p> <ol style="list-style-type: none"> 1. Familiarize with the responsibilities and roles of a medical student within the healthcare team. 2. Recognize the signs and triggers of anger within oneself. 3. Identify the signs of anxiety and describe stress management techniques. 4. Understand the concepts, principles, and general methods and applications of counseling in medicine and patient education. 5. Explain the principles of delivering an effective presentation. 6. Familiarize with the principles of designing scientific audiovisual tools (including PowerPoint). 7. Describe the principles of providing effective feedback. <p>Attitudinal Domain:</p> <ol style="list-style-type: none"> 1. Adhere to behaviors that demonstrate integrity and uphold the dignity of the medical profession. 2. Value the principles of professional behavior in clinical settings. 3. Feel responsible for maintaining an ethical approach when interacting with patients, their families, and in professional interactions. 4. Show interest in providing and receiving effective feedback to improve personal and others' performance. <p>Skill Domain:</p> <ol style="list-style-type: none"> 1. Apply anger management techniques and express anger adaptively in relevant situations. 		

	<ol style="list-style-type: none"> Identify stressful situations and appropriately confront them using stress management skills. Deliver a suitable presentation in academic settings, considering the principles of effective speaking. Prepare the necessary audiovisual content for a presentation using scientific design principles. Apply the principles of providing effective feedback in relevant situations.
Course Description	<p>In this course, students will become familiar with the processes of working in clinical laboratories to better understand their future role as general practitioners in various stages of this process, including the pre-analytical stage (sample collection and sending to the laboratory), analytical stage (testing process), and post-analytical stage (interpreting test results). Additionally, students will learn the correct methods of requesting tests based on clinical suspicion and economic considerations and sending appropriate samples to the laboratory. They will also learn to interpret test results along with other paraclinical and clinical findings of the patient, request repeat or additional tests only when necessary, and establish better collaboration, coordination, and interaction with the laboratory for optimal use in the diagnostic and treatment process.</p>
Essential Content	<ol style="list-style-type: none"> Familiarization with various laboratory sections, sample reception process, laboratory work, sample preparation, and reporting highlights the clinical physician's role in accelerating and improving response. Correct methods of requesting various samples based on clinical suspicion, patient condition, and economic considerations. Proper patient guidance for correct test performance and preparation for sample collection. Appropriate methods of transferring various samples to the laboratory and the role of various factors in this stage. Basics of common laboratory methods, influencing factors, and limitations in interpreting and coordinating them with clinical symptoms. Interpret laboratory results by considering definitions of test changes, reference intervals, sensitivity, specificity, and predictive values of positive and negative results. How can additional and complementary tests be requested in case of different or inconsistent responses to clinical findings or previous patient tests and their interpretation? Blood consumption management and blood compatibility tests, including blood group determination, antibody screening, cross-matching, and laboratory control of transfusion complications. Requesting and interpreting biochemical and urine tests. Requesting and interpreting infectious and parasitic tests. Requesting and interpreting hormonal, immunological, and serological tests.

	12. Requesting and interpreting hematology tests. 13. Familiarization with health evaluation tests (Checkup). 14. Familiarization with follow-up tests for diseases, especially tumor markers. 15. Familiarization with screening tests (Point of Care & Screening). 16. Clinical examples and laboratory challenges emphasize test interpretation issues and ways to enhance clinical and laboratory interaction.
Essential explanations	This course can be offered as a workshop during the internship stage.

Course Code:	155		
Course Title	Special Pathology of the Cardiovascular System		
Course Level	Clinical Introduction		
Prerequisites	General Pathology		
Course Type	Theoretical	Practical	Total
Total Hours:	6	2	8
General Objectives	In this course, students should become familiar with common diseases and tumors of the cardiovascular system and be able to use their knowledge to hypothesize the patient's condition when encountering a patient.		
Course Description	This course teaches the etiology, pathogenesis, morphology, and clinical manifestations of common diseases and tumors of the cardiovascular system.		

Essential Content	<ol style="list-style-type: none"> 1. Structure and Function of Blood Vessels 2. Vascular Tumors and Types of Vasculitis 3. Atherosclerosis 4. Clinical Consequences of Atherosclerosis 5. Aneurysms 6. Ischemic Heart Disease and Congestive Heart Failure 7. Endocarditis, Myocarditis, and Pericarditis 8. Cardiac Tumors <p>Essential Slides for Practical Section:</p> <ol style="list-style-type: none"> 1. Cardiac Myxoma 2. One of the Common Types of Hemangioma 3. One of the Common Types of Vasculitis 4. Atherosclerosis
Essential explanations	The teaching of pathology topics can be organized and integrated into independent educational packages while maintaining the titles, content, and approved educational hours in the university's educational program.

Course Code:	156		
Course Title	Special Pathology of the Respiratory System		
Course Level	Clinical Introduction		
Prerequisites	General Pathology		
Course Type	Theoretical	Practical	Total
Total Hours:	6	2	8

General Objectives	In this course, students should become familiar with common diseases and tumors of the respiratory system and be able to use their knowledge to hypothesize the patient's condition when encountering a patient.
Course Description	This course teaches the etiology, pathogenesis, morphology, and clinical manifestations of common diseases and tumors of the respiratory system.
Essential Content	<ol style="list-style-type: none"> 1. Atelectasis 2. Acute Lung Injury 3. Obstructive Lung Diseases 4. Chronic Interstitial Diseases 5. Vascular Diseases 6. Lung Infections 7. Lung Tumors 8. Pleural Lesions 9. Upper Respiratory Tract Lesions <p>Essential Slides for Practical Section:</p> <ol style="list-style-type: none"> 1. Lung: <ul style="list-style-type: none"> ○ Pulmonary Tuberculosis ○ Hydatid Cyst ○ Small Cell Carcinoma ○ Other Lung Carcinomas, such as Adenocarcinoma or Squamous 2. Nose: <ul style="list-style-type: none"> • Nasal Polyp • Fungal Lesions such as Aspergillosis or Mucormycosis <ul style="list-style-type: none"> ○ Cell Carcinoma (SCC)
Essential explanations	The teaching of pathology topics can be organized and integrated into independent educational packages while maintaining the titles, content, and approved educational hours in the university's educational program.

Course Code:	157		
Course Title	Special Pathology of the Kidneys and Urinary Tract		
Course Level	Clinical Introduction		
Prerequisites	General Pathology		
Course Type	Theoretical	Practical	Total
Total Hours:	6	2	8
General Objectives	In this course, students should become familiar with common diseases and tumors of the kidneys and urinary tract and be able to use their knowledge to hypothesize the patient's condition when encountering a patient.		
Course Description	In this course, the etiology, pathogenesis, morphology, and clinical manifestations of common diseases and tumors of the kidneys and urinary tract are taught.		
Essential Content	<ol style="list-style-type: none"> 1. Clinical Manifestations of Kidney Diseases 2. Glomerular Diseases and Their Mechanisms 3. Nephrotic Syndrome 4. Nephritic Syndrome 5. IgA Nephropathy 6. Hereditary Nephritis 7. Rapidly Progressive Glomerulonephritis 8. Tubulointerstitial Diseases 9. Tubulointerstitial Nephritis 10. Renal Vascular Diseases (Arteriolonephrosclerosis, Malignant Hypertension) 11. Chronic Kidney Disease 12. Cystic Kidney Diseases 		

	13. Tumors Essential Slides for Practical Section: 1. Chronic Pyelonephritis 2. One of the Types of Glomerulonephritis 3. Renal Amyloidosis 4. Renal Carcinoma 5. Nephroblastoma
Essential explanations	The teaching of pathology topics can be organized and integrated into independent educational packages while maintaining the titles, content, and approved educational hours in the university's educational program.

Course Code:	158		
Course Title	Pathology of the Gastrointestinal System		
Course Level	Clinical Introduction		
Prerequisites	General Pathology		
Course Type	Theoretical	Practical	Total
Total Hours:	8	4	12
General Objectives	In this course, students should become familiar with common diseases and tumors of the gastrointestinal system and be able to use their knowledge to hypothesize the patient's condition when encountering a patient.		

Course Description	This course teaches the etiology, pathogenesis, morphology, and clinical manifestations of common diseases and tumors of the gastrointestinal system.
Essential Content	<ol style="list-style-type: none"> 1. Oral Cavity Lesions (Leukoplakia, Benign and Malignant Tumors, Benign and Malignant Salivary Gland Lesions) 2. Esophagus (Esophageal Varices, Esophagitis, Reflux Esophagitis, Barrett's Esophagus, Esophageal Tumors) 3. Stomach (Inflammatory Diseases, Neoplastic Diseases) 4. Small and Large Intestines (Hirschsprung Disease, Diarrheal Diseases, Inflammatory Bowel Diseases, Colon Polyps, Colon Tumors) 5. Appendix <p>Essential Slides for Practical Section:</p> <ol style="list-style-type: none"> 1. Salivary Gland: <ul style="list-style-type: none"> o Pleomorphic Adenoma o Adenoid Cystic Carcinoma 2. Esophagus: <ul style="list-style-type: none"> o Squamous Cell Carcinoma (SCC) 3. Stomach: <ul style="list-style-type: none"> o A Type of Gastritis, Preferably with Helicobacter Infection o Typical Gastric Adenocarcinoma o Signet Ring Cell Carcinoma o Gastrointestinal Stromal Tumor (GIST) 4. Intestines: <ul style="list-style-type: none"> o Celiac Disease o One of the Types of Inflammatory Bowel Disease (IBD) o Adenomatous Colon Polyp o Colon Carcinoma o Intestinal Carcinoid o Intestinal Lymphoma
Essential explanations	The teaching of pathology topics can be organized and integrated into independent educational packages while maintaining the titles, content, and approved educational hours in the university's educational program.

Course Code:	159		
Course Title	Special Pathology of the Liver and Biliary Tract		
Course Level	Clinical Introduction		
Prerequisites	General Pathology		
Course Type	Theoretical	Practical	Total
Total Hours:	6	2	8
General Objectives	In this course, students should become familiar with common diseases and tumors of the liver and biliary tract and be able to use their knowledge to hypothesize the patient's condition when encountering a patient.		
Course Description	This course teaches the etiology, pathogenesis, morphology, and clinical manifestations of common diseases and tumors of the liver and biliary tract.		
Essential Content	<ol style="list-style-type: none"> 1. Liver Failure 2. Jaundice and Cholestasis 3. Cirrhosis 4. Portal Hypertension 5. Acute and Chronic Hepatitis 6. Viral Hepatitis 7. Alcoholic and Non-Alcoholic Fatty Liver Disease 8. Cholestatic Diseases (PSC, PBC) 9. Inherited Metabolic Diseases 10. Liver Abscess 11. Liver Tumors and Nodules 12. Gallbladder Diseases 13. Gallbladder Cancer 14. Exocrine Pancreas Lesions (Pancreatitis, Pancreatic Neoplasms) <p>Essential Slides for Practical Section:</p> <ol style="list-style-type: none"> 1. One of the Types of Hepatitis 2. Fatty Accumulation 3. Cirrhosis 		

	4. Hepatocellular Carcinoma 5. Liver Metastasis
Essential explanations	The teaching of pathology topics can be organized and integrated into independent educational packages while maintaining the titles, content, and approved educational hours in the university's educational program.

Course Code:	160		
Course Title	Special Pathology of the Reproductive System, Lower Urinary Tract, and Breast		
Course Level	Clinical Introduction		
Prerequisites	General Pathology		
Course Type	Theoretical	Practical	Total
Total Hours:	10	4	14
General Objectives	In this course, students should become familiar with common diseases and tumors of the male reproductive system, lower urinary tract, female reproductive system, and breast. They should be able to use their knowledge to hypothesize the patient's condition when encountering a patient.		
Course Description	This course teaches the etiology, pathogenesis, morphology, and clinical manifestations of common diseases and tumors of the male reproductive system, lower urinary tract, female reproductive system, and breast.		

<p>Essential Content</p>	<p>Male Reproductive System and Lower Urinary Tract (6 hours):</p> <ol style="list-style-type: none"> 1. Penis (Inflammatory Lesions, Neoplasms) 2. Scrotum, Testes, Epididymis 3. Prostate 4. Ureter, Urethra, Bladder 5. Pathology of Sexually Transmitted Diseases <p>Female Reproductive System (9 hours):</p> <ol style="list-style-type: none"> 1. Vulva (Inflammatory Lesions, Non-Neoplastic Lesions, Tumors) 2. Vagina (Inflammatory Lesions, Malignant Tumors, SCC, Adenocarcinoma, Sarcoma Botryoides) 3. Cervix (Inflammatory Lesions, Cervical Neoplasia, Invasive Cervical Cancer, Endocervical Polyps) 4. Uterus (Endometritis, Adenomyosis, Endometriosis, AUB, Proliferative Lesions of Endometrium and Myometrium, Endometrial Hyperplasia, Endometrial Carcinoma, Endometrial Polyps, Leiomyoma, Leiomyosarcoma) 5. Ovaries (Follicular and Ovarian Cysts, Polycystic Ovary Syndrome, Ovarian Tumors, Surface Epithelial Tumors, Serous Tumors, Mucinous Tumors, Endometrioid Tumors) 6. Pregnancy-Related Diseases (Placental Inflammations and Infections, Ectopic Pregnancy, Trophoblastic Diseases) 7. Preeclampsia/Eclampsia <p>Breast Diseases (6 hours):</p> <ol style="list-style-type: none"> 1. Fibrocystic Changes 2. Inflammatory Processes 3. Tumors 4. Male Breast Lesions <p>Essential Slides for Practical Section:</p> <p>Bladder:</p> <ul style="list-style-type: none"> • Transitional Cell Carcinoma (TCC) <p>Testes:</p> <ol style="list-style-type: none"> 1. Testicular Atrophy 2. Seminoma 3. Non-Seminomatous Tumor
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Prostate:

1. Prostatic Hyperplasia
2. Prostatic Adenocarcinoma

Uterus and Placenta:

1. Endometrial Hyperplasia
2. Uterine Myoma
3. Endometrial Adenocarcinoma
4. Hydatidiform Mole

Cervix:

1. Inflammation with Squamous Metaplasia
2. Cervical Dysplasia
3. Cervical Polyp
4. Squamous Cell Carcinoma (SCC)
5. Pap Smear

Ovaries:

1. Serous and Mucinous Cysts
2. One of the Types 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

Essential explanations	The teaching of pathology topics can be organized and integrated into independent educational packages while maintaining the titles, content, and approved educational hours in the university's educational program.
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Course Code:	161		
Course Title	Pathology of Blood and Endocrine Glands		
Course Level	Clinical Introduction		
Prerequisites	General Pathology		
Course Type	Theoretical	Practical	Total
Total Hours:	10	2	12
General Objectives	In this course, students should become familiar with common diseases and tumors of the endocrine system and breast. They should be able to use their knowledge to diagnose the patient's condition when encountering a patient.		
Course Description	This course teaches the etiology, pathogenesis, morphology, and clinical manifestations of common diseases and tumors of the endocrine system and breast.		
Essential Content	Endocrine Glands (4hours): <ol style="list-style-type: none"> Pituitary Gland Thyroid Gland Parathyroid Gland Endocrine Pancreas Adrenal Cortex 		

	<p>6. Adrenal Medulla</p> <p>Blood Diseases (4 hours):</p> <ol style="list-style-type: none"> 1. Red Blood Cell Lesions (Various Anemias) 2. White Blood Cell Lesions (Neoplastic Lesions) 3. Lesions of the Spleen and Thymus (Splenomegaly, Benign and Malignant Thymus Lesions) <p>Essential Slides for Practical Section:</p> <p>Adrenal Gland:</p> <ol style="list-style-type: none"> 1. Pheochromocytoma 2. Neuroblastoma <p>Lymph Node:</p> <ol style="list-style-type: none"> 1. Tuberculosis 2. One of the Types of Hodgkin's Lymphoma 3. One of the Types of Non-Hodgkin's Lymphoma <p>Bone Marrow:</p> <ol style="list-style-type: none"> 1. One of the Types of Acute Leukemia 2. One of the Types of Chronic Leukemia 3. Multiple Myeloma
Essential explanations	The teaching of pathology topics can be organized and integrated into independent educational packages while maintaining the titles, content, and approved educational hours in the university's educational program.

Course Code:	162
Course Title	Special Pathology of the Skin, Bones, Soft Tissue, and Joints

Course Level	Clinical Introduction		
Prerequisites	General Pathology		
Course Type	Theoretical	Practical	Total
Total Hours:	8	4	12
General Objectives	In this course, students should become familiar with common diseases and tumors of the skin, bones, soft tissue, and joints. They should be able to use their knowledge to hypothesize the patient's condition when encountering a patient.		
Course Description	In this course, the etiology, pathogenesis, morphology, and clinical manifestations of common diseases and tumors of the skin, bones, soft tissue, and joints are taught.		
Essential Content	<p>Pathology of Skin Diseases:</p> <ul style="list-style-type: none"> • Acute and Chronic Inflammatory Dermatoses • Vesiculobullous Diseases • Pemphigus • Bullous Pemphigoid • Dermatitis Herpetiformis • Benign and Malignant Skin Lesions <p>Bone Diseases:</p> <ul style="list-style-type: none"> • Congenital Bone and Cartilage Disorders • Acquired Bone Diseases • Osteomyelitis • Bone Tumors <p>Joint Diseases:</p> <ul style="list-style-type: none"> • Arthritis • Joint Tumors and Tumor-Like Lesions <p>Soft Tissue Diseases:</p> <ul style="list-style-type: none"> • Soft Tissue Tumors and Their Types 		

	<p>Essential Slides for Practical Section:</p> <p>Skin:</p> <ol style="list-style-type: none"> 1. One of the Common Inflammatory Diseases like Lichen Planus or Psoriasis 2. A Bullous Lesion like Pemphigus 3. Wart 4. Seborrheic Keratosis 5. Nevus 6. Melanoma 7. Basal Cell Carcinoma (BCC) 8. Squamous Cell Carcinoma (SCC) <p>Bones:</p> <ol style="list-style-type: none"> 1. Chondroma and Chondrosarcoma 2. Osteochondroma 3. Osteosarcoma 4. Ewing's Sarcoma <p>Soft Tissue:</p> <ol style="list-style-type: none"> 1. One of the Benign Tumors like Lipoma or Fibroma 2. Schwannoma 3. Fibromatosis 4. One of the Typical Types of Sarcomas
Essential explanations	The teaching of pathology topics can be organized and integrated into independent educational packages while maintaining the titles, content, and approved educational hours in the university's educational program.

Course Code:	163
Course Title	Special Pathology of the Central and Peripheral Nervous System

Course Level	Clinical Introduction		
Prerequisites	General Pathology		
Course Type	Theoretical	Practical	Total
Total Hours:	8	2	10
General Objectives	In this course, students should become familiar with common diseases and tumors of the central and peripheral nervous system and blood diseases. They should be able to use their knowledge to hypothesize the patient's condition when encountering a patient.		
Course Description	This course teaches the etiology, pathogenesis, morphology, and clinical manifestations of common diseases and tumors of the central and peripheral nervous system.		
Essential Content	<ol style="list-style-type: none"> 1. Nervous System Injury Patterns 2. Cerebrovascular Diseases 3. Nervous System Infections 4. Primary Demyelinating Diseases 5. Neurodegenerative Diseases 6. Tumors 7. Familial Tumor Syndromes 8. Peripheral Nerve Disorders 9. Nerve and Muscle Function Injury 10. Benign and Malignant Peripheral Nerve Tumors 11. Skeletal Muscle Diseases <p>Essential Slides for Practical Section:</p> <ol style="list-style-type: none"> 1. Astrocytoma 2. Meningioma 3. Ependymoma 		
Essential explanations	The teaching of pathology topics can be organized and integrated into independent educational packages while maintaining the titles, content, and approved educational hours in the university's educational program.		

Medical Pharmacology Courses:

1. **Basic Principles of Medical Pharmacology**
2. **Cardiovascular and Respiratory Pharmacology**
3. **Antimicrobial Pharmacology**
4. **Gastrointestinal, Hematology, and Rheumatology Pharmacology**
5. **Endocrine Pharmacology**
6. **Neuropsychopharmacology**

Course Code:	164		
Course Title	Basic Principles of Medical Pharmacology		
Course Level	Basic Medical Sciences/Clinical Introduction		
Prerequisites	Biochemistry, Physiology, Neuroanatomy		
Course Type	Theoretical	Practical	Total
Total Hours:	17	0	17
General Objectives	By the end of this course, students should acquire knowledge and understanding of each basic pharmacological concept and be able to relate these concepts to the pharmacological effects of drugs and the use of specific drugs in system pharmacology.		

Course Description	<p>In this course, students will become familiar with the basics and fundamental concepts of pharmacology, including drug kinetics and dynamics. As an introduction to system pharmacology, students will also learn about drugs affecting the autonomic system.</p>
Essential Content	<p>Introduction to Pharmacology:</p> <ul style="list-style-type: none"> • Definition of Pharmacology, Sources of Information in Pharmacology and Drug Information, Nature and Characteristics of Drugs (Size and Molecular Weight, Drug Binding) • Principles of Pharmacodynamics (Receptors and Other Drug Binding Sites) • Principles of Pharmacokinetics (Absorption, Distribution, Metabolism, Excretion) • Process of Drug Development and Approval (Safety and Efficacy, Animal Testing, Clinical Trials, Drug Patents, New Drugs, Drug Regulations, Orphan Drugs) <p>Pharmacokinetics:</p> <ul style="list-style-type: none"> • Effective Drug Concentration, Volume of Distribution, Clearance, Half-Life, Bioavailability, Drug Elimination, Rational Dosing Regimen, Therapeutic Range, Dose Adjustment in Impaired Elimination, Drug Metabolism (Types, Rate Determinants) • Proper Drug Administration Methods and Comparison Between Solid and Liquid Oral Forms, Injectable Products, Inhalation Products, Topical Products (Dermal, Ocular, Nasal, Otic, Rectal, Vaginal), Other Methods <p>Pharmacodynamics:</p> <ul style="list-style-type: none"> • Definition of Receptor and Effector, Nature of Receptors, Other Sites of Drug Action, Drug-Receptor Interaction, Classification of Drugs Based on Their Effects on Receptors, Definition and Comparison of Drugs in Terms of Affinity and Intrinsic Activity • Quantitative Comparison Criteria of Drugs (Efficacy, Potency, ED₅₀), Graded Dose-Response Curves, Definition and Comparison of Agonists, Partial Agonists, Inverse Agonists, Competitive and Non-Competitive Antagonists, Pharmacological, Chemical, and Physiological Antagonists, Quantal Dose-Response Curves • Safety Comparison Criteria of Drugs (LD₅₀, TD₅₀, Therapeutic Index, Certain Safety Factor), Receptor Regulation, Interindividual Variability and Types of Variability in Drug Response, Treatment Adherence and Compliance, Tolerance and Tachyphylaxis, Therapeutic and Adverse Drug Effects (Side Effects, Toxicity,

Idiosyncrasy, Tolerance, Accumulation, Allergy), Pharmacovigilance, Pharmacogenetics

- All definitions, concepts, comparisons, etc., will be provided with drug examples.

Introduction to the Autonomic Nervous System:

- Comparison of the Autonomic System with Sensory and Motor Nerves, Classification of Autonomic Nerves (Ganglia, Preganglionic, and Postganglionic Fibers), Neurotransmission in Cholinergic and Adrenergic Nerves (Storage, Release, Termination of Action), Overview of Drug Mechanisms Affecting Synthesis, Storage, Release, and Termination of Action in Parasympathetic and Sympathetic Systems, Types of Cholinergic and Adrenergic Receptors and Their Distribution and Function in Various Tissues, Effects of Parasympathetic and Sympathetic Stimulation on Body Organs and Their Interactions, Regulation of Autonomic Nerves, Co-Transmitters, Details of Autonomic Nerve Function in Cardiovascular Regulation, Eye, and Intestine (as important examples)

Cholinergic Receptor Agonists and Anticholinesterases:

- Classification of Cholinergic Drugs (Cholinomimetics), Main Clinical Uses of Direct-Acting Parasympathomimetic Drugs (e.g., Bethanechol, Pilocarpine, Cevimeline), Indirect-Acting Cholinergic Drugs including Classification, Clinical Uses, Adverse Effects, Toxicity, Precautions, Differences Among These Drugs (e.g., Edrophonium, Physostigmine, Tacrine, Rivastigmine), Available Pharmaceutical Products from This Group

Muscarinic and Nicotinic Cholinergic Receptor Antagonists:

- Classification, Clinical Uses, Adverse Effects, Toxicity, Precautions, Differences Among These Drugs, Available Pharmaceutical Products from This Group

Sympathomimetic Drugs:

- Classification, Clinical Uses, Adverse Effects, Toxicity, Precautions, Differences Among These Drugs, Available Pharmaceutical Products from This Group

Sympathetic Receptor Antagonists:

	<ul style="list-style-type: none"> Classification, Clinical Uses, Adverse Effects, Toxicity, Precautions, Differences Among These Drugs, Available Pharmaceutical Products From This Group
Essential explanations	

Course Code:	165		
Course Title	Cardiovascular and Respiratory Pharmacology		
Course Level	Clinical Introduction/Internship		
Prerequisites	Basic Principles of Medical Pharmacology		
Course Type	Theoretical	Practical	Total
Total Hours:	10	0	10
General Objectives	<p>By the end of this course, students should be able to:</p> <ol style="list-style-type: none"> 1. Name the drug groups used in common cardiovascular and respiratory diseases (according to the course syllabus) and describe the pharmacological properties (absorption, distribution, metabolism, excretion, and effects on various body organs) of the prototype or commonly used drugs from each group. 2. Pay attention to the significant effects and important side effects of drugs used in common cardiovascular and respiratory diseases. 3. Recognize the importance of studying the latest guidelines and evidence regarding the use of these drugs before prescribing, 		

	considering the rapid scientific advancements and clinical trial findings introducing new drugs and identifying the applications or side effects of cardiovascular and respiratory drugs.
Course Description	In this course, students will become familiar with the drug groups used in common cardiovascular and respiratory diseases, and the pharmacokinetic and pharmacodynamic properties of these drugs. They will also observe examples of changes in the guidelines for the use of these drugs based on new evidence from clinical trials.
Essential Content	<p>Drug Groups Used in Hypertension and Commonly Used Drugs from Each Group:</p> <ul style="list-style-type: none"> • Vasodilators and Angina Treatment • Drugs Effective in Heart Failure • Antiarrhythmic Drugs • Diuretics (Carbonic Anhydrase Inhibitors, Thiazides, Loop Diuretics, Others) • Drugs Used in the Treatment of Hyperlipidemia <p>Bronchodilators and Other Drugs Used in Asthma, Allergic Rhinitis, and Cough</p>
Essential explanations	

Course Code:	166
Course Title	Antimicrobial Pharmacology
Course Level	Clinical Introduction/Internship
Prerequisites	Basic Principles of Medical Pharmacology

Course Type	Theoretical	Practical	Total
Total Hours:	10	0	10
General Objectives	<p>By the end of this course, students should be able to:</p> <ol style="list-style-type: none"> 1. Name the drug groups effective against infectious diseases (according to the course syllabus) and describe the pharmacological properties (absorption, distribution, metabolism, excretion, and effects on various body organs) of the prototype or commonly used drugs from each group. 2. Pay attention to the significant and important side effects of drugs that are effective against infectious diseases. 3. Recognize the importance of studying the latest guidelines and evidence regarding the use of these drugs before prescribing, considering the rapid scientific advancements and clinical trial findings introducing new drugs and identifying the applications or side effects of drugs effective against infectious diseases. 		
Course Description	<p>In this course, students will become familiar with the drug groups effective against infectious diseases and the pharmacokinetic and pharmacodynamic properties of these drugs. They will also observe examples of changes in the guidelines for the use of these drugs based on new evidence from clinical trials.</p>		
Essential Content	<ol style="list-style-type: none"> 1. Penicillins and Cephalosporins 2. Aminoglycosides 3. Sulfonamides and Trimethoprim 4. Fluoroquinolones 5. Chloramphenicol, Tetracyclines, and Macrolides 6. Antimycobacterial Drugs 7. Antiviral Drugs 8. Antiprotozoal and Anthelmintic Drugs 9. Miscellaneous and Topical Antiseptics 		
Essential explanations			

Course Code:	167		
Course Title	Gastrointestinal, Hematology, and Rheumatology Pharmacology		
Course Level	Clinical Introduction/Internship		
Prerequisites	Basic Principles of Medical Pharmacology		
Course Type	Theoretical	Practical	Total
Total Hours:	10	0	10
General Objectives	<p>By the end of this course, students should be able to:</p> <ol style="list-style-type: none"> 1. Name the drug groups used in common gastrointestinal, hematological, and connective tissue diseases (according to the course syllabus) and describe the pharmacological properties (absorption, distribution, metabolism, excretion, and effects on various body organs) of the prototype or commonly used drugs from each group. 2. Pay attention to the significant effects and important side effects of drugs used in common gastrointestinal, hematological, and connective tissue diseases. 3. Recognize the importance of studying the latest guidelines and evidence regarding the use of these drugs before prescribing, considering the rapid scientific advancements and clinical trial findings introducing new drugs and identifying the applications or side effects of gastrointestinal, hematological, and rheumatological drugs. 		
Course Description	<p>In this course, students will become familiar with the drug groups used in common gastrointestinal, hematological, and connective tissue diseases, and the pharmacokinetic and pharmacodynamic properties of these drugs. They will also observe examples of changes in the guidelines for the use of these drugs based on new evidence from clinical trials.</p>		
Essential Content	<ol style="list-style-type: none"> 1. Drugs Used in the Treatment of Peptic Diseases 2. Drugs Stimulating Gastrointestinal Motility, Drugs Effective in Treating Constipation, Antidiarrheal Drugs 3. Antiemetic Drugs 4. Drugs Used in Coagulation Disorders 5. Antianemic Drugs 6. General Principles of Chemotherapy 		

	7. Nonsteroidal Anti-Inflammatory Drugs (NSAIDs), Antirheumatic Drugs, Non-Opioid Analgesics, and Antigout Drugs
Essential explanations	

Course Code:	168		
Course Title	Endocrine Pharmacology		
Course Level	Clinical Introduction/Internship		
Prerequisites	Basic Principles of Medical Pharmacology		
Course Type	Theoretical	Practical	Total
Total Hours:	9	0	9
General Objectives	<p>By the end of this course, students should be able to:</p> <ol style="list-style-type: none"> 1. Name the drug groups effective on the endocrine system (according to the course syllabus) and describe the pharmacological properties (absorption, distribution, metabolism, excretion, and effects on various body organs) of the prototype or commonly used drugs from each group. 2. Pay attention to the significant side effects of effective drugs on the endocrine system. 		

	3. Recognize the importance of studying the latest guidelines and evidence regarding the use of these drugs before prescribing, considering the rapid scientific advancements and clinical trial findings introducing new drugs and identifying the applications or side effects of drugs effective on the endocrine system.
Course Description	In this course, students will become familiar with the drug groups that are effective in the endocrine system and the pharmacokinetic and pharmacodynamic properties of these drugs. They will also observe examples of changes in the guidelines for the use of these drugs based on new evidence from clinical trials.
Essential Content	<ol style="list-style-type: none"> 1. Hypothalamic and Pituitary Hormones (Analogues and Antagonists) 2. Thyroid Hormones and Antithyroid Drugs 3. Corticosteroids and Related Antagonists 4. Drugs Related to Sex Hormones, Hormonal Contraceptives 5. Pancreatic Hormones and Antidiabetic Drugs 6. Drugs Affecting Bone Mineral Homeostasis

Course Code:	169		
Course Title	Neuropsychopharmacology		
Course Level	Clinical Introduction/Internship		
Prerequisites	Basic Principles of Medical Pharmacology		
Course Type	Theoretical	Practical	Total
Total Hours:	12	0	12
General Objectives	<p>By the end of this course, students should be able to:</p> <ol style="list-style-type: none"> 1. Name the drug groups effective on the nervous and psychiatric systems (according to the course syllabus) and describe the pharmacological properties (absorption, distribution, metabolism, excretion, and effects on various body organs) of the prototype or commonly used drugs from each group. 		

	<ol style="list-style-type: none"> 2. Pay attention to the significant effects and important side effects of drugs effective on the nervous and psychiatric systems. 3. Recognize the importance of studying the latest guidelines and evidence regarding the use of these drugs before prescribing, considering the rapid scientific advancements and clinical trial findings introducing new drugs and identifying the applications or side effects of drugs effective on the nervous and psychiatric systems.
Course Description	In this course, students will become familiar with the drug groups that are effective in the nervous and psychiatric systems and the pharmacokinetic and pharmacodynamic properties of these drugs. They will also observe examples of changes in the guidelines for the use of these drugs based on new evidence from clinical trials.
Essential Content	<p>Section 1: Drugs Effective on the Nervous System:</p> <ol style="list-style-type: none"> 1. Antiepileptic Drugs 2. General Anesthetics 3. Local Anesthetics 4. Skeletal Muscle Relaxants 5. Drugs Effective in Parkinson's Disease and Other Movement Disorders 6. Narcotic/Opioid Drugs <p>Section 2: Drugs Effective on Psychiatric Disorders:</p> <ol style="list-style-type: none"> 1. Sedative-Hypnotic Drugs 2. Antipsychotic Drugs and Lithium 3. Antidepressant Drugs

History Taking and Physical Examination Courses:

Provide flexibility in organizing the courses on history taking and physical examination, these courses are structured into two theoretical courses and two internship courses. It is recommended that theoretical education and internships be offered simultaneously as much as possible.

1. **History Taking and Physical Examination 1 (Theoretical)**
2. **History Taking and Physical Examination 1 (Internship)**
3. **History Taking and Physical Examination 2 (Theoretical)**
4. **History Taking and Physical Examination 2 (Internship)**

Course Code:	170		
Course Title	History Taking and Physical Examination 1 (Theoretical)		
Course Level	Clinical Introduction		
Prerequisites	None		
Course Type	Theoretical	Practical	Total
Total Hours:	17	0	17
General Objectives	<p>By the end of this course, students should be able to:</p> <ol style="list-style-type: none"> 1. Explain the importance and stages of establishing a constructive professional relationship with the patient and apply it in practice. 2. Describe the role and position of history-taking and clinical examination in clinical reasoning, decision-making, and patient care. 3. Explain the connection between the stages of history taking and clinical examination with the stages of clinical reasoning (information gathering, weighting, decision-making). 4. Explain the general principles of taking history in special conditions (patients with special problems, elderly patients, children, and disabled patients). 5. Explain and apply the principles and regulations of documenting history. 6. Explain and apply the general principles of brief and complete patient presentation. <p>Course Content:</p> <ol style="list-style-type: none"> 1. The role and position of patient history in decision-making and patient care. 2. Principles of clinical reasoning (information gathering, weighting, decision-making). 3. General principles of history taking. 4. General principles of communication skills. 5. General principles of history taking in special conditions: <ul style="list-style-type: none"> ○ Patients with eye and vision problems. ○ Patients with ear, nose, and throat problems and hearing loss. 		

	<ul style="list-style-type: none"> ○ Patients with skin problems. ○ Patients with musculoskeletal system problems. ○ Patients with neurological problems. ○ Patients with physical injuries. ○ Patients with mental health issues. <p>6. General principles of history taking in specific general conditions:</p> <ul style="list-style-type: none"> ○ Elderly individuals. ○ Newborns. ○ Children. ○ Disabled individuals. <p>7. General principles of documenting history (brief & complete writing Hx).</p> <p>8. General principles of patient presentation (brief & complete presentation).</p>
Course Description	In this course, students should achieve the specified objectives through attending classes, clinical skills learning centers (Lab Skill), workshops, and completing individual and group assignments.
Essential Content	Learning activities for this course should include a balanced combination of theoretical education, individual study, group discussion, and other learning assignments. It is recommended that the practical part of this course be offered simultaneously with the theoretical part through practice in small groups in clinical skills learning centers or controlled clinical environments under the direct supervision of faculty members or trained instructors. The timing and combination of these activities and the required settings for each activity (classroom, clinical skills learning center, and clinical settings) should be determined in the study guide in accordance with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<p><input type="checkbox"/> Given the different educational conditions in various medical schools, it is necessary to prepare the study guide in accordance with the expected competencies of general medical doctorate graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education, and provide it to the learners.</p> <p><input type="checkbox"/> The educational group should determine, announce, and implement the methods and program for student education and evaluation based on appropriate scientific principles. The approval of the program, supervision of implementation, and program evaluation are the responsibility of the medical school.</p>

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Course Code:	171		
Course Title	History Taking and Physical Examination 1		
Course Level	Clinical Introduction		
Prerequisites	None		
Course Type	Theoretical	Practical	Total
Total Hours:	0	51	51
General Objectives	<p>By the end of this course, students should be able to:</p> <ol style="list-style-type: none"> 1. Establish a constructive professional relationship with a simulated patient. 2. Take a history from a standardized patient at the expected level of a third-year medical student. 3. Demonstrate the use of clinical reasoning while taking a history. 4. Take a history from a simulated patient or a patient with special conditions (patients with special problems, elderly patients, children, and disabled patients). 5. Document a history sample according to the learned guidelines. 6. Present a patient case both briefly and comprehensively. 		
Course Content:	<ul style="list-style-type: none"> • The role and position of patient history in decision-making and patient care. • Principles of clinical reasoning (information gathering, weighting, decision-making). • General principles of history taking. • General principles of communication skills. • General principles of history taking in special conditions: <ol style="list-style-type: none"> 1. Patients with eye and vision problems. 2. Patients with ear, nose, and throat problems and hearing loss. 3. Patients with skin problems. 		

	<ol style="list-style-type: none"> 4. Patients with musculoskeletal system problems. 5. Patients with neurological problems. 6. Patients with physical injuries. 7. Patients with mental health issues. <ul style="list-style-type: none"> • General principles of history taking in specific general conditions: <ol style="list-style-type: none"> 1. Elderly individuals. 2. Newborns. 3. Children. 4. Disabled individuals. • General principles of documenting history (brief & complete writing Hx). • General principles of patient presentation (brief & complete presentation)
Course Description	In this course, students should achieve the specified objectives through attending clinical skills learning centers (Lab Skill), clinical departments, workshops, and completing individual and group assignments
Essential Content	It is recommended that this course be offered simultaneously with the theoretical part through practice in small groups in clinical skills learning centers or controlled clinical environments, under the direct supervision of faculty members or trained instructors. The timing and combination of student learning activities and the required settings for each activity (clinical skills learning center, and clinical settings) should be determined in the study guide in accordance with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<ol style="list-style-type: none"> 1. Given the different clinical education conditions in various medical schools, it is necessary to prepare the clinical learning guide in accordance with the expected competencies of general medical doctorate graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education, and provide it to the learners. 2. The amount and method of class delivery should not disrupt the student's clinical practice. 3. The methods and program for student education and evaluation should be determined, announced, and implemented by the educational group based on appropriate scientific principles. The approval of the program, supervision of implementation, and program evaluation are the responsibility of the medical school.

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Course Code:	172		
Course Title	History Taking and Physical Examination 2 (Theoretical)		
Course Level	Clinical Introduction		
Prerequisites	None		
Course Type	Theoretical	Practical	Total
Total Hours:	17	0	17
General Objectives	<p>By the end of this course, students should be able to:</p> <p>A. Explain and apply the following:</p> <ol style="list-style-type: none"> 1. The role and position of clinical examination in clinical reasoning. 2. General principles of physical examination. 3. General principles of examinations related to vital signs. 4. General principles of examinations related to the patient's appearance and skin findings: <ul style="list-style-type: none"> ○ General appearance ○ Skin manifestations 5. General principles of head and neck examinations. 6. General principles of eye examination. 7. General principles of ear, nose, and throat examinations. 8. General principles of heart examinations (normal, murmurs). 9. General principles of respiratory system examinations. 10. General principles of abdominal and rectal examinations. 11. General principles of joint and muscle examinations and rheumatology. 12. General principles of breast examination. 13. General principles of gynecological and obstetric examinations. 		

	<p>14. General principles of urological examinations.</p> <p>B. Recognize and observe cultural, ethical, and religious considerations regarding the examination of specific body areas.</p>
Course Content:	<ol style="list-style-type: none"> 1. The role and position of clinical examination in clinical reasoning. 2. General principles of physical examination. 3. General principles of examinations related to vital signs. 4. General principles of examinations related to the patient's appearance and skin findings: <ul style="list-style-type: none"> • General appearance • Skin manifestations 5. General principles of head and neck examinations. 6. General principles of eye examination. 7. General principles of ear, nose, and throat examinations. 8. General principles of heart examinations (normal, murmurs). 9. General principles of respiratory system examinations. 10. General principles of abdominal and rectal examinations. 11. General principles of joint and muscle examinations and rheumatology. 12. General principles of breast examination. 13. General principles of gynecological and obstetric examinations. 14. General principles of urological examinations. 15. Cultural, ethical, and religious considerations regarding the examination of specific body areas.
Course Description	<p>In this course, students should achieve the specified objectives through attending classes, clinical skills learning centers (Lab Skill), workshops, and completing individual and group assignments.</p>
Essential Content	<p>Learning activities for this course should include a balanced combination of theoretical education, individual study, group discussion, and other learning assignments. It is recommended that the practical part of this course be offered simultaneously with the theoretical part through practice in small groups in clinical skills learning centers or controlled clinical environments, under the direct supervision of faculty members or trained instructors. The timing and combination of these activities and the required settings for each activity (classroom, clinical skills learning center, and clinical settings) should be determined in the study guide in accordance with the standards announced by</p>

	the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<ol style="list-style-type: none"> 1. Given the different educational conditions in various medical schools, it is necessary to prepare the study guide in accordance with the expected competencies of general medical doctorate graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education, and provide it to the learners. 2. The amount and method of class delivery should not disrupt the student's clinical practice. 3. The methods and program for student education and evaluation should be determined, announced, and implemented by the educational group based on appropriate scientific principles. The approval of the program, supervision of implementation, and program evaluation are the responsibility of the medical school.

Course Code:	173		
Course Title	History Taking and Physical Examination 2		
Course Level	Clinical Introduction		
Prerequisites	None		
Course Type	Theoretical	Practical	Total
Total Hours:	0	51	51
General Objectives	<p>By the end of this course, students should be able to:</p> <p>A. Perform the following physical examinations correctly on a mannequin or simulated patient (as appropriate):</p>		

	<ol style="list-style-type: none"> 1. Vital signs 2. General appearance and skin findings 3. Head and neck 4. Eye examination 5. Ear, nose, and throat examination 6. Heart examination (normal, murmurs) 7. Respiratory system examination 8. Abdominal and rectal examination 9. Joint and muscle examination and rheumatology 10. Breast examination 11. Gynecological and obstetric examination 12. Urological examination <p>B. Recognize and observe cultural, ethical, and religious considerations regarding the examination of specific body areas.</p>
Course Content:	<ol style="list-style-type: none"> 1. Measurement and recording of vital signs 2. Examination of general appearance and skin findings: <ul style="list-style-type: none"> • General appearance • Skin manifestations 3. Head and neck examination 4. Eye examination 5. Ear, nose, and throat examination 6. Heart examination (normal, murmurs) 7. Respiratory system examination 8. Abdominal and rectal examination 9. Joint and muscle examination and rheumatology 10. Breast examination 11. Gynecological and obstetric examination 12. Urological examination 13. Cultural, ethical, and religious considerations regarding the examination of specific body areas
Course Description	<p>In this course, students should achieve the specified objectives through attending clinical skills learning centers (Lab Skill), clinical departments, workshops, and completing individual and group assignments.</p>

Essential Content	It is recommended that this course be offered simultaneously with the theoretical part through practice in small groups in clinical skills learning centers or controlled clinical environments, under the direct supervision of faculty members or trained instructors. The timing and combination of student learning activities and the required settings for each activity (clinical skills learning center, and clinical settings) should be determined in the study guide in accordance with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<ol style="list-style-type: none"> 4. Given the different educational conditions in various medical schools, it is necessary to prepare the study guide in accordance with the expected competencies of general medical doctorate graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education, and provide it to the learners. 5. The amount and method of class delivery should not disrupt the student's clinical practice. 6. The educational group should determine, announce, and implement the methods and program for student education and evaluation based on appropriate scientific principles. The approval of the program, supervision of implementation, and program evaluation are the responsibility of the medical school.

Clinical Introduction to Diseases Courses:

1. Clinical Reasoning in Approach to Common Symptoms and Signs
2. Introduction to Cardiovascular Diseases
3. Introduction to Respiratory Diseases
4. Introduction to Hematological Diseases
5. Introduction to Gastrointestinal and Liver Diseases
6. Introduction to Endocrine and Metabolic Diseases
7. Introduction to Renal Diseases
8. Introduction to Rheumatological Diseases
9. Introduction to Pediatric Diseases
10. Clinical Introduction to Surgery
11. Introduction to Neurological Diseases
12. Introduction to Psychiatry
13. Introduction to Infectious Diseases

Course Code:	174		
Course Title	Clinical Reasoning in Approach to Common Symptoms and Signs		
Course Level	Clinical Introduction		
Prerequisites	None		
Course Type	Theoretical	Practical	Total
Total Hours:	8	0	8
General Objectives	<p>By the end of this course, students should be able to:</p> <ol style="list-style-type: none"> 1. Explain the process of medical practice and the role of clinical reasoning in reaching a diagnosis and making clinical decisions. 2. Using relevant scientific concepts and principles (definitions, pathophysiology, and epidemiology), propose appropriate approaches and differential diagnoses for several common and general presentations in a hypothetical patient. 3. Recognize the importance of clinical reasoning in medical decision-making. 		
Course Content:	<p>Course Content:</p> <ol style="list-style-type: none"> 1. Introduction to Clinical Medicine 2. The process of clinical reasoning and decision-making 3. Common symptoms and complaints, and approaches to them (based on the clinical reasoning process): <ul style="list-style-type: none"> ○ Weakness and fatigue ○ Nausea and vomiting ○ Jaundice ○ Unintentional weight loss 		

Course Description	In this course, students should achieve the specified objectives through attending classes, clinical skills learning centers (Lab Skill), workshops, and completing individual and group assignments. At least part of each session should be dedicated to presenting clinical cases and demonstrating how theoretical knowledge is applied in analyzing the patient's problem and reaching a diagnosis.
Essential Content	Learning activities for this course should include a balanced combination of theoretical education, individual study, group discussion, case review, and other learning assignments. The timing and combination of these activities and the required settings for each activity (classroom, clinical skills learning center, and clinical settings) should be determined in the study guide in accordance with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<ol style="list-style-type: none"> 1. It is recommended that this course be offered with the participation of faculty members specialized in general internal medicine or faculty members with a general perspective and familiarity with the scope of general practice. 2. Given the different clinical education conditions in various medical schools, it is necessary to prepare the learning guide in accordance with the expected competencies of general medical doctorate graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education, and provide it to the learners. 3. The methods and program for student education and evaluation should be determined, announced, and implemented by the educational group based on appropriate scientific principles. The approval of the program, supervision of implementation, and program evaluation are the responsibility of the medical school.

Course Code:	175
Course Title	Introduction to Cardiovascular Diseases

Course Level	Clinical Introduction		
Prerequisites	None		
Course Type	Theoretical	Practical	Total
Total Hours:	8	0	8
General Objectives	<p>By the end of this course, students should be able to:</p> <p>A. In dealing with each of the common and important symptoms and complaints:</p> <ol style="list-style-type: none"> 1. Define it. 2. Describe the necessary physical examinations (focused history taking and physical exam) for approaching it. 3. Propose important differential diagnoses and suggest the essential steps to reach a diagnosis and manage the patient's problem. <p>B. Regarding common and important diseases:</p> <ol style="list-style-type: none"> 1. Describe the definition, etiology, and epidemiology of the disease. 2. Explain the problems faced by patients with common and important diseases. 3. Describe the methods of diagnosing the disease. 4. Explain the most important preventive measures at various levels, including treatment and rehabilitation of the patient, based on scientific evidence and local guidelines, to the extent expected from a general practitioner. 5. Apply the learned knowledge for clinical reasoning and propose diagnostic or therapeutic approaches when faced with scenarios or case descriptions related to these diseases. <p>C. Pay attention to important issues that need to be observed in the clinical environment of this field.</p>		
Course Description	<p>In this course, students should achieve the specified objectives through attending classes, clinical skills learning centers (Lab Skill), workshops, and completing individual and group assignments. At least one session should be dedicated to case discussion, where students review a patient's history and practice applying the learned knowledge to analyze the patient's problems and reach a diagnosis or answer clinical questions.</p>		

Essential Content	Learning activities for this course should include a balanced combination of theoretical education, individual study, group discussion, case review, and other learning assignments. The timing and combination of these activities and the required settings for each activity (classroom, clinical skills learning center, and clinical settings) should be determined in the study guide in accordance with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<ol style="list-style-type: none"> 1. Given the different clinical education conditions in various medical schools, it is necessary to prepare the clinical learning guide in accordance with the expected competencies of general medical doctorate graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education, and provide it to the learners. 2. The methods and program for student education and evaluation should be determined, announced, and implemented by the educational group based on appropriate scientific principles. The approval of the program, supervision of implementation, and program evaluation are the responsibility of the medical school. 3. In presenting the content of clinical introduction courses, the main emphasis should be on symptoms, signs, and common diseases. It is evident that in each medical school, the curriculum committee should ensure that the content provided by the esteemed professors is appropriate to the unit volume and the expected competencies of general practitioners in the health system.

Appendix for the Course on Introduction to Cardiovascular Diseases - General Medical Doctorate Program

(Topics)

1. Functional Anatomy and Physiology of the Heart
2. Paraclinical Methods in Diagnosing Cardiovascular Diseases
3. Clinical Manifestations of Cardiovascular Diseases:
 - o Chest Pain
 - o Dyspnea
 - o Syncope
 - o Palpitations
 - o Cardiac Arrest and Sudden Death
4. ECG, Principles of Normal Cardiac Electrophysiology, and Heart Blocks
5. Cardiac Arrhythmias
6. Atherosclerosis
7. Coronary Artery Disease

8. Valvular Heart Diseases (Rheumatic Heart Disease, Mitral, Tricuspid, Aortic, and Pulmonary Valve Diseases)
9. Cardiomyopathies
10. Pericardial and Endocardial Diseases
11. Vascular Diseases (Arteries and Veins)
12. Arterial Hypertension
13. Heart Failure
14. Acute Circulatory Failure (Shock)
15. Case Discussions

The Secretariat of the General Medical Education Council can modify the above list as necessary and prioritize it in coordination with the General Medical Board and medical schools.

Course Code:	176		
Course Title	Introduction to Respiratory Diseases		
Course Level	Clinical Introduction		
Prerequisites	None		
Course Type	Theoretical	Practical	Total
Total Hours:	32	4	36
General Objectives	<p>By the end of this course, students should be able to:</p> <p>A. In dealing with each of the common and important symptoms and complaints:</p> <ol style="list-style-type: none"> 1. Define it. 2. Describe the necessary physical examinations (focused history taking and physical exam) for approaching it. 3. Propose important differential diagnoses and suggest the essential steps to reach a diagnosis and manage the patient's problem. <p>B. Regarding common and important diseases:</p> <ol style="list-style-type: none"> 1. Describe the definition, etiology, and epidemiology of the disease. 2. Explain the problems faced by patients with common and important diseases. 		

	<ol style="list-style-type: none"> Describe the methods of diagnosing the disease. Explain the most important preventive measures at various levels, including treatment and rehabilitation of the patient, based on scientific evidence and local guidelines, to the extent expected from a general practitioner. Apply the learned knowledge for clinical reasoning and propose diagnostic or therapeutic approaches when faced with scenarios or case descriptions related to these diseases. <p>C. Pay attention to important issues that need to be observed in the clinical environment of this field.</p>
Course Description	In this course, students should achieve the specified objectives through attending classes, clinical skills learning centers (Lab Skill), workshops, and completing individual and group assignments. At least one session should be dedicated to case discussion, where students review a patient's history and practice applying the learned knowledge to analyze the patient's problems and reach a diagnosis or answer clinical questions.
Essential Content	Learning activities for this course should include a balanced combination of theoretical education, individual study, group discussion, case review, and other learning assignments. The timing and combination of these activities and the required settings for each activity (classroom, clinical skills learning center, and clinical settings) should be determined in the study guide in accordance with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<ol style="list-style-type: none"> Given the different clinical education conditions in various medical schools, it is necessary to prepare the clinical learning guide in accordance with the expected competencies of general medical doctorate graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education, and provide it to the learners. The methods and program for student education and evaluation should be determined, announced, and implemented by the educational group based on appropriate scientific principles. The approval of the program, supervision of implementation, and program evaluation are the responsibility of the medical school. In presenting the content of clinical introduction courses, the main emphasis should be on symptoms, signs, and common diseases. It is evident that in each medical school, the curriculum committee should ensure that the content provided by the esteemed professors is appropriate to the unit volume and the expected competencies of general practitioners in the health system.

Appendix for the Course on Introduction to Respiratory Diseases - General Medical Doctorate Program

(Topics)

1. Overview 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, Respiratory Function Assessment)
4. Chronic Obstructive Pulmonary Diseases (Bronchial Asthma)
5. Chronic Obstructive Pulmonary Diseases (COPD)
6. Upper Respiratory Tract Infections
7. Viral and Bacterial Pneumonias
8. Pulmonary Tuberculosis
9. Bronchiectasis and Lung Abscess
10. Lung Tumors
11. Interstitial Lung Diseases
12. Occupational and Environmental Lung Diseases (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-Based Discussion

The Secretariat of the General Medical Education Council can modify the above list as necessary and prioritize it in coordination with the General Medical Board and medical schools.

Course Code:	177		
Course Title	Introduction to Hematological Diseases		
Course Level	Clinical Introduction		
Prerequisites	None		
Course Type	Theoretical	Practical	Total

Total Hours:	32	4	36
General Objectives	<p>By the end of this course, students should be able to:</p> <p>A. In dealing with each of the common and important symptoms and complaints:</p> <ol style="list-style-type: none"> 1. Define it. 2. Describe the necessary physical examinations (focused history taking and physical exam) for approaching it. 3. Propose important differential diagnoses and suggest the essential steps to reach a diagnosis and manage the patient's problem. <p>B. Regarding common and important diseases:</p> <ol style="list-style-type: none"> 1. Describe the definition, etiology, and epidemiology of the disease. 2. Explain the problems faced by patients with common and important diseases. 3. Describe the methods of diagnosing the disease. 4. Explain the most important preventive measures at various levels, including treatment and rehabilitation of the patient, based on scientific evidence and local guidelines, to the extent expected from a general practitioner. 5. Apply the learned knowledge for clinical reasoning and propose diagnostic or therapeutic approaches when faced with scenarios or case descriptions related to these diseases. <p>C. Pay attention to important issues that need to be observed in the clinical environment of this field.</p>		
Course Description	<p>In this course, students should achieve the specified objectives through attending classes, clinical skills learning centers (Lab Skill), workshops, and completing individual and group assignments. At least one session should be dedicated to case discussion, where students review a patient's history and practice applying the learned knowledge to analyze the patient's problems and reach a diagnosis or answer clinical questions.</p>		
Essential Content	<p>Learning activities for this course should include a balanced combination of theoretical education, individual study, group discussion, case review, and other learning assignments. The timing and combination of these activities and the required settings for each activity (classroom, clinical skills learning center, and clinical settings) should be determined in the study guide in accordance with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p>		

<p>Essential explanations</p>	<ol style="list-style-type: none"> 1. Given the different clinical education conditions in various medical schools, it is necessary to prepare the clinical learning guide in accordance with the expected competencies of general medical doctorate graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education, and provide it to the learners. 2. The methods and program for student education and evaluation should be determined, announced, and implemented by the educational group based on appropriate scientific principles. The approval of the program, supervision of implementation, and program evaluation are the responsibility of the medical school. 3. In presenting the content of clinical introduction courses, the main emphasis should be on symptoms, signs, and common diseases. It is evident that in each medical school, the curriculum committee should ensure that the content provided by the esteemed professors is appropriate to the unit volume and the expected competencies of general practitioners in the health system.
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Appendix for the Course on Introduction to Hematological Diseases - General Medical Doctorate Program

(Topics)

1. Functional Anatomy and Physiology of the Hematological System (Hematopoiesis, Blood Cells and Their Functions, Hemostasis)
2. Paraclinical Evaluation in Hematological Diseases (Complete Blood Count, Blood Smear Examination, Bone Marrow Examination)
3. Clinical and Paraclinical Signs in Hematological Diseases (Anemia, High Hemoglobin, Leukopenia, Leukocytosis, Lymphadenopathy, Splenomegaly, Bleeding, Thrombocytopenia, Thrombocytosis, Pancytopenia, Infection, Venous Thrombosis)
4. Anemias (Iron Deficiency Anemia, Anemia of Chronic Diseases, Megaloblastic Anemia, Aplastic Anemia)
5. General Hemolysis, Membranopathies, and Enzymopathies
6. Hemoglobinopathies, Thalassemic Syndromes, and Acquired Hemolytic Anemias
7. Hereditary and Acquired Coagulation Disorders
8. Platelet Hemostasis Disorders
9. Thrombotic Disorders and Anticoagulant Therapies
10. Myeloproliferative Neoplasms (Primary Thrombocytosis, Primary Polycythemia, Secondary Polycythemia, Myelofibrosis)
11. Acute Leukemias and Bone Marrow Transplantation

12. Chronic Leukemias (CML, CLL, HCL)
13. Non-Hodgkin's Lymphoma and Hodgkin's Lymphoma, Plasma Cell Dyscrasias
14. Blood Products and Transfusion
15. Oncology Emergencies
16. Case-Based Discussion

The Secretariat of the General Medical Education Council can modify the above list as necessary and prioritize it in coordination with the General Medical Board and medical schools.

Course Code:	178		
Course Title	Introduction to Gastrointestinal and Liver Diseases		
Course Level	Clinical Introduction		
Prerequisites	None		
Course Type	Theoretical	Practical	Total
Total Hours:	32	4	36
General Objectives	<p>By the end of this course, students should be able to:</p> <p>A. In dealing with each of the common and important symptoms and complaints:</p> <ol style="list-style-type: none"> 1. Define it. 2. Describe the necessary physical examinations (focused history taking and physical exam) for approaching it. 3. Propose important differential diagnoses and suggest the essential steps to reach a diagnosis and manage the patient's problem. <p>B. Regarding common and important diseases:</p> <ol style="list-style-type: none"> 1. Describe the definition, etiology, and epidemiology of the disease. 		

	<ol style="list-style-type: none"> 2. Explain the problems faced by patients with common and important diseases. 3. Describe the methods of diagnosing the disease. 4. Explain the most important preventive measures at various levels, including treatment and rehabilitation of the patient, based on scientific evidence and local guidelines, to the extent expected from a general practitioner. 5. Apply the learned knowledge for clinical reasoning and propose diagnostic or therapeutic approaches when faced with scenarios or case descriptions related to these diseases. <p>C. Pay attention to important issues that need to be observed in the clinical environment of this field.</p>
Course Description	In this course, students should achieve the specified objectives through attending classes, clinical skills learning centers (Lab Skill), workshops, and completing individual and group assignments. At least one session should be dedicated to case discussion, where students review a patient's history and practice applying the learned knowledge to analyze the patient's problems and reach a diagnosis or answer clinical questions.
Essential Content	Learning activities for this course should include a balanced combination of theoretical education, individual study, group discussion, case review, and other learning assignments. The timing and combination of these activities and the required settings for each activity (classroom, clinical skills learning center, and clinical settings) should be determined in the study guide in accordance with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<ol style="list-style-type: none"> 1. Given the different clinical education conditions in various medical schools, it is necessary to prepare the clinical learning guide in accordance with the expected competencies of general medical doctorate graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education, and provide it to the learners. 2. The methods and program for student education and evaluation should be determined, announced, and implemented by the educational group based on appropriate scientific principles. The approval of the program, supervision of implementation, and program evaluation are the responsibility of the medical school. 3. In presenting the content of clinical introduction courses, the main emphasis should be on symptoms, signs, and common diseases. It is evident that in each medical school, the curriculum committee should ensure that the content provided by the esteemed professors is

	appropriate to the unit volume and the expected competencies of general practitioners in the health system.
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Appendix for the Course on Introduction to Gastrointestinal and Liver Diseases - General Medical Doctorate Program

(Topics)

1. Functional Anatomy and Physiology of the Gastrointestinal System
2. Paraclinical Methods in Gastrointestinal Disease Evaluation
3. Clinical Manifestations of Gastrointestinal Diseases:
 - Dyspepsia
 - Swallowing Disorders (Odynophagia and Dysphagia)
 - Heartburn and Regurgitation
 - Vomiting
 - Gastrointestinal Bleeding
 - Diarrhea (Acute and Chronic)
 - Malabsorption
 - Constipation and Defecation Disorders
 - Abdominal Pain
4. Diseases of the Mouth and Salivary Glands (Aphthous Ulcers, Oral Cancer, Candidiasis, Parotitis)
5. Esophageal Diseases (Reflux, Motility Disorders, Esophagitis, Tumors, and Esophageal Ulcers)
6. Stomach and Duodenum Diseases (Gastritis, Peptic Ulcer, Functional Disorders, Stomach Tumors)
7. Small Intestine Diseases (Malabsorption Syndromes, Motility Disorders, Foodborne Complications, Small Intestine Infections, Small Intestine Tumors)
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 Biliary Tract
12. Paraclinical Evaluation in Liver and Biliary Tract Diseases (Biochemical Blood Tests, Hematological Tests, Immunological Tests, Imaging, Histological Examination)
13. Clinical Manifestations of Liver Diseases:

- Acute Liver Failure
 - Abnormal Liver Function Tests (Interpretation of Liver Tests)
 - Jaundice
 - Hepatomegaly
 - Ascites
 - Hepatic Encephalopathy
 - Bleeding from Esophageal Varices
14. Liver Infections (Viral Hepatitis, Liver Abscess)
 15. Autoimmune Liver and Biliary Tract Diseases
 16. Fatty Liver
 17. Liver Cirrhosis
 18. Liver Tumors
 19. Drug-Induced Liver Injury
 20. Hereditary Liver Diseases (Hemochromatosis, Wilson's Disease, Gilbert's Syndrome)
 21. Gallstones and Cholestasis (Primary Biliary Cholangitis, Primary Sclerosing Cholangitis)
 22. Parasitic Diseases of the Gastrointestinal Tract and Hydatid Cyst
 23. Case-Based Discussion

The Secretariat of the General Medical Education Council can modify the above list as necessary and prioritize it in coordination with the General Medical Board and medical schools.

Course Code:	179		
Course Title	Introduction to Endocrine and Metabolic Diseases		
Course Level	Clinical Introduction		
Prerequisites	None		
Course Type	Theoretical	Practical	Total
Total Hours:	32	4	36
General Objectives	<p>By the end of this course, students should be able to:</p> <p>A. In dealing with each of the common and important symptoms and complaints:</p> <ol style="list-style-type: none"> 1. Define it. 2. Describe the necessary physical examinations (focused history taking and physical exam) for approaching it. 		

	<p>3. Propose important differential diagnoses and suggest the essential steps to reach a diagnosis and manage the patient's problem.</p> <p>B. Regarding common and important diseases:</p> <ol style="list-style-type: none"> 1. Describe the definition, etiology, and epidemiology of the disease. 2. Explain the problems faced by patients with common and important diseases. 3. Describe the methods of diagnosing the disease. 4. Explain the most important preventive measures at various levels, including treatment and rehabilitation of the patient, based on scientific evidence and local guidelines, to the extent expected from a general practitioner. 5. Apply the learned knowledge for clinical reasoning and propose diagnostic or therapeutic approaches when faced with scenarios or case descriptions related to these diseases. <p>C. Pay attention to important issues that need to be observed in the clinical environment of this field.</p>
Course Description	In this course, students should achieve the specified objectives through attending classes, clinical skills learning centers (Lab Skill), workshops, and completing individual and group assignments. At least one session should be dedicated to case discussion, where students review a patient's history and practice applying the learned knowledge to analyze the patient's problems and reach a diagnosis or answer clinical questions.
Essential Content	Learning activities for this course should include a balanced combination of theoretical education, individual study, group discussion, case review, and other learning assignments. The timing and combination of these activities and the required settings for each activity (classroom, clinical skills learning center, and clinical settings) should be determined in the study guide in accordance with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<ol style="list-style-type: none"> 4. Given the different clinical education conditions in various medical schools, it is necessary to prepare the clinical learning guide in accordance with the expected competencies of general medical doctorate graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education, and provide it to the learners. 5. The methods and program for student education and evaluation should be determined, announced, and implemented by the educational group based on appropriate scientific principles. The approval of the program, supervision of implementation, and program evaluation are the responsibility of the medical school.

	6. In presenting the content of clinical introduction courses, the main emphasis should be on symptoms, signs, and common diseases. It is evident that in each medical school, the curriculum committee should ensure that the content provided by the esteemed professors is appropriate to the unit volume and the expected competencies of general practitioners in the health system.
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Appendix for the Course on Introduction to Endocrine Diseases - General Medical Doctorate Program

(Topics)

1. General Endocrinology
2. Pituitary and Hypothalamic Diseases (Functional Anatomy and Physiology, Clinical Manifestations of Pituitary and Hypothalamic Diseases, Hypopituitarism and Hypothalamic Dysfunction, Prolactinoma, Acromegaly, Diabetes Insipidus)
3. Thyroid Diseases (Functional Anatomy and Physiology, Clinical Manifestations of Thyroid Diseases, Paraclinical Evaluation in Thyroid Disorders, Hyperthyroidism and Hypothyroidism, Thyroiditis, Goiter, Thyroid Tumors)
4. Parathyroid Diseases (Functional Anatomy and Physiology, Hypercalcemia and Hypocalcemia, Hypoparathyroidism and Hyperparathyroidism)
5. Adrenal Diseases (Functional Anatomy and Physiology, Clinical Manifestations of Adrenal Diseases, Cushing's Syndrome, Adrenal Insufficiency, Pheochromocytoma)
6. Gonadal Diseases (Functional Anatomy and Physiology, Delayed Puberty, Amenorrhea and Hirsutism, Polycystic Ovary Syndrome)
7. Diabetes: Definition, Diagnosis, and Classification
8. Acute Complications of Diabetes: Diabetic Ketoacidosis and Hyperosmolar Coma
9. Chronic Complications of Diabetes
10. Metabolic Syndrome and Obesity
11. Lipid Disorders
12. Case-Based Discussion

The Secretariat of the General Medical Education Council can modify the above list as necessary and prioritize it in coordination with the General Medical Board and medical schools.

Course Code:	180		
Course Title	Renal Diseases		
Course Level	Clinical Introduction		
Prerequisites	None		
Course Type	Theoretical	Practical	Total
Total Hours:	26	4	30
General Objectives	<p>By the end of this course, students should be able to:</p> <p>A. In dealing with each of the common and important symptoms and complaints:</p> <ol style="list-style-type: none"> 4. Define it. 5. Describe the necessary physical examinations (focused history taking and physical exam) for approaching it. 6. Propose important differential diagnoses and suggest the essential steps to reach a diagnosis and manage the patient's problem. <p>B. Regarding common and important diseases:</p> <ol style="list-style-type: none"> 6. Describe the definition, etiology, and epidemiology of the disease. 7. Explain the problems faced by patients with common and important diseases. 8. Describe the methods of diagnosing the disease. 9. Explain the most important preventive measures at various levels, including treatment and rehabilitation of the patient, based on scientific evidence and local guidelines, to the extent expected from a general practitioner. 10. Apply the learned knowledge for clinical reasoning and propose diagnostic or therapeutic approaches when faced with scenarios or case descriptions related to these diseases. <p>C. Pay attention to important issues that need to be observed in the clinical environment of this field.</p>		
Course Description	<p>In this course, students should achieve the specified objectives through attending classes, clinical skills learning centers (Lab Skill), workshops, and completing individual and group assignments. At least one session should be dedicated to case discussion, where students review a patient's history and</p>		

	practice applying the learned knowledge to analyze the patient's problems and reach a diagnosis or answer clinical questions.
Essential Content	Learning activities for this course should include a balanced combination of theoretical education, individual study, group discussion, case review, and other learning assignments. The timing and combination of these activities and the required settings for each activity (classroom, clinical skills learning center, and clinical settings) should be determined in the study guide in accordance with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<ol style="list-style-type: none"> 7. Given the different clinical education conditions in various medical schools, it is necessary to prepare the clinical learning guide in accordance with the expected competencies of general medical doctorate graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education, and provide it to the learners. 8. The methods and program for student education and evaluation should be determined, announced, and implemented by the educational group based on appropriate scientific principles. The approval of the program, supervision of implementation, and program evaluation are the responsibility of the medical school. 9. In presenting the content of clinical introduction courses, the main emphasis should be on symptoms, signs, and common diseases. It is evident that in each medical school, the curriculum committee should ensure that the content provided by the esteemed professors is appropriate to the unit volume and the expected competencies of general practitioners in the health system.

Appendix for the Course on Introduction to Renal Diseases - General Medical Doctorate Program

(Topics)

1. Functional Anatomy and Physiology of the Urinary System
2. Laboratory Diagnosis of Kidney and Urinary Tract Diseases (GFR, Urinalysis, Blood Tests, Imaging, Kidney Biopsy)
3. Clinical Manifestations of Kidney and Urinary Tract Diseases
4. Acute Kidney Failure
5. Chronic Kidney Disease (CKD)
6. Vascular Diseases of the Kidney
7. Glomerular Diseases

8. Tubulointerstitial Diseases (Acute and Chronic Interstitial Nephritis, Reflux 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 Replacement Therapy in Kidney Failure (Conservative Treatment, Hemodialysis, Peritoneal Dialysis, Kidney Transplantation)
16. Kidney and Systemic Diseases, Pregnancy
17. Case-Based Discussion

The Secretariat of the General Medical Education Council can modify the above list as necessary and prioritize it in coordination with the General Medical Board and medical schools.

Course Code:	181		
Course Title	Rheumatological Diseases		
Course Level	Clinical Introduction		
Prerequisites	None		
Course Type	Theoretical	Practical	Total
Total Hours:	17	0	17
General Objectives	<p>By the end of this course, students should be able to:</p> <p>A. In dealing with each of the common and important symptoms and complaints:</p> <ol style="list-style-type: none"> 1. Define it. 2. Describe the necessary physical examinations (focused history taking and physical exam) for approaching it. 3. Propose important differential diagnoses and suggest the essential steps to reach a diagnosis and manage the patient's problem. <p>B. Regarding common and important diseases:</p> <ol style="list-style-type: none"> 1. Describe the definition, etiology, and epidemiology of the disease. 2. Explain the problems faced by patients with common and important diseases. 3. Describe the methods of diagnosing the disease. 		

	<ol style="list-style-type: none"> 4. Explain the most important preventive measures at various levels, including treatment and rehabilitation of the patient, based on scientific evidence and local guidelines, to the extent expected from a general practitioner. 5. Apply the learned knowledge for clinical reasoning and propose diagnostic or therapeutic approaches when faced with scenarios or case descriptions related to these diseases. <p>C. Pay attention to important issues that need to be observed in the clinical environment of this field.</p>
Course Description	In this course, students should achieve the specified objectives through attending classes, clinical skills learning centers (Lab Skill), workshops, and completing individual and group assignments. At least one session should be dedicated to case discussion, where students review a patient's history and practice applying the learned knowledge to analyze the patient's problems and reach a diagnosis or answer clinical questions.
Essential Content	Learning activities for this course should include a balanced combination of theoretical education, individual study, group discussion, case review, and other learning assignments. The timing and combination of these activities and the required settings for each activity (classroom, clinical skills learning center, and clinical settings) should be determined in the study guide in accordance with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<ol style="list-style-type: none"> 1. Given the different clinical education conditions in various medical schools, it is necessary to prepare the clinical learning guide in accordance with the expected competencies of general medical doctorate graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education, and provide it to the learners. 2. The methods and program for student education and evaluation should be determined, announced, and implemented by the educational group based on appropriate scientific principles. The approval of the program, supervision of implementation, and program evaluation are the responsibility of the medical school. 3. In presenting the content of clinical introduction courses, the main emphasis should be on symptoms, signs, and common diseases. It is evident that in each medical school, the curriculum committee should ensure that the content provided by the esteemed professors is appropriate to the unit volume and the expected competencies of general practitioners in the health system.

Appendix for the Course on Introduction to Rheumatological Diseases - General Medical Doctorate Program

(Topics)

1. Symptomatology of Rheumatic Diseases:
 - Spinal Pain and General Musculoskeletal Pain
 - Polyarthritis and Monoarthritis
2. Functional Anatomy and Physiology of Connective Tissue
3. Osteoarthritis
4. Rheumatoid Arthritis and Juvenile Rheumatoid Arthritis (JRA)
5. Seronegative Spondyloarthropathies (Ankylosing Spondylitis, Reactive Arthritis, etc.)
6. Periarteritis
7. Infectious Arthritis (Septic, Viral, Tuberculous, and Brucellar)
8. Gout and Other Crystal-Induced Arthropathies
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 of Bone, and Hyperparathyroidism)
13. Laboratory Tests and Imaging Techniques in Rheumatological Disorders
14. Approach to Patients with Musculoskeletal Complaints (History Taking and Examination), Introduction to Clinical Syndromes
15. Principles of Treatment in Rheumatic Diseases
16. Case-Based Discussion

The Secretariat of the General Medical Education Council can modify the above list as necessary and prioritize it in coordination with the General Medical Board and medical schools.

Course Code:	182		
Course Title	Introduction to Pediatric Diseases		
Course Level	Clinical Introduction		
Prerequisites	None		
Course Type	Theoretical	Practical	Total
Total Hours:	17	0	17

<p>General Objectives</p>	<p>By the end of this course, students should be able to:</p> <p>A. In dealing with each of the common and important symptoms and complaints:</p> <ol style="list-style-type: none"> 1. Define it. 2. Describe the necessary physical examinations (focused history taking and physical exam) for approaching it. 3. Propose important differential diagnoses and suggest the essential steps to reach a diagnosis and manage the patient's problem. <p>B. Regarding common and important diseases:</p> <ol style="list-style-type: none"> 1. Describe the definition, etiology, and epidemiology of the disease. 2. Explain the problems faced by patients with common and important diseases. 3. Describe the methods of diagnosing the disease. 4. Explain the most important preventive measures at various levels, including treatment and rehabilitation of the patient, based on scientific evidence and local guidelines, to the extent expected from a general practitioner. 5. Apply the learned knowledge for clinical reasoning and propose diagnostic or therapeutic approaches when faced with scenarios or case descriptions related to these diseases. <p>C. Pay attention to important issues that need to be observed in the clinical environment of this field.</p>
<p>Course Description</p>	<p>In this course, students should achieve the specified objectives through attending classes, clinical skills learning centers (Lab Skill), workshops, and completing individual and group assignments. At least one session should be dedicated to case discussion, where students review a patient's history and practice applying the learned knowledge to analyze the patient's problems and reach a diagnosis or answer clinical questions.</p>
<p>Essential Content</p>	<p>Learning activities for this course should include a balanced combination of theoretical education, individual study, group discussion, case review, and other learning assignments. The timing and combination of these activities and the required settings for each activity (classroom, clinical skills learning center, and clinical settings) should be determined in the study guide in accordance with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p>

<p>Essential explanations</p>	<ol style="list-style-type: none"> 1. Given the different clinical education conditions in various medical schools, it is necessary to prepare the clinical learning guide in accordance with the expected competencies of general medical doctorate graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education, and provide it to the learners. 2. The methods and program for student education and evaluation should be determined, announced, and implemented by the educational group based on appropriate scientific principles. The approval of the program, supervision of implementation, and program evaluation are the responsibility of the medical school. 3. In presenting the content of clinical introduction courses, the main emphasis should be on symptoms, signs, and common diseases. It is evident that in each medical school, the curriculum committee should ensure that the content provided by the esteemed professors is appropriate to the unit volume and the expected competencies of general practitioners in the health system.
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Appendix for the Course on Introduction to Pediatrics - General Medical Doctorate Program

(Essential Course Content)

1. Definition of Pediatrics, Epidemiology of Diseases, and Child Mortality in Iran; Familiarity with the Health System and Child Health Programs in the Country
2. Taking History and Physical Examination of the Child
3. Familiarity with Disease Screening Based on Nationally Recommended Programs
4. Infection Control in Hospitals, Epidemiological Control of Infectious Diseases in Children at the Community Level
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 Symptoms)
9. Familiarity with the Principles of Body Fluid Pathophysiology and Evaluation of Common Electrolyte Disorders
10. Pathophysiology of Acid-Base Disorders

The Secretariat of the General Medical Education Council can modify the list of common symptoms, syndromes, and important diseases in this course as necessary and prioritize it in coordination with the General Medical Board and medical schools.

Course Code:	183		
Course Title	Introduction to Surgical Diseases		
Course Level	Clinical Introduction		
Prerequisites	None		
Course Type	Theoretical	Practical	Total
Total Hours:	15	4	20
General Objectives	<p>By the end of this course, students should be able to:</p> <p>A. In dealing with each of the common and important symptoms and complaints:</p> <ol style="list-style-type: none"> 1. Define it. 2. Describe the necessary physical examinations (focused history taking and physical exam) for approaching it. 3. Propose important differential diagnoses and suggest the essential steps to reach a diagnosis and manage the patient's problem. <p>B. Regarding common and important diseases:</p> <ol style="list-style-type: none"> 1. Describe the definition, etiology, and epidemiology of the disease. 2. Explain the problems faced by patients with common and important diseases. 3. Describe the methods of diagnosing the disease. 4. Explain the most important preventive measures at various levels, including treatment and rehabilitation of the patient, based on scientific evidence and local guidelines, to the extent expected from a general practitioner. 5. Apply the learned knowledge for clinical reasoning and propose diagnostic or therapeutic approaches when faced with scenarios or case descriptions related to these diseases. <p>C. Pay attention to important issues that need to be observed in the clinical environment of this field.</p>		

Course Description	In this course, students should achieve the specified objectives through attending classes, clinical skills learning centers (Lab Skill), workshops, and completing individual and group assignments. At least one session should be dedicated to case discussion, where students review a patient's history and practice applying the learned knowledge to analyze the patient's problems and reach a diagnosis or answer clinical questions.
Essential Content	Learning activities for this course should include a balanced combination of theoretical education, individual study, group discussion, case review, and other learning assignments. The timing and combination of these activities and the required settings for each activity (classroom, clinical skills learning center, and clinical settings) should be determined in the study guide in accordance with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<ol style="list-style-type: none"> 1. Given the different clinical education conditions in various medical schools, it is necessary to prepare the clinical learning guide in accordance with the expected competencies of general medical doctorate graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education, and provide it to the learners. 2. The methods and program for student education and evaluation should be determined, announced, and implemented by the educational group based on appropriate scientific principles. The approval of the program, supervision of implementation, and program evaluation are the responsibility of the medical school. 3. In presenting the content of clinical introduction courses, the main emphasis should be on symptoms, signs, and common diseases. It is evident that in each medical school, the curriculum committee should ensure that the content provided by the esteemed professors is appropriate to the unit volume and the expected competencies of general practitioners in the health system.

Appendix for the Course on Introduction to Surgical Diseases - General Medical Doctorate Program

(Essential Course Content)

1. Acute Abdomen and Its Differential Diagnoses
2. Principles of Managing Open and Closed Wounds and Controlling External Bleeding
3. Shock and Transfusion
4. Management of Common Traumas Including Initial and Secondary Assessment
5. Preoperative and Postoperative Management of Patients
6. Taking History and Physical Examination of the Genitourinary System
7. Common Signs and Symptoms of Urinary Tract Diseases (Urology)

8. Hematuria and Renal Colic
9. Basics of Fractures and Dislocations (Including Principles of Open Fracture Repair)
10. Principles of Taking History and Orthopedic Examinations and Common Diagnostic Methods in Orthopedics
11. Identification of Basic Surgical Instruments and Commonly Used Sets in Various Departments, and Application of Aseptic Techniques in Common Hospital Procedures (1-hour Workshop)
12. Importance of Documentation of Care and Key Issues in Record Keeping in Surgical Departments (1-hour Workshop)
13. Patient Safety in Surgical Departments

The Secretariat of the General Medical Education Council can modify the list of common symptoms, syndromes, and important diseases in this course as necessary and prioritize it in coordination with the General Medical Board and medical schools.

Course Code:	184		
Course Title	Introduction to Neurological Diseases		
Course Level	Clinical Introduction		
Prerequisites	None		
Course Type	Theoretical	Practical	Total
Total Hours:	9	0	9
General Objectives	<p>By the end of this course, students should be able to:</p> <p>A. In dealing with each of the common and important symptoms and complaints:</p> <ol style="list-style-type: none"> 1. Define it. 2. Describe the necessary physical examinations (focused history taking and physical exam) for approaching it. 3. Propose important differential diagnoses and suggest the essential steps to reach a diagnosis and manage the patient's problem. <p>B. Regarding common and important diseases:</p> <ol style="list-style-type: none"> 1. Describe the definition, etiology, and epidemiology of the disease. 2. Explain the problems faced by patients with common and important diseases. 3. Describe the methods of diagnosing the disease. 		

	<ol style="list-style-type: none"> 4. Explain the most important preventive measures at various levels, including treatment and rehabilitation of the patient, based on scientific evidence and local guidelines, to the extent expected from a general practitioner. 5. Apply the learned knowledge for clinical reasoning and propose diagnostic or therapeutic approaches when faced with scenarios or case descriptions related to these diseases. <p>C. Pay attention to important issues that need to be observed in the clinical environment of this field.</p>
Course Description	In this course, students should achieve the specified objectives through attending classes, clinical skills learning centers (Lab Skill), workshops, and completing individual and group assignments. At least one session should be dedicated to case discussion, where students review a patient's history and practice applying the learned knowledge to analyze the patient's problems and reach a diagnosis or answer clinical questions.
Essential Content	Learning activities for this course should include a balanced combination of theoretical education, individual study, group discussion, case review, and other learning assignments. The timing and combination of these activities and the required settings for each activity (classroom, clinical skills learning center, and clinical settings) should be determined in the study guide in accordance with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<ol style="list-style-type: none"> 1. Given the different clinical education conditions in various medical schools, it is necessary to prepare the clinical learning guide in accordance with the expected competencies of general medical doctorate graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education, and provide it to the learners. 2. The methods and program for student education and evaluation should be determined, announced, and implemented by the educational group based on appropriate scientific principles. The approval of the program, supervision of implementation, and program evaluation are the responsibility of the medical school. 3. In presenting the content of clinical introduction courses, the main emphasis should be on symptoms, signs, and common diseases. It is evident that in each medical school, the curriculum committee should ensure that the content provided by the esteemed professors is appropriate to the unit volume and the expected competencies of general practitioners in the health system.

Appendix for the Course on Introduction to Neurological Diseases - General Medical Doctorate Program

(Essential Course Content)

1. Localization of Lesions in Neurology
2. Disorders of Consciousness, Vegetative State, and Brain Death (Concepts, Pathophysiology, Key Points in Examination and History Taking)
3. Approach to Patients with Muscle Weakness
4. Stroke (Concepts, Pathophysiology, Etiology, and Clinical Symptoms)
5. Seizure Disorders (Definitions, Classification, Clinical Symptoms, and Differential Diagnosis)
6. Approach to Dizziness and Balance Disorders
7. Back Pain, Neck Pain, and Limb Pain
8. Headache (Definitions, Classification, and Key Points in History Taking and Examination)

The Secretariat of the General Medical Education Council can modify the list of common symptoms, syndromes, and important diseases in this course as necessary and prioritize it in coordination with the General Medical Board and medical schools.

Course Code:	185		
Course Title	Introduction to Psychiatry		
Course Level	Clinical Introduction		
Prerequisites	None		
Course Type	Theoretical	Practical	Total
Total Hours:	8	0	8
	By the end of this course, students should be able to: A. In dealing with each of the common and important symptoms and complaints:		

General Objectives	<ol style="list-style-type: none"> 1. Define it. 2. Describe the necessary physical examinations (focused history taking and physical exam) to approach it. 3. Propose important differential diagnoses and suggest the essential steps to reach a diagnosis and manage the patient's problem. <p>B. Regarding common and important diseases:</p> <ol style="list-style-type: none"> 1. Describe the definition, etiology, and epidemiology of the disease. 2. Explain the problems faced by patients with common and important diseases. 3. Describe the methods of diagnosing the disease. 4. Explain the most important preventive measures at various levels, including treatment and rehabilitation of the patient, based on scientific evidence and local guidelines, to the extent expected from a general practitioner. 5. Apply the learned knowledge for clinical reasoning and propose diagnostic or therapeutic approaches when faced with scenarios or case descriptions related to these diseases. <p>C. Pay attention to important issues that need to be observed in this field's clinical environment.</p>
Course Description	<p>In this course, students should achieve the specified objectives through attending classes, clinical skills learning centers (Lab Skill), workshops, and completing individual and group assignments. At least one session should be dedicated to case discussion, where students review a patient's history and practice applying the learned knowledge to analyze the patient's problems and reach a diagnosis or answer clinical questions.</p>
Essential Content	<p>Learning activities for this course should include a balanced combination of theoretical education, individual study, group discussion, case review, and other learning assignments. The timing and combination of these activities and the required settings for each activity (classroom, clinical skills learning center, and clinical settings) should be determined in the study guide in accordance with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p>
Essential explanations	<ol style="list-style-type: none"> 1. Given the different clinical education conditions in various medical schools, it is necessary to prepare the clinical learning guide in accordance with the expected competencies of general medical doctorate graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education, and provide it to the learners. 2. The educational group should determine, announce, and implement the methods and program for student education and evaluation based on appropriate scientific principles. The approval of the program,

	<p>supervision of implementation, and program evaluation are the responsibility of the medical school.</p> <p>3. In presenting the content of clinical introduction courses, the main emphasis should be on symptoms, signs, and common diseases. It is evident that in each medical school, the curriculum committee should ensure that the content provided by the esteemed professors is appropriate to the unit volume and the expected competencies of general practitioners in the health system.</p>
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Attachment to the Course on Introduction to Psychiatry for the Doctor of Medicine Program

1. General Principles of Psychiatry, Mental Health, and Common Classifications in Psychiatry
2. Taking Patient Histories from Individuals with Psychiatric Disorders: Principles, Techniques, and Symptomatology
3. Psychiatric Issues in Physical Illnesses and Psychosomatic Disorders
4. Physical Problems in Mental Illnesses
5. Depression and Anxiety (Definition, Importance, Epidemiology)
6. Somatoform Disorders
7. Psychiatric Emergencies (Principles of Encounter, Care, and Treatment)

The Secretariat of the General Medical Education Council may revise the above list as necessary and according to priorities in coordination with the General Medical Board and medical schools

Course Code:	186		
Course Title	Introduction to Infectious Diseases		
Course Level	Clinical Introduction		
Prerequisites	None		
Course Type	Theoretical	Practical	Total
Total Hours:	17	0	17

<p>General Objectives</p>	<p>By the end of this course, students should be able to:</p> <p>A. In dealing with each of the common and important symptoms and complaints:</p> <ol style="list-style-type: none"> 4. Define it. 5. Describe the necessary physical examinations (focused history taking and physical exam) to approach it. 6. Propose important differential diagnoses and suggest the essential steps to reach a diagnosis and manage the patient's problem. <p>B. Regarding common and important diseases:</p> <ol style="list-style-type: none"> 6. Describe the definition, etiology, and epidemiology of the disease. 7. Explain the problems faced by patients with common and important diseases. 8. Describe the methods of diagnosing the disease. 9. Explain the most important preventive measures at various levels, including treatment and rehabilitation of the patient, based on scientific evidence and local guidelines, to the extent expected from a general practitioner. 10. Apply the learned knowledge for clinical reasoning and propose diagnostic or therapeutic approaches when faced with scenarios or case descriptions related to these diseases. <p>C. Pay attention to important issues that need to be observed in this field's clinical environment.</p>
<p>Course Description</p>	<p>In this course, students should achieve the specified objectives through attending classes, clinical skills learning centers (Lab Skill), workshops, and completing individual and group assignments. At least one session should be dedicated to case discussion, where students review a patient's history and practice applying the learned knowledge to analyze the patient's problems and reach a diagnosis or answer clinical questions.</p>
<p>Essential Content</p>	<p>Learning activities for this course should include a balanced combination of theoretical education, individual study, group discussion, case review, and other learning assignments. The timing and combination of these activities and the required settings for each activity (classroom, clinical skills learning center, and clinical settings) should be determined in the study guide in accordance with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p>

<p>Essential explanations</p>	<ol style="list-style-type: none"> 4. Given the different clinical education conditions in various medical schools, it is necessary to prepare the clinical learning guide in accordance with the expected competencies of general medical doctorate graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education, and provide it to the learners. 5. The educational group should determine, announce, and implement the methods and program for student education and evaluation based on appropriate scientific principles. The approval of the program, supervision of implementation, and program evaluation are the responsibility of the medical school. 6. In presenting the content of clinical introduction courses, the main emphasis should be on symptoms, signs, and common diseases. It is evident that in each medical school, the curriculum committee should ensure that the content provided by the esteemed professors is appropriate to the unit volume and the expected competencies of general practitioners in the health system.
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Attachment to the Course on Introduction to Infectious Diseases for the Doctor of Medicine Program

Essential Content of the Course

1. **Principles of Prevention of Infectious Diseases**
2. **Fundamentals of Laboratory Investigations in Infectious Diseases**
3. **Principles of Hospital Infection Control and Isolation**
4. **Principles of Personal Care Against Infections**
5. **Management of Patients with Fever and Fever Without Localized Symptoms**
6. **Sepsis and Septic Shock**
7. **Management of Patients with Lymphadenopathy**
8. **Management of Patients with Fever and Rash**
9. **Skin and Soft Tissue Infections**
10. **Viral and Bacterial Gastrointestinal Infections**
11. **Common Parasitic Infections of the Gastrointestinal Tract**
12. **Common Upper Respiratory Tract Infections**
13. **Common Lower Respiratory Tract Infections**
14. **Hospital-Acquired Infections**

The Secretariat of the General Medical Education Council may revise the list of common signs and symptoms, syndromes, and important diseases in this course as necessary, based on priorities and in coordination with the General Medical Board and medical schools.

Course Code:	187		
Course Title	Complementary Medicine		
Course Level	internship		
Prerequisites	Clinical Introduction		
Course Type	Theoretical	Practical	Total
Total Hours:	34	0	34
General Objectives	<ol style="list-style-type: none"> Familiarization with Traditional and Complementary Medicine (TCM) Approaches: Understanding the schools of traditional and complementary medicine recognized by the World Health Organization (WHO) and the areas of application of their most relevant branches. Acquisition of Scientific Information: Learning how to gather scientific information, emphasizing the necessity for continuous learning and access to future research outcomes in the field of traditional and complementary medicine. Positive Perspective on Patient Choices: Cultivating a positive outlook to respond to patient choices regarding traditional and complementary medicine. Empowerment in Integrative Medicine: Equipping students in the Doctor of Medicine program with the knowledge to utilize all effective therapeutic potentials and interventions through collaborative teamwork. Utilization of Iranian Traditional Medicine Principles: Understanding how to integrate Iranian traditional medicine principles into the therapeutic cycle based on evidence-based medicine within the scope of general medical practice and timely referral of advanced cases related to traditional medicine to specialists (PhD) in Iranian traditional medicine. Logical Attitude Towards Health Guidance: Fostering a rational perspective among medical students regarding education, guidance, and counseling on healthy lifestyles from the viewpoint of Iranian traditional medicine. 		

Course Description	<p>In this course, students will be introduced to global definitions and terminologies of Traditional and Complementary Medicine (TCM) and holistic medicine and the foundational principles and scope of some of the most prominent medical schools with substantial scientific evidence worldwide. The overarching goal is to ensure that all medical students are adequately familiarized with traditional and complementary medicine, granting them a level of awareness regarding patient choices, particularly in the following areas:</p> <ol style="list-style-type: none"> 1. Familiarity with Iranian Traditional Medicine and Teaching Its Practical and Fundamental Concepts 2. Teaching the Fundamentals of Prevention and Healthy Lifestyle from the Perspective of Iranian Traditional Medicine 3. Creating a Suitable Environment for Scientific Research in Traditional Medicine and Motivation for Continuing Education in the Specialized Field of This Discipline
Essential Content	<p>Definition of Holistic Medicine: Holistic medicine emphasizes the connection between the mind, body, and spirit, focusing on the overall well-being of the individual.</p> <p>Position in Medical Education and Research Systems: Traditional and Complementary Medicine (CM&T) occupies a significant place in medical education and research, with WHO advocating for its integration into healthcare systems.</p> <p>Policies and Strategies of WHO on Traditional Medicine: The WHO has developed strategies to identify, educate, research, standardize, and regulate traditional and complementary medicine practices, recognizing their growing acceptance worldwide.</p> <p>Position of Traditional and Complementary Medicine in Health Systems of Various Countries: Countries such as China and India have successfully integrated traditional medicine into their healthcare systems, demonstrating its efficacy and safety through scientific evidence.</p> <p>Classification of Treatment Methods in Traditional and Complementary Medicine (CM&T):</p> <p>History: Understanding the historical context of CM&T.</p> <p>Core Concepts: Fundamental principles underlying CM&T.</p> <p>Therapeutic Applications: The various applications of traditional treatments.</p> <p>Contraindications: Situations where certain treatments should not be applied.</p> <p>Potential Side Effects: Awareness of possible adverse effects of treatments.</p>

Evidence-Based Effectiveness: Treatments whose efficacy and safety have been proven through recent scientific studies.

Key Areas of Knowledge for Physicians in Traditional and Complementary Medicine

Chiropractic

Acupuncture and Traditional Chinese Medicine

Ayurveda

Naturopathy

Reflexology

Meditation

Hypnosis

Homeopathy

History of Iranian Traditional Medicine

Position in Medical Education and Health Systems:

The historical significance and contemporary relevance of Iranian traditional medicine in healthcare.

Laws and Policies:

The legislative framework governing traditional medicine practices.

Core Principles and Foundations:

General concepts, definitions, and classifications.

Wisdom and philosophy of traditional medicine.

Basic elements and temperament theories.

Natural phenomena influencing health.

Causes and symptoms of diseases.

Therapeutic measures and practices.

Historical Overview of Medical Science and Notable Medical Scholars

Introduction to Traditional Medicine Resources:

Reliable domestic and international resources and websites on traditional medicine.

Philosophical Foundations of Iranian Traditional Medicine

Principles of Health Maintenance and Prevention:

	<p>Essential Six Principles:</p> <p>Climate and environment</p> <p>Sleep and wakefulness</p> <p>Movement and rest (exercise)</p> <p>Retention and elimination (maintenance of beneficial substances and expulsion of waste)</p> <p>Mental states (emotional well-being)</p> <p>Nutrition principles</p> <p>Dietary Components in Traditional Medicine</p> <p>Food Groups:</p> <p>Legumes, nuts, fruits, and vegetables.</p> <p>Dairy products and meats.</p> <p>Understanding Manual Therapies</p> <p>Practices:</p> <p>Massage</p> <p>Cupping therapy</p> <p>Bloodletting</p>
Essential explanations	<p>Traditional and Complementary Medicine encompasses a group of practices and products that are not part of conventional medicine. This definition reflects the reality that there are health and treatment methods prevalent in society that are not addressed in conventional medical schools but significantly impact public health (positively or negatively). Statistics indicate a significant rise in the use of these methods. Consequently, governments and global organizations have sought to identify, educate, research, standardize, and legislate in this area over the past two decades.</p> <p>Given the increasing inclination and use of traditional and complementary medicine by people in various countries, it is essential for physicians to be well-informed in this field. The necessity and urgency of integrating traditional and complementary medicine education into medical training have been emphasized. Therefore, the WHO recommends that healthcare providers acquire academic knowledge about traditional and complementary medicine.</p> <p>The goal of "Integrative Medicine" is to utilize all effective therapeutic interventions available by trained and licensed practitioners in a collaborative</p>

	<p>manner, ensuring that these interventions are introduced into the treatment cycle based on evidence-based medicine.</p> <p>In Iran, considering the established health policies and the rich historical background in traditional medicine, expanding studies in traditional medicine and encouraging the use of documented and scientific experiences has become a priority. Thus, it is crucial for medical graduates to develop a proper understanding of traditional medicine. Acquiring skills in applying diagnostic and therapeutic methods of traditional medicine requires specialized and supplementary training beyond the general medical curriculum.</p> <p><i>Methods and programs for educating and assessing students must be determined, announced, and implemented based on appropriate scientific principles and recommendations from the esteemed Board of Traditional Medicine. The program's approval, oversight, and evaluation rest with the medical school.</i></p> <p>Students must familiarize themselves with published articles on traditional medicine in reputable journals, research methods in traditional and complementary medicine, and the necessity of utilizing integrative medicine. Additionally, they should identify and examine several successful experiences in this field.</p>
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Course Code:	188		
Course Title	Internal Medicine Internship: Type of Mandatory Educational Rotation		
Course Level	Two months of general internal medicine must be presented in Internship 2.		
Prerequisites			
Course Type	Theoretical	Practical	Total
Total Hours:		2 months	2 months

<p>General Objectives</p>	<p>At the end of this educational rotation, the intern should be able to:</p> <ol style="list-style-type: none"> 1. Establish appropriate communication with clients, patients, staff, and other health team members, and demonstrate suitable professional behavior in their interactions. 2. Take a medical history from patients with common and significant symptoms and complaints related to this section (attached list), perform necessary physical examinations, propose important differential diagnoses, and suggest the diagnosis and management of the patient's problem. 3. Identify problems of patients with common and significant diseases related to this section (attached list), reason and propose preventive, therapeutic, follow-up, referral, and rehabilitation actions based on scientific evidence and local guidelines, along with patient education to the extent expected from a general practitioner, and participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 4. Perform essential procedures related to this section (attached list) with patient safety principles and under appropriate supervision of higher levels (according to the section's regulations).
<p>Course Description</p>	<p>In this educational rotation, the intern should achieve the specified goals by participating in clinical rounds and educational clinics and completing individual and group assignments. Necessary theoretical knowledge classes should be held to provide theoretical knowledge.</p>
<p>Essential Content</p>	<p>Learning activities in this section should include a balanced combination of bedside teaching, individual study, group discussion, case presentation, performing practical procedures under the supervision of a professor, and participating in group educational sessions.</p> <p>The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p>

<p>Essential explanations</p>	<p>Given the different clinical education conditions in various medical schools, it is necessary to develop a clinical learning guide according to the document of essential competencies expected from general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education by the medical school and made available to learners. In each clinical learning guide, in addition to the above skills, the main diagnostic and paraclinical methods and essential drugs that the intern should have sufficient knowledge about should be specified.</p> <p>** The amount and manner of class presentation should not be such that it overshadows and disrupts the student's presence alongside the patient and their clinical practice.</p> <p>*** It is necessary to determine, announce, and implement the methods and program of internship education and evaluation based on appropriate scientific principles by the educational group. The medical school is responsible for approving the program, supervising its implementation, and evaluating the program.</p> <p>**** Supervision can be exercised by higher levels (interns, residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns.</p> <p>Determining the appropriate supervision method and responsibility for each procedure or intervention is the responsibility of the medical school.</p>
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Course Code:	189		
Course Title	Internal Medicine Residency: Type of Mandatory Educational Rotation		
Course Level	Two months of general internal medicine must be presented in Internship 2.		
Prerequisites			
Course Type	Theoretical	Practical	Total
Total Hours:		2 months	2 months

General Objectives	<p>At the end of this educational rotation, the intern should be able to:</p> <ol style="list-style-type: none"> 1. Establish appropriate communication with clients, patients, staff, and other members of the health team, and demonstrate suitable professional behavior in their interactions. 2. Take a medical history from patients with common and significant symptoms and complaints related to this section (attached list), perform necessary physical examinations, propose important differential diagnoses, and suggest the diagnosis and management of the patient's problem. 3. Identify problems of patients with common and significant diseases related to this section (attached list), reason and propose preventive, therapeutic, follow-up, referral, and rehabilitation actions based on scientific evidence and local guidelines, along with patient education to the extent expected from a general practitioner, and participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 4. Perform essential procedures related to this section (attached list) with patient safety principles and under appropriate supervision of higher levels (according to the section's regulations).
Course Description	<p>In this educational rotation, interns will gain the necessary skills to independently perform services related to this section within the scope of general medicine, in accordance with the document of expected competencies for general practitioners, through participation in providing health services in relevant fields (hospital, clinic, health service centers, etc.), attending designated educational sessions, and individual study.</p>
Essential Content	<p>The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p>
Essential explanations	<p>Given the different clinical education conditions in various medical schools, it is necessary to develop a clinical learning guide according to the document of essential competencies expected from general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education by the medical school and made available to learners. In each clinical learning guide, in addition to the above skills, the main diagnostic and paraclinical methods and essential drugs that the intern should have sufficient knowledge about should be specified.</p>

	<p>** The amount and manner of class presentation should not be such that it overshadows and disrupts the student's presence alongside the patient and their clinical practice.</p> <p>*** It is necessary to determine, announce, and implement the methods and program of internship education and evaluation based on appropriate scientific principles by the educational group. The medical school is responsible for approving the program, supervising its implementation, and evaluating the program.</p> <p>**** Supervision can be exercised by higher levels (interns, residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns.</p> <p>Determining the appropriate supervision method and responsibility for each procedure or intervention is the responsibility of the medical school.</p>
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Course Code:	189		
Course Title	Internal Medicine Residency: Type of Mandatory Educational Rotation		
Course Level	Two months of general internal medicine must be presented in Internship 2.		
Prerequisites			
Course Type	Theoretical	Practical	Total
Total Hours:		2 months	2 months
General Objectives	<p>At the end of this educational rotation, the intern should be able to:</p> <ol style="list-style-type: none"> 1. Establish appropriate communication with clients, patients, staff, and other members of the health team, and demonstrate suitable professional behavior in their interactions. 2. Take a medical history from patients with common and significant symptoms and complaints related to this section (attached list), perform necessary physical examinations, propose important differential diagnoses, and suggest the diagnosis and management of the patient's problem. 3. Identify problems of patients with common and significant diseases related to this section (attached list), reason and propose preventive, therapeutic, follow-up, referral, and rehabilitation actions based on 		

	<p>scientific evidence and local guidelines, along with patient education to the extent expected from a general practitioner, and participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations).</p> <p>4. Perform essential procedures related to this section (attached list) with patient safety principles and under appropriate supervision of higher levels (according to the section's regulations).</p>
Course Description	<p>In this educational rotation, interns will gain the necessary skills to independently perform services related to this section within the scope of general medicine, in accordance with the document of expected competencies for general practitioners, through participation in providing health services in relevant fields (hospital, clinic, health service centers, etc.), attending designated educational sessions, and individual study.</p>
Essential Content	<p>The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p>
Essential explanations	<p>Given the different clinical education conditions in various medical schools, it is necessary to develop a clinical learning guide according to the document of essential competencies expected from general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education by the medical school and made available to learners. In each clinical learning guide, in addition to the above skills, the main diagnostic and paraclinical methods and essential drugs that the intern should have sufficient knowledge about should be specified.</p> <p>** The amount and manner of class presentation should not be such that it overshadows and disrupts the student's presence alongside the patient and their clinical practice.</p> <p>*** It is necessary to determine, announce, and implement the methods and program of internship education and evaluation based on appropriate scientific principles by the educational group. The medical school is responsible for approving the program, supervising its implementation, and evaluating the program.</p> <p>**** Supervision can be exercised by higher levels (interns, residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns.</p>

	Determining the appropriate supervision method and responsibility for each procedure or intervention is the responsibility of the medical school.
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Appendix: Courses for Clinical Internship and Residency in Internal Medicine

Common Symptoms and Complaints in this Section:

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. Palpitations
9. Dysphagia
10. Nausea, vomiting
11. Dyspepsia
12. Diarrhea
13. Constipation
14. Unintentional weight loss
15. Jaundice
16. Ascites and abdominal swelling
17. Urinary symptoms (polyuria, dysuria, frequency)
18. Enlargement of lymph nodes and spleen
19. Polyarthritis and monoarthritis
20. Gastrointestinal bleeding
21. Fever
22. Hyperglycemia
23. Obesity

Important Syndromes and Diseases in this Section: Mandatory Cases:

1. Diabetes
2. Hypothyroidism
3. Goiter
4. Hyperthyroidism
5. Hyperlipidemia
6. Gout
7. Obesity
8. Hyperandrogenic disorders in women
9. Osteoporosis

10. Cushing's syndrome (with emphasis on drug-induced Cushing's)
11. Acute pyelonephritis
12. Cystitis and urethritis
13. Urinary stones
14. Acute renal failure
15. Chronic renal failure
16. Asthma
17. COPD
18. Acute bronchitis and bronchiolitis
19. Pneumonia
20. Bronchiectasis
21. Occupational lung disease
22. Viral hepatitis

22. Esophageal reflux
23. Peptic ulcer disease
24. Gastritis and duodenitis
25. Irritable bowel syndrome
26. Anal fissure
27. Gallstones
28. Deficiency of iron, vitamin B12, folic acid
29. Iron deficiency anemia
30. Thalassemia minor
31. Transfusion reactions
32. Arterial hypertension
33. Nephropathy due to chronic diseases (diabetes, hypertension)
34. Pleurisy
35. Adult respiratory distress syndrome
36. Fibromyalgia
37. Rheumatic fever
38. Vasculitis
39. Viral arthritis
40. Rheumatoid arthritis
41. Osteoarthritis
42. Rotator cuff syndrome
43. Osteoporosis
44. Chondromalacia patella
45. Spondylosis
46. Plantar fasciitis

Mandatory cases include diseases and syndromes that fall within a general practitioner's scope. Other necessary cases may be added by the medical school's curriculum committee, provided that students and interns have the opportunity to encounter and learn from patients.

During this rotation, it is necessary to teach common diagnostic tests and methods used in the clinical practice of a general practitioner, and how to request and interpret the results of these tests and methods in common internal disorders.

During this rotation, it is necessary to teach common medications used in the clinical practice of a general practitioner, and how to write prescriptions for common internal disorders.

During this period, students must learn and practice patient safety measures.

Essential Procedures in this Section:

1. First aid
2. Adult cardiopulmonary resuscitation (basic and advanced)
3. Venous blood sampling
4. Blood culture sampling
5. Arterial blood sampling for arterial blood gases
6. Establishing peripheral intravenous access and fluid administration
7. Insulin injection
8. Injections: intradermal, subcutaneous, intramuscular, intravenous, and intraosseous
9. Airway management
10. Needle thoracostomy for tension pneumothorax
11. Thoracentesis
12. Abdominal paracentesis
13. Standard infection control precautions (e.g., handwashing)
14. Insertion and removal of a urinary catheter
15. Suprapubic puncture
16. Patient transfer
17. Knee joint fluid aspiration
18. Use of inhalers
19. Use of hemodynamic monitoring devices
20. Insertion of a rectal tube
21. Nasogastric tube placement and gastric lavage

The Secretariat of the General Medical Education Council may change the list of common symptoms and signs, important syndromes and diseases, and essential procedures in this section as necessary and in coordination with the General Medical Board and medical schools.

Clinical Education in Cardiovascular Diseases

- **Internship in Cardiovascular Diseases**
- **Clerkship in Cardiovascular Diseases**

Course Code:	190		
Course Title	Internship in Cardiovascular Diseases		
Course Level			
Prerequisites	Clinical Foundations Courses		
Course Type	Theoretical	Practical	Total
Total Hours:		1 month	1 month
General Objectives	<p>At the end of this educational rotation, the intern should be able to:</p> <ol style="list-style-type: none"> 1. Establish appropriate communication with clients, patients, staff, and other health team members, and demonstrate suitable professional behavior in their interactions. 2. Take a medical history from patients with common and significant symptoms and complaints related to this section (attached list), perform necessary physical examinations, propose important differential diagnoses, and suggest the diagnosis and management of the patient's problem. 3. Identify problems of patients with common and significant diseases related to this section (attached list), reason and propose preventive, therapeutic, follow-up, referral, and rehabilitation actions based on scientific evidence and local guidelines, along with patient education to the extent expected from a general practitioner, and participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 4. Perform essential procedures related to this section (attached list) with patient safety principles and under appropriate supervision of higher levels (according to the section's regulations). 		

Course Description	In this educational rotation, interns will gain the necessary skills to independently perform services related to this section within the scope of general medicine, in accordance with the document of expected competencies for general practitioners, through participation in providing health services in relevant fields (hospital, clinic, health service centers, etc.), attending designated educational sessions, and individual study.
Essential Content	The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<p>Given the different clinical education conditions in various medical schools, it is necessary to develop a clinical learning guide according to the document of essential competencies expected from general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education by the medical school and made available to learners. In each clinical learning guide, in addition to the above skills, the main diagnostic and paraclinical methods and essential drugs that the intern should have sufficient knowledge about should be specified.</p> <p>** The amount and manner of class presentation should not be such that it overshadows and disrupts the student's presence alongside the patient and their clinical practice.</p> <p>*** It is necessary to determine, announce, and implement the methods and program of internship education and evaluation based on appropriate scientific principles by the educational group. The medical school is responsible for approving the program, supervising its implementation, and evaluating the program.</p> <p>**** Supervision can be exercised by higher levels (interns, residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns.</p> <p>Determining the appropriate supervision method and responsibility for each procedure or intervention is the responsibility of the medical school.</p>

Course Code:	191
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Course Title	Residency in Cardiovascular Diseases		
Course Level			
Prerequisites	Clinical Foundations Courses		
Course Type	Theoretical	Practical	Total
Total Hours:		1 month	1 month
General Objectives	<p>At the end of this educational rotation, the intern should be able to:</p> <ol style="list-style-type: none"> 1. Establish appropriate communication with clients, patients, staff, and other health team members, and demonstrate suitable professional behavior in their interactions. 2. Take a medical history from patients with common and significant symptoms and complaints related to this section (attached list), perform necessary physical examinations, propose important differential diagnoses, and suggest the diagnosis and management of the patient's problem. 3. Identify problems of patients with common and significant diseases related to this section (attached list), reason and propose preventive, therapeutic, follow-up, referral, and rehabilitation actions based on scientific evidence and local guidelines, along with patient education to the extent expected from a general practitioner, and participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 4. Perform essential procedures related to this section (attached list) with patient safety principles and under appropriate supervision of higher levels (according to the section's regulations). 		
Course Description	<p>In this educational rotation, interns will gain the necessary skills to independently perform services related to this section within the scope of general medicine, in accordance with the document of expected competencies for general practitioners, through participation in providing health services in relevant fields (hospital, clinic, health service centers, etc.), attending designated educational sessions, and individual study.</p>		

Essential Content	The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<p>Given the different clinical education conditions in various medical schools, it is necessary to develop a clinical learning guide according to the document of essential competencies expected from general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education by the medical school and made available to learners. In each clinical learning guide, in addition to the above skills, the main diagnostic and paraclinical methods and essential drugs that the intern should have sufficient knowledge about should be specified.</p> <p>** The amount and manner of class presentation should not be such that it overshadows and disrupts the student's presence alongside the patient and their clinical practice.</p> <p>*** It is necessary to determine, announce, and implement the methods and program of internship education and evaluation based on appropriate scientific principles by the educational group. The medical school is responsible for approving the program, supervising its implementation, and evaluating the program.</p> <p>**** Supervision can be exercised by higher levels (interns, residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns.</p> <p>Determining the appropriate supervision method and responsibility for each procedure or intervention is the responsibility of the medical school.</p>

Appendix: Courses for Clinical Internship and Residency in Cardiology

Common Symptoms and Complaints in this Section:

1. Chest pain
2. Shortness of breath
3. Cough and hemoptysis
4. Edema
5. Palpitations

6. Fatigue
7. Abnormal electrocardiogram (ECG)

Important and Mandatory Syndromes and Diseases in this Section:

1. Hyperlipidemia
2. Atherosclerosis
3. Arterial hypertension
4. Hypertensive emergencies
5. Coronary artery disease (stable and unstable angina)
6. Acute myocardial infarction
7. Cor pulmonale
8. Heart failure
9. Mitral valve insufficiency and stenosis
10. Common atrial arrhythmias (atrial fibrillation and flutter)
11. Life-threatening ventricular arrhythmias
12. Cardiac arrest
13. Shock

Mandatory cases include diseases and syndromes that fall within the scope of a general practitioner's practice. Other necessary cases may be added by the medical school's curriculum committee, provided that students and interns have the opportunity to encounter and learn from patients.

During this rotation, it is necessary to teach common diagnostic tests and methods used in the clinical practice of a general practitioner, and how to request and interpret the results of these tests and methods in common cardiovascular disorders.

During this rotation, it is necessary to teach common medications used in the clinical practice of a general practitioner, and how to write prescriptions for common cardiovascular disorders.

During this period, students must learn and practice patient safety measures.

Essential Procedures in this Section:

1. First aid
2. Adult cardiopulmonary resuscitation (basic and advanced)
3. Venous blood sampling
4. Arterial blood sampling for arterial blood gases
5. Establishing peripheral intravenous access and fluid administration
6. Standard infection control precautions (e.g., handwashing)
7. Patient transfer
8. Use of hemodynamic monitoring devices
9. Performing an ECG

The Secretariat of the General Medical Education Council may change the list of common symptoms and signs, important syndromes and diseases, and essential procedures in this section as necessary and in coordination with the General Medical Board and medical schools.

Courses for Clinical Internship and Residency in Pediatrics:

- **Pediatrics Internship**
- **Pediatrics Residency**
- **Theoretical Course in Pediatrics**

Course Code:	192		
Course Title	Pediatrics Internship		
Course Level	(Can be divided into Internships 1 and 2)		
Prerequisites	Clinical Foundations in Pediatrics		
Course Type	Theoretical	Practical	Total
Total Hours:		3 months	3 months
General Objectives	<p>At the end of this educational rotation, the intern should be able to:</p> <ol style="list-style-type: none"> 1. Establish appropriate communication with clients, patients, staff, and other health team members, and demonstrate suitable professional behavior in their interactions. 2. Take a medical history from patients with common and significant symptoms and complaints related to this section (attached list), perform necessary physical examinations, propose important differential diagnoses, and suggest the diagnosis and management of the patient's problem. 3. Identify problems of patients with common and significant diseases related to this section (attached list), reason and propose preventive, therapeutic, follow-up, referral, and rehabilitation actions based on scientific evidence and local guidelines, along with patient education to the extent expected from a general practitioner, and participate in managing the patient's problem according to the section's standards 		

	<p>under the supervision of higher levels (according to the section's regulations).</p> <p>4. Perform essential procedures related to this section (attached list) with patient safety principles and under appropriate supervision of higher levels (according to the section's regulations).</p>
Course Description	<p>In this educational rotation, interns will gain the necessary skills to independently perform services related to this section within the scope of general medicine, in accordance with the document of expected competencies for general practitioners, through participation in providing health services in relevant fields (hospital, clinic, health service centers, etc.), attending designated educational sessions, and individual study.</p>
Essential Content	<p>The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p>
Essential explanations	<p>Given the different clinical education conditions in various medical schools, it is necessary to develop a clinical learning guide according to the document of essential competencies expected from general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education by the medical school and made available to learners. In each clinical learning guide, in addition to the above skills, the main diagnostic and paraclinical methods and essential drugs that the intern should have sufficient knowledge about should be specified.</p> <p>** The amount and manner of class presentation should not be such that it overshadows and disrupts the student's presence alongside the patient and their clinical practice.</p> <p>*** It is necessary to determine, announce, and implement the methods and program of internship education and evaluation based on appropriate scientific principles by the educational group. The medical school is responsible for approving the program, supervising its implementation, and evaluating the program.</p> <p>**** Supervision can be exercised by higher levels (interns, residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns.</p> <p>Determining the appropriate supervision method and responsibility for each procedure or intervention is the responsibility of the medical school.</p>

Course Code:	193		
Course Title	Pediatrics Residency		
Course Level	(Can be divided into Internships 1 and 2)		
Prerequisites	Clinical Foundations in Pediatrics		
Course Type	Theoretical	Practical	Total
Total Hours:		3 months	3 months
General Objectives	<p>At the end of this educational rotation, the intern should be able to:</p> <ol style="list-style-type: none"> 1. Establish appropriate communication with clients, patients, staff, and other health team members, and demonstrate suitable professional behavior in their interactions. 2. Take a medical history from patients with common and significant symptoms and complaints related to this section (attached list), perform necessary physical examinations, propose important differential diagnoses, and suggest the diagnosis and management of the patient's problem. 3. Identify problems of patients with common and significant diseases related to this section (attached list), reason and propose preventive, therapeutic, follow-up, referral, and rehabilitation actions based on scientific evidence and local guidelines, along with patient education to the extent expected from a general practitioner, and participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 4. Perform essential procedures related to this section (attached list) with patient safety principles and under appropriate supervision of higher levels (according to the section's regulations). 		

Course Description	In this educational rotation, interns will gain the necessary skills to independently perform services related to this section within the scope of general medicine, in accordance with the document of expected competencies for general practitioners, through participation in providing health services in relevant fields (hospital, clinic, health service centers, etc.), attending designated educational sessions, and individual study.
Essential Content	The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<p>Given the different clinical education conditions in various medical schools, it is necessary to develop a clinical learning guide according to the document of essential competencies expected from general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education by the medical school and made available to learners. In each clinical learning guide, in addition to the above skills, the main diagnostic and paraclinical methods and essential drugs that the intern should have sufficient knowledge about should be specified.</p> <p>** The amount and manner of class presentation should not be such that it overshadows and disrupts the student's presence alongside the patient and their clinical practice.</p> <p>*** It is necessary to determine, announce, and implement the methods and program of internship education and evaluation based on appropriate scientific principles by the educational group. The medical school is responsible for approving the program, supervising its implementation, and evaluating the program.</p> <p>**** Supervision can be exercised by higher levels (interns, residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns.</p> <p>Determining the appropriate supervision method and responsibility for each procedure or intervention is the responsibility of the medical school.</p>

Appendix: Courses for Clinical Internship and Residency in Pediatrics

Common Symptoms, Complaints, and Reasons for Pediatric Visits:

1. Taking a history and performing a physical examination of the child
2. Assessing normal and abnormal growth in children and how to use growth charts

3. Assessing normal and abnormal development and tools for evaluating development in children according to the national child health program and child early development
4. Breastfeeding, counseling breastfeeding mothers, maternal diseases, and medication use during breastfeeding
5. Nutrition during different stages from six months to adolescence (assessment, counseling) according to the national child health program and child early development
6. Common nutritional problems in childhood and adolescence according to the national child health program (FTT, obesity, and micronutrient deficiencies)
7. Promoting child health in the prevention of accidents, poisoning, burns, infectious and non-infectious diseases - the role of the physician according to the national child health program
8. Vaccination
9. Assessing the critically ill child according to the national MANA program
10. Examination of a healthy term newborn and initial care in the delivery room
11. Respiratory distress, apnea, and cyanosis in newborns
12. Jaundice in newborns
13. Seizures and hypoglycemia in newborns
14. Nutrition and fluid therapy in newborns and children
15. Fever in children
16. Abdominal pain in children
17. Diarrhea and vomiting in children
18. Constipation in children
19. Jaundice in children
20. Hepatosplenomegaly in children
21. Acute flaccid paralysis in children
22. Lymphadenopathy in children
23. Polyuria in children
24. Infections in newborns
25. Lower respiratory tract infections in children
26. Upper respiratory tract infections and approach to a child with respiratory distress and airway obstruction (croup, epiglottitis, and foreign body)
27. Brain infections in children (pathophysiology, symptoms, and signs)
28. Headache in children
29. Seizures in children
30. Clinical symptoms and signs and diagnosis of common neuromuscular diseases in children (floppy 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 newborns
35. Urinary tract infections in children (self-reading)
36. Glomerulonephritis and nephrotic syndrome in children
37. Oliguria and renal failure in children
38. Asthma
39. Urticaria, angioedema, anaphylaxis, atopic dermatitis, and serum sickness
40. Salmonellosis and brucellosis

41. Pertussis, diphtheria, and tetanus
42. Intestinal parasitic diseases
43. Osteomyelitis and septic arthritis
44. Common viral exanthematous diseases (rubella, scarlet fever, roseola, chickenpox)
45. Common non-exanthematous 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, Henoch-Schönlein purpura)
50. Diabetes mellitus and DKA
51. Familiarity with common and important congenital heart diseases
52. Hypertension 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 the Pediatrics Section:

1. Venous blood sampling
2. Measuring blood pressure in children and newborns
3. Collecting urine with a urine bag
4. Vaccination of newborns and children
5. Arterial blood sampling (ABG)
6. Inserting a urinary catheter
7. Inserting a nasogastric tube
8. Lumbar puncture in children and newborns
9. Suprapubic aspiration

Training in the above procedures is mandatory through a one-day workshop on mannequins for interns and directly on patients under direct supervision for residents.

Educational Programs Emphasized During the Pediatrics Residency:

1. Training and practicing the national child health care program, including
 - a. National child health program and examination of a healthy child
 - b. Screening program for common diseases (hypothyroidism, PKU, etc.)
 - c. Screening program for hearing, vision, and genetics according to the national program
 - d. Assessing patterns of normal and abnormal growth and development in children and using growth charts and developmental assessment tools according to the National Child Health Program and Child Early Development

- e. Nutrition in a healthy child according to the national program
 - f. Managing obesity according to national guidelines
 - g. Managing malnutrition according to national guidelines
2. Teaching professional behavior concepts, especially topics particularly important in pediatrics, such as:
 - a. Commitment to the equitable distribution of limited resources
 - b. Commitment to professional responsibilities
 - c. Improving the quality of patient care and patient safety
 - d. Commitment to acting based on scientific information
 - e. Commitment to acquiring professional competence
 3. Managing jaundice in newborns
 4. Managing decreased consciousness and seizures in emergencies
 5. Interpreting complete blood count (CBC) and coagulation tests
 6. Managing abdominal pain in children
 7. Managing lethargy and restlessness in newborns
 8. Managing anorexia in children
 9. Managing cough
 10. Managing recurrent fevers (including recurrent infections)
 11. Rational prescribing of medications and principles of prescription writing
 12. Managing asthma in children
 13. Managing upper respiratory tract infections (pharyngitis, common cold, croup; otitis; sinusitis)
 14. Managing atopic eczema and food allergies
 15. Managing skin and soft tissue infections
 16. Managing fever, fever and rash
 17. Managing fever and seizures
 18. Managing bronchiolitis, pneumonia
 19. Approach to learning disorders in children and common psychiatric diseases

During this rotation, it is necessary to teach the list of common medications and how to write prescriptions for common conditions in this field that are applicable in the clinical practice of a general practitioner.

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

During this period, students must learn and practice patient safety measures.

Essential Workshops in the Clinical Training of Pediatric Diseases:

1. One-day pediatric resuscitation workshop (PALS) based on the program of the American Academy of Pediatrics and the American Heart Association (AHA)
2. Two-day neonatal resuscitation workshop (NRP)
3. Two-day breastfeeding workshop
4. Half-day MANA training workshop

To teach the national child health care program, it is necessary to establish special clinics in coordination with the university's health deputy, supervised by faculty members of the pediatrics department, and attended by interns, residents, and pediatric specialty trainees.

It is recommended that, in addition to theoretical MANA training, MANA training workshops (before or at the beginning of the pediatrics residency) be held for general medical students.

The Secretariat of the General Medical Education Council may change the list of common symptoms and signs, important syndromes and diseases, and essential procedures in this section as necessary and in coordination with the General Medical Board and medical schools.

Course Code:	194
Course Title	Pediatrics disease 1

Course Level	(Internships)		
Prerequisites	-		
Course Type	Theoretical	Practical	Total
Total Hours:	68	0	68
General Objectives	<p>At the end of this educational rotation, the intern should be able to:</p> <ol style="list-style-type: none"> 1. Establish appropriate communication with clients, patients, staff, and other health team members, and demonstrate suitable professional behavior in their interactions. 2. Take a medical history from patients with common and significant symptoms and complaints related to this section (attached list), perform necessary physical examinations, propose important differential diagnoses, and suggest the diagnosis and management of the patient's problem. 3. Identify problems of patients with common and significant diseases related to this section (attached list), reason and propose preventive, therapeutic, follow-up, referral, and rehabilitation actions based on scientific evidence and local guidelines, along with patient education to the extent expected from a general practitioner, and participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 4. Perform essential procedures related to this section (attached list) with patient safety principles and under appropriate supervision of higher levels (according to the section's regulations). 		
Course Description	<p>In this educational rotation, interns will gain the necessary skills to independently perform services related to this section within the scope of general medicine, in accordance with the document of expected competencies for general practitioners, through participation in providing health services in relevant fields (hospital, clinic, health service centers, etc.), attending designated educational sessions, and individual study.</p>		
Essential Content	<p>The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p>		
	<p>Given the different clinical education conditions in various medical schools, it is necessary to develop a clinical learning guide according to the document of essential competencies expected from general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical</p>		

<p>Essential explanations</p>	<p>Education by the medical school and made available to learners. In each clinical learning guide, in addition to the above skills, the main diagnostic and paraclinical methods and essential drugs that the intern should have sufficient knowledge about should be specified.</p> <p>** The amount and manner of class presentation should not be such that it overshadows and disrupts the student's presence alongside the patient and their clinical practice.</p> <p>*** It is necessary to determine, announce, and implement the methods and program of internship education and evaluation based on appropriate scientific principles by the educational group. The medical school is responsible for approving the program, supervising its implementation, and evaluating the program.</p> <p>**** Supervision can be exercised by higher levels (interns, residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns.</p> <p>Determining the appropriate supervision method and responsibility for each procedure or intervention is the responsibility of the medical school.</p>
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outline of Theoretical Course in Pediatrics (1)

1. Taking a history and performing a physical examination of the child
2. Familiarity with patterns of normal and abnormal growth in children and how to use growth charts
3. Familiarity with patterns of normal and abnormal development and tools for evaluating development in children according to the National Child Health program and child early development
4. Breastfeeding, counseling breastfeeding mothers, maternal diseases, and medication use during breastfeeding
5. Nutrition during different stages from six months to adolescence (assessment, counseling) according to the national child health program and child early development
6. Familiarity with common nutritional problems in childhood and adolescence according to the national child health program (FTT, obesity, and micronutrient deficiencies)
7. Promoting child health in the prevention of accidents, poisoning, burns, infectious and non-infectious diseases - the role of the physician according to the national child health program (self-reading)
8. Familiarity with the national vaccination program (self-reading)
9. Familiarity with assessing the critically ill child according to the national MANA program
10. Examination of a healthy term newborn and initial care in the delivery room

11. Respiratory distress, apnea, and cyanosis in newborns
12. Jaundice in newborns
13. Seizures and hypoglycemia in newborns
14. Nutrition and fluid therapy in newborns and children
15. Fever in children
16. Abdominal pain in children
17. Diarrhea and vomiting in children
18. Constipation in children
19. Jaundice in children
20. Hepatosplenomegaly in children
21. Acute flaccid paralysis in children
22. Lymphadenopathy in children
23. Polyuria in children
24. Familiarity with common symptoms of malignancies in children (self-reading)
25. Infections in newborns
26. Lower respiratory tract infections in children
27. Upper respiratory tract infections and approach to a child with respiratory distress and airway obstruction (croup, epiglottitis, and foreign body)
28. Brain infections in children (pathophysiology, symptoms, and signs)
29. Headache in children (self-reading)
30. Seizures in children
31. Clinical symptoms and signs and diagnosis of common neuromuscular diseases in children (floppy 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 newborns
36. Urinary tract infections in children (self-reading)
37. Glomerulonephritis and nephrotic syndrome in children
38. Oliguria and renal failure in children
39. Asthma
40. Urticaria, angioedema, anaphylaxis, atopic dermatitis, and serum sickness
41. Salmonellosis and brucellosis
42. Pertussis, diphtheria, and tetanus
43. Intestinal parasitic diseases (self-reading)
44. Osteomyelitis and septic arthritis
45. Common viral exanthematous diseases (rubella, scarlet fever, roseola, chickenpox) (self-reading)
46. Common non-exanthematous viral diseases (self-reading)
47. Hypothyroidism/hyperthyroidism in children
48. Tuberculosis in children
49. Common parasitic diseases (kala-azar and malaria) (self-reading)
50. Common vasculitis in children (Kawasaki, Henoch-Schönlein purpura) (self-reading)
51. Diabetes mellitus and DKA
52. Familiarity with common and important congenital heart diseases
53. Hypertension in children

54. Heart failure in children
55. Chronic diarrhea (self-reading)
56. Common genetic syndromes (including MR) (self-reading)
57. Common symptoms of inherited metabolic diseases
58. Common skin diseases in children
59. Restlessness
60. Limping
61. Urinary incontinence and bedwetting
62. Shock in children
63. Gastrointestinal bleeding (upper and lower)
64. Altered level of consciousness (coma and delirium)
65. Evaluation of abnormal A/U
66. Hyponatremia and hypernatremia in children
67. Acid-base disorders in children
68. Approach to ingestion of caustic substances or foreign bodies
69. Drowning - electrocution
70. Common poisonings in children
71. Hepatitis
72. Rheumatic fever and endocarditis

It is recommended that the method of evaluating the learning activities of self-taught theoretical topics be specified and announced by the educational group at the beginning of the educational stage.

To teach the national child health care program, it is necessary to establish special clinics in coordination with the university's health deputy, supervised by faculty members of the pediatrics department, and attended by interns, residents, and pediatric specialty trainees.

It is recommended that, in addition to theoretical MANA training, MANA training workshops (before or at the beginning of the pediatrics residency) be held for general medical students.

The Secretariat of the General Medical Education Council may change the list of common symptoms and signs, important syndromes and diseases, and essential procedures in this section as necessary and in coordination with the General Medical Board and medical schools.

Course Code:	195		
Course Title	Pediatrics disease 2		
Course Level	(Internships)		
Prerequisites	-		
Course Type	Theoretical	Practical	Total
Total Hours:	17	0	17
General Objectives	<p>At the end of this educational rotation, the intern should be able to:</p> <ol style="list-style-type: none"> 1. Establish appropriate communication with clients, patients, staff, and other health team members, and demonstrate suitable professional behavior in their interactions. 2. Take a medical history from patients with common and significant symptoms and complaints related to this section (attached list), perform necessary physical examinations, propose important differential diagnoses, and suggest the diagnosis and management of the patient's problem. 3. Identify problems of patients with common and significant diseases related to this section (attached list), reason and propose preventive, therapeutic, follow-up, referral, and rehabilitation actions based on scientific evidence and local guidelines, along with patient education to the extent expected from a general practitioner, and participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 4. Perform essential procedures related to this section (attached list) with patient safety principles and under appropriate supervision of higher levels (according to the section's regulations). 		
Course Description	<p>In this educational rotation, interns will gain the necessary skills to independently perform services related to this section within the scope of general medicine, in accordance with the document of expected competencies for general practitioners, through participation in providing health services in relevant fields (hospital, clinic, health service centers, etc.), attending designated educational sessions, and individual study.</p>		

Essential Content	The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<p>Given the different clinical education conditions in various medical schools, it is necessary to develop a clinical learning guide according to the document of essential competencies expected from general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education by the medical school and made available to learners. In each clinical learning guide, in addition to the above skills, the main diagnostic and paraclinical methods and essential drugs that the intern should have sufficient knowledge about should be specified.</p> <p>** The amount and manner of class presentation should not be such that it overshadows and disrupts the student's presence alongside the patient and their clinical practice.</p> <p>*** It is necessary to determine, announce, and implement the methods and program of internship education and evaluation based on appropriate scientific principles by the educational group. The medical school is responsible for approving the program, supervising its implementation, and evaluating the program.</p> <p>**** Supervision can be exercised by higher levels (interns, residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns.</p> <p>Determining the appropriate supervision method and responsibility for each procedure or intervention is the responsibility of the medical school.</p>

Outline of Theoretical Course in Pediatrics (2)

1. Familiarity with patterns of normal and abnormal growth in children and how to use growth charts, and familiarity with patterns of normal and abnormal development and tools for evaluating development in children according to the national child health program and child early development
2. Approach to a child with restlessness
3. Approach to a child with fever
4. Approach to a child with symptoms of brain infection

5. Approach to a child with limping
6. Urinary incontinence and bedwetting in children
7. Approach to shock in children
8. Approach to a child with gastrointestinal bleeding (upper and lower)
9. Approach to a child with altered level of consciousness (coma and delirium)
10. Evaluation of abnormal A/U
11. Management of hyponatremia and hypernatremia in children
12. Management of acid-base disorders in children
13. Approach to a child who has ingested caustic substances or foreign bodies
14. Approach to a child who has experienced drowning or electrocution
15. Management of common poisonings in children
16. Hepatitis
17. Rheumatic fever and endocarditis

The Secretariat of the General Medical Education Council may change the list of common symptoms and signs, important syndromes and diseases, and essential procedures in this section as necessary and in coordination with the General Medical Board and medical schools.

Clinical Training Courses in General Surgery:

1. **Surgery Internship**
2. **Surgery Residency**
3. **Theoretical Course in Surgical Diseases**

Course Code:	196
Course Title	Surgery Internship
Course Level	(Internships)
Prerequisites	Clinical Foundations Courses 6 units

Course Type	Theoretical	Practical	Total
Total Hours:	0	2 months	2 months
General Objectives	<p>At the end of this educational rotation, the intern should be able to:</p> <ol style="list-style-type: none"> 1. Establish appropriate communication with clients, patients, staff, and other health team members, and demonstrate suitable professional behavior in their interactions. 2. Take a medical history from patients with common and significant symptoms and complaints related to this section (attached list), perform necessary physical examinations, propose important differential diagnoses, and suggest the diagnosis and management of the patient's problem. 3. Identify problems of patients with common and significant diseases related to this section (attached list), reason and propose preventive, therapeutic, follow-up, referral, and rehabilitation actions based on scientific evidence and local guidelines, along with patient education to the extent expected from a general practitioner, and participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 4. Perform essential procedures related to this section (attached list) with patient safety principles and under appropriate supervision of higher levels (according to the section's regulations). 		
Course Description	<p>In this educational rotation, interns will gain the necessary skills to independently perform services related to this section within the scope of general medicine, in accordance with the document of expected competencies for general practitioners, through participation in providing health services in relevant fields (hospital, clinic, health service centers, etc.), attending designated educational sessions, and individual study.</p>		
Essential Content	<p>The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p>		
	<p>Given the different clinical education conditions in various medical schools, it is necessary to develop a clinical learning guide according to the document of essential competencies expected from general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education</p>		

<p>Essential explanations</p>	<p>by the medical school and made available to learners. In each clinical learning guide, in addition to the above skills, the main diagnostic and paraclinical methods and essential drugs that the intern should have sufficient knowledge about should be specified.</p> <p>** The amount and manner of class presentation should not be such that it overshadows and disrupts the student's presence alongside the patient and their clinical practice.</p> <p>*** It is necessary to determine, announce, and implement the methods and program of internship education and evaluation based on appropriate scientific principles by the educational group. The medical school is responsible for approving the program, supervising its implementation, and evaluating the program.</p> <p>**** Supervision can be exercised by higher levels (interns, residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns.</p> <p>Determining the appropriate supervision method and responsibility for each procedure or intervention is the responsibility of the medical school.</p>
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Course Code:	197		
Course Title	General Surgery Residency: Type of Rotation: Mandatory		
Course Level	Residency 8 units		
Prerequisites	-		
Course Type	Theoretical	Practical	Total
Total Hours:	0	2 months	2 months
	<p>At the end of this educational rotation, the intern should be able to:</p> <ol style="list-style-type: none"> 1. Establish appropriate communication with clients, patients, staff, and other health team members, and demonstrate suitable professional behavior in their interactions. 		

General Objectives	<ol style="list-style-type: none"> 2. Take a medical history from patients with common and significant symptoms and complaints related to this section (attached list), perform necessary physical examinations, propose important differential diagnoses, and suggest the diagnosis and management of the patient's problem. 3. Identify problems of patients with common and significant diseases related to this section (attached list), reason and propose preventive, therapeutic, follow-up, referral, and rehabilitation actions based on scientific evidence and local guidelines, along with patient education to the extent expected from a general practitioner, and participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 4. Perform essential procedures related to this section (attached list) with patient safety principles and under appropriate supervision of higher levels (according to the section's regulations).
Course Description	<p>In this educational rotation, interns will gain the necessary skills to independently perform services related to this section within the scope of general medicine, in accordance with the document of expected competencies for general practitioners, through participation in providing health services in relevant fields (hospital, clinic, health service centers, etc.), attending designated educational sessions, and individual study.</p>
Essential Content	<p>The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p>
Essential explanations	<p>Given the different clinical education conditions in various medical schools, it is necessary to develop a clinical learning guide according to the document of essential competencies expected from general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education by the medical school and made available to learners. In each clinical learning guide, in addition to the above skills, the main diagnostic and paraclinical methods and essential drugs that the intern should have sufficient knowledge about should be specified.</p> <p>** The amount and manner of class presentation should not be such that it overshadows and disrupts the student's presence alongside the patient and their clinical practice.</p> <p>*** It is necessary to determine, announce, and implement the methods and program of internship education and evaluation based on appropriate scientific principles by the educational group. The medical school is responsible for</p>

	<p>approving the program, supervising its implementation, and evaluating the program.</p> <p>**** Supervision can be exercised by higher levels (interns, residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns.</p> <p>Determining the appropriate supervision method and responsibility for each procedure or intervention is the responsibility of the medical school.</p>
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Appendix: Courses for Clinical Internship and Residency in General Surgery

Common Symptoms and Complaints in this Section:

1. Neck mass
2. Dysphagia
3. Breast mass
4. Breast pain
5. Breast discharge
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 (rectal bleeding)
13. Inguinal mass
14. Leg claudication
15. Acute lower limb pain due to vascular problems
16. Chronic lower limb pain due to vascular problems
17. Thyroid nodule
18. Lymphadenopathy in the neck, axilla, and groin
19. Pleural effusion
20. Failure to pass gas and stool
21. Defecation disorders
22. Abdominal distension
23. Anal pain
24. Anal itching

Important Syndromes and Diseases in this Section (must know)

1. Shock

2. Burns
3. Stomach cancer
4. Acute appendicitis
5. Malignant diseases of the colon
6. Benign diseases of the small intestine and colon
7. Peptic diseases of the stomach and duodenum
8. Acute and chronic pancreatitis
9. Intestinal obstruction
10. Abdominal wall and inguinal hernias
11. Biliary tract diseases with emphasis on gallstone disease
12. Pancreatic masses with emphasis on malignant pancreatic diseases
13. Malignant breast diseases
14. Benign thyroid diseases with emphasis on goiter and hyperthyroidism
15. Malignant thyroid diseases
16. Benign and malignant liver masses with emphasis on common diseases in the country
17. Major trauma (management of the injured based on ATLS guidelines)
18. Management of fluids, electrolytes, and acid-base balance in surgical patients
19. Management of surgical patients before and after surgery
20. Surgical bleeding and hemostasis and principles of blood transfusion
21. Acute surgical care
22. Surgical infections
23. Wound management and wound healing
24. Gastroesophageal reflux disease (GERD)
25. History taking and examination of neurosurgical patients
26. Approach (classification, CT findings, emergencies) and management of patients with head trauma
27. Management of patients with spinal trauma
28. Cerebrovascular diseases

Better to Know:

1. Esophageal carcinoma
2. Inflammatory bowel diseases
3. Diverticular diseases
4. Benign breast diseases
5. Parathyroid diseases
6. Adrenal diseases
7. Peripheral vascular diseases with lower limb ulcers
8. Aneurysmal arterial diseases
9. Venous diseases with emphasis on deep
10. Common and emergency pediatric surgical cases
11. Nutrition in surgical patients
12. Malignant skin lesions
13. Portal vein hypertension and its complications

14. Diseases of the spleen and lymph nodes
15. Diseases of the chest, trachea, lungs, and pleura
16. Brain tumors (types, symptoms, findings, prognosis)
17. Hydrocephalus and meningocele
18. Low back pain and lumbar disc herniation (Low back pain and HLD)
19. Malignant diseases of the small intestine
20. Obesity

During this rotation, it is necessary to teach common diagnostic tests and methods used in the clinical practice of a general practitioner, as well as how to request and interpret the results of these tests and methods in common surgical disorders.

During this rotation, it is necessary to teach common medications used in the clinical practice of a general practitioner, and how to write prescriptions for common surgical disorders.

Learning preferred cases (Know to Better) will be the trainees' responsibility through self-study or electronic means if they encounter related patients in the department.

During this period, students must learn and practice patient safety measures.

Essential Procedures in this Section:

1. Control of external bleeding
2. Use of surgical instruments
3. Local anesthesia
4. Suturing and removal of skin sutures
5. Wound care, including washing and dressing
6. Participation in performing complex dressings with simple debridement
7. Participation in abscess drainage
8. Insertion of a nasogastric tube
9. Insertion of a urinary catheter
10. Participation in chest tube insertion
11. Needle thoracostomy for tension pneumothorax
12. Participation in cricothyroidotomy
13. Thoracentesis
14. Abdominal paracentesis
15. Management of burn wounds
16. Insertion of a rectal tube
17. Subungual hematoma drainage (preferred)
18. Tube thoracostomy (preferred)
19. Circumcision (preferred)
20. Peripheral vascular cutdown (preferred)

The Secretariat of the General Medical Education Council may change the list of common symptoms and signs, important syndromes and diseases, and essential procedures in this section as necessary and in coordination with the General Medical Board and medical schools.

Fractures and dislocations of the spine are taught in the neurosurgery department.

Course Code:	198		
Course Title	General Surgical Diseases		
Course Level	internship		
Prerequisites	-		
Course Type	Theoretical	Practical	Total
Total Hours:	85	-	85
General Objectives	<p>At the end of this educational rotation, the intern should be able to:</p> <ol style="list-style-type: none"> 1. Establish appropriate communication with clients, patients, staff, and other health team members, and demonstrate suitable professional behavior in their interactions. 2. Take a medical history from patients with common and significant symptoms and complaints related to this section (attached list), perform necessary physical examinations, propose important differential diagnoses, and suggest the diagnosis and management of the patient's problem. 3. Identify problems of patients with common and significant diseases related to this section (attached list), reason and propose preventive, therapeutic, follow-up, referral, and rehabilitation actions based on scientific evidence and local guidelines, along with patient education to the extent expected from a general practitioner, and participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 4. Perform essential procedures related to this section (attached list) with patient safety principles and under appropriate supervision of higher levels (according to the section's regulations). 		

Course Description	In this educational rotation, interns will gain the necessary skills to independently perform services related to this section within the scope of general medicine, in accordance with the document of expected competencies for general practitioners, through participation in providing health services in relevant fields (hospital, clinic, health service centers, etc.), attending designated educational sessions, and individual study.
Essential Content	The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<p>Given the different clinical education conditions in various medical schools, it is necessary to develop a clinical learning guide according to the document of essential competencies expected from general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education by the medical school and made available to learners. In each clinical learning guide, in addition to the above skills, the main diagnostic and paraclinical methods and essential drugs that the intern should have sufficient knowledge about should be specified.</p> <p>** The amount and manner of class presentation should not be such that it overshadows and disrupts the student's presence alongside the patient and their clinical practice.</p> <p>*** It is necessary to determine, announce, and implement the methods and program of internship education and evaluation based on appropriate scientific principles by the educational group. The medical school is responsible for approving the program, supervising its implementation, and evaluating the program.</p> <p>**** Supervision can be exercised by higher levels (interns, residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns.</p> <p>Determining the appropriate supervision method and responsibility for each procedure or intervention is the responsibility of the medical school.</p>

Outline of Theoretical Course in General Surgical Diseases

A. Approach to Common Symptoms and Complaints in Surgical Diseases:

1. Dysphagia
2. Head and neck masses
3. Common breast problems: mass, pain, discharge
4. Vomiting and nausea
5. Acute and chronic abdominal pain
6. Abdominal and inguinal masses
7. Obstructive jaundice
8. Gastrointestinal bleeding (upper and lower)
9. Leg claudication
10. Acute lower limb pain due to vascular problems
11. Chronic lower limb pain due to vascular problems
12. Thyroid nodule
13. Lymphadenopathy in the neck, axilla, and groin
14. Pleural effusion
15. Defecation disorders
16. Common anorectal complaints (pain and itching)
17. Shock
18. Burns

B. Common and Important Diseases in General Surgery:

19. Stomach cancer
20. Acute appendicitis
21. Malignant diseases of the colon
22. Benign diseases of the small intestine, colon, and anus
23. Peptic diseases of the stomach and duodenum
24. Acute and chronic pancreatitis
25. Intestinal obstruction
26. Abdominal wall and inguinal hernias
27. Biliary tract diseases with emphasis on gallstone disease
28. Pancreatic masses with emphasis on malignant pancreatic diseases
29. Malignant breast diseases
30. Benign thyroid diseases with emphasis on goiter and hyperthyroidism
31. Malignant thyroid diseases
32. Benign and malignant liver masses with emphasis on common diseases in the country
33. Major trauma (management of the injured based on ATLS guidelines)
34. Management of fluids, electrolytes, and acid-base balance in surgical patients
35. Management of surgical patients before and after surgery
36. Surgical bleeding and hemostasis 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 taking and examination of neurosurgical patients
42. Approach (classification, CT findings, emergencies) and management of patients with head trauma

43. Management of patients with spinal trauma
44. Cerebrovascular diseases

The Secretariat of the General Medical Education Council may change the list of common symptoms and signs, important syndromes and diseases, and essential procedures in this section as necessary and in coordination with the General Medical Board and medical schools.

Clinical Training Courses in Orthopedics:

1. **Orthopedics Internship**
2. **Orthopedics Residency**
3. **Theoretical Course in Orthopedics**

Course Code:	199		
Course Title	Orthopedics Internship		
Course Level	(In Internship 1 or 2 according to the university program) 3 units		
Prerequisites	-		
Course Type	Theoretical	Practical	Total
Total Hours:	-	3 months	-
General Objectives	<p>At the end of this educational rotation, the intern should be able to: General Objectives</p> <ol style="list-style-type: none"> 1. Communicate appropriately with clients, patients, staff, and other members of the health team, and demonstrate appropriate professional behavior in their interactions. 2. Take a history from patients with common and important symptoms and complaints related to this section (attached list), perform necessary physical examinations, propose important differential diagnoses, and suggest the diagnosis and management of the patient's problem. 3. Identify the problems of patients with common and important diseases related to this section (attached list), and based on scientific evidence and local guidelines, reason and propose preventive, therapeutic, 		

	<p>follow-up, referral, and rehabilitation actions along with patient education as expected from a general practitioner, and participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations).</p> <p>4. Perform essential procedures related to this section (attached list) while adhering to patient safety principles and under appropriate supervision of higher levels (according to the section's regulations).</p>
Course Description	<p>During this educational rotation, the intern should achieve the specified objectives by participating in clinical rounds and educational clinics and completing individual and group assignments. The necessary theoretical knowledge will be provided through theoretical classes.</p>
Essential Content	<p>The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p>
Essential explanations	<p>Considering the different conditions of clinical education in various medical schools, it is necessary to develop a clinical learning guide according to the essential competencies expected of general medical graduates and taking into account the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education, and provide it to the trainees. In each clinical learning guide, the main diagnostic and paraclinical methods and essential drugs that the intern should have sufficient knowledge about must be specified in addition to the above skills.</p> <p>The amount and manner of presenting classes should not interfere with the student's presence with the patient and their clinical practice.</p> <p>The educational group must determine, announce, and implement appropriate scientific methods and programs for intern education and evaluation. The medical school is responsible for the approval of the program, supervision of its implementation, and evaluation of the program.</p> <p>Supervision can be carried out by higher levels (residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns. Determining the appropriate supervision method and responsible person for each procedure or intervention is the responsibility of the medical school.</p>

Course Code:	200		
Course Title	Orthopedics Residency		
Course Level	1 unit for every two weeks of residency		
Prerequisites	-		
Course Type	Theoretical	Practical	Total
Total Hours:	-	15 days to one month (1 to 4 weeks)	-
General Objectives	<p>At the end of this educational rotation, the intern should be able to: General Objectives.</p> <ol style="list-style-type: none"> 1. Communicate appropriately with clients, patients, staff, and other health team members, and demonstrate appropriate professional behavior in their interactions. 2. Take a history of patients with common and important symptoms and complaints related to this section (attached list), perform necessary physical examinations, propose important differential diagnoses, and suggest the diagnosis and management of the patient's problem. 3. Identify the problems of patients with common and important diseases related to this section (attached list), and based on scientific evidence and local guidelines, reason and propose preventive, therapeutic, follow-up, referral, and rehabilitation actions along with patient education as expected from a general practitioner, and participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 4. Perform essential procedures related to this section (attached list) while adhering to patient safety principles and under appropriate supervision of higher levels (according to the section's regulations). 		

Course Description	During this educational rotation, the intern should achieve the specified objectives by participating in clinical rounds and educational clinics and completing individual and group assignments. The necessary theoretical knowledge will be provided through theoretical classes.
Essential Content	The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<p>Considering the different conditions of clinical education in various medical schools, it is necessary to develop a clinical learning guide according to the essential competencies expected of general medical graduates and taking into account the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education, and provide it to the trainees. In each clinical learning guide, the main diagnostic and paraclinical methods and essential drugs that the intern should have sufficient knowledge about must be specified in addition to the above skills.</p> <p>The amount and manner of presenting classes should not interfere with the student's presence with the patient and their clinical practice.</p> <p>The educational group must determine, announce, and implement appropriate scientific methods and programs for intern education and evaluation. The medical school is responsible for the approval of the program, supervision of its implementation, and evaluation of the program.</p> <p>Supervision can be carried out by higher levels (residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns. Determining the appropriate supervision method and responsible person for each procedure or intervention is the responsibility of the medical school.</p>

Appendix: Courses for Clinical Internship and Residency in Orthopedics for General Medical Doctorate

Common Symptoms and Complaints in this Section:

1. Knee pain including osteoarthritis, meniscal and ligamentous lesions, and joint effusion
2. Hip pain including osteoarthritis and avascular necrosis
3. Foot and ankle pain including cartilaginous, ligamentous lesions, and flat feet
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 and neck pain
8. Child limping
9. Limb deformities: congenital including congenital hip dysplasia, clubfoot, and non-congenital including genu varum and genu valgum
10. Bone and soft tissue tumors
11. Joint inflammation
12. Multiple trauma
13. Fractures and dislocations of the upper limb, lower limb, pelvis, and spine

Important Syndromes and Diseases in this Section:

1. Common hip diseases
2. Common knee diseases
3. Common ankle diseases
4. Common shoulder diseases
5. Common elbow diseases
6. Common wrist diseases
7. Common spinal diseases
8. Common limb and spinal deformities
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, and muscular dystrophies (residency/elective)
13. Metabolic diseases with emphasis on rickets, osteomalacia, osteoporosis, and gout (residency/elective)
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 limb
16. Fractures and dislocations of the lower limb and pelvis
17. Fractures and dislocations of the spine
18. Limb amputation
19. Complications of fractures and dislocations with emphasis on compartment syndrome, deep vein thrombosis, and fat embolism

At the beginning of each main rotation topic, a review of the relevant anatomy and physiology with emphasis on clinical application in the scope of a general practitioner's duties should be conducted.

During this rotation, it is necessary to teach common diagnostic tests and methods used in the clinical practice of a general practitioner, and how to request and interpret the results of these tests and methods in common orthopedic disorders.

At the end of the rotation, it is necessary to teach the list of common orthopedic medications and how to write prescriptions for common conditions in this field that are applicable in the clinical practice of a general practitioner.

During this period, students must learn and practice patient safety measures.

Procedures in this Section:

Mandatory Procedures:

1. Ortolani and Barlow tests in newborn hips
2. Performing Advanced Trauma Life Support (ATLS) in multiple trauma patients
3. Temporary immobilization of limbs with various splints
4. Construction and application of plaster splints (splinting)
5. Performing various bandages in different bone and joint injuries
6. Application of skin traction
7. Control of dangerous limb bleeding
8. Wound care, including washing and dressing
9. Patient transfer

Preferred Procedures:

1. Subungual hematoma drainage
2. Aspiration of knee joint fluid
3. Reduction of shoulder dislocation (closed reduction of shoulder joint)
4. Skin traction for lower limb fractures

Specialized Physical Examinations in Orthopedics (in children and adults):

- Spine examination (including Straight Leg Raising - SLR)
- Hip examination (including Ortolani and Barlow tests)
- Knee examination (ligaments, meniscus, effusion)
- Ankle and foot examination techniques
- Shoulder examination techniques
- Elbow examination techniques
- Wrist and hand examination techniques
- Limb examination for blood supply (peripheral pulse examination and capillary refill)
- Limb neurological examination (nerve roots and peripheral nerves), description of peripheral nerve lesions

The Secretariat of the General Medical Education Council may change the list of common symptoms and signs, important syndromes and diseases, and essential procedures in this section as necessary and in coordination with the General Medical Board and medical schools.

Course Code:	201		
Course Title	Orthopedic Diseases		
Course Level	internships		
Prerequisites	None		
Course Type	Theoretical	Practical	Total
Total Hours:	51	0	51
General Objectives	<p>By the end of this course, students should be able to:</p> <p>A. In dealing with each of the common and important symptoms and complaints:</p> <ol style="list-style-type: none"> 1. Define it. 2. Describe the necessary physical examinations (focused history taking and physical exam) to approach it. 3. Propose important differential diagnoses and suggest the essential steps to reach a diagnosis and manage the patient's problem. <p>B. Regarding common and important diseases:</p> <ol style="list-style-type: none"> 1. Describe the definition, etiology, and epidemiology of the disease. 2. Explain the problems faced by patients with common and important diseases. 3. Describe the methods of diagnosing the disease. 4. Explain the most important preventive measures at various levels, including treatment and rehabilitation of the patient, based on scientific evidence and local guidelines, to the extent expected from a general practitioner. 5. Apply the learned knowledge for clinical reasoning and propose diagnostic or therapeutic approaches when faced with scenarios or case descriptions related to these diseases. <p>C. Pay attention to important issues that need to be observed in the clinical environment of this field.</p>		
Course Description	<p>In this course, students should achieve the specified objectives through attending classes, clinical skills learning centers (Lab Skill), workshops, and completing individual and group assignments. At least one session should be dedicated to case discussion, where students review a patient's history and</p>		

	practice applying the learned knowledge to analyze the patient's problems and reach a diagnosis or answer clinical questions.
Essential Content	Learning activities for this course should include a balanced combination of theoretical education, individual study, group discussion, case review, and other learning assignments. The timing and combination of these activities and the required settings for each activity (classroom, clinical skills learning center, and clinical settings) should be determined in the study guide in accordance with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<ol style="list-style-type: none"> 1. Given the different clinical education conditions in various medical schools, it is necessary to prepare the clinical learning guide in accordance with the expected competencies of general medical doctorate graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education, and provide it to the learners. 2. The methods and program for student education and evaluation should be determined, announced, and implemented by the educational group based on appropriate scientific principles. The approval of the program, supervision of implementation, and program evaluation are the responsibility of the medical school. 3. In presenting the content of clinical introduction courses, the main emphasis should be on symptoms, signs, and common diseases. It is evident that in each medical school, the curriculum committee should ensure that the content provided by the esteemed professors is appropriate to the unit volume and the expected competencies of general practitioners in the health system.

Outline of Theoretical Course in Orthopedics

A. Approach to Common Symptoms and Complaints in Orthopedics:

1. Knee pain including osteoarthritis, meniscal and ligamentous lesions, and joint effusion
2. Hip pain including osteoarthritis and avascular necrosis
3. Foot and ankle pain including cartilaginous, ligamentous lesions, and flat feet
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 and neck pain
8. Child limping
9. Limb deformities: congenital including congenital hip dysplasia, clubfoot, and non-congenital including genu varum and genu valgum
10. Bone and soft tissue tumors
11. Joint inflammation
12. Multiple trauma
13. Fractures and dislocations of the upper limb, lower limb, pelvis, and spine

B. Common and Important Diseases in Orthopedics:

14. Common hip diseases
15. Common knee diseases
16. Common ankle diseases
17. Common shoulder diseases
18. Common elbow diseases
19. Common wrist diseases
20. Common spinal diseases
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 emphasis on carpal tunnel syndrome
24. Neuromuscular diseases with emphasis on cerebral palsy (CP), poliomyelitis, and muscular dystrophies (residency/elective)
25. Metabolic diseases with emphasis on rickets, osteomalacia, osteoporosis, and gout (residency/elective)
26. Bone and joint infections with emphasis on septic arthritis, acute and chronic osteomyelitis, spinal tuberculosis, and hand infections
27. Limb amputation
28. Complications of fractures and dislocations with emphasis on compartment syndrome, deep vein thrombosis, and fat embolism

C. Specialized Physical Examinations in Orthopedics:

29. Spine examination (including Straight Leg Raising - SLR)
30. Hip examination (including Ortolani and Barlow tests)
31. Knee examination (ligaments, meniscus, effusion)
32. Ankle and foot examination techniques
33. Shoulder examination techniques
34. Elbow examination techniques
35. Wrist and hand examination techniques
36. Limb examination for blood supply (peripheral pulse examination and capillary refill)
37. Limb neurological examination (nerve roots and peripheral nerves), description of peripheral nerve lesions

The Secretariat of the General Medical Education Council may change the list of common symptoms and signs, important syndromes and diseases, and essential procedures in this section as necessary and in coordination with the General Medical Board and medical schools.

Clinical Training Courses in Urology (Urinary and Genital Tract Diseases):

1. **Urology Internship**
2. **Urology Residency**
3. **Theoretical Course in Urinary and Genital Tract Diseases (Urology)**

Course Code:	202		
Course Title	Urology Internship Type of Rotation: Mandatory 1.5 units		
Course Level	Internship Presentation Stage		
Prerequisites	Internal Medicine Internship, General Surgery Internship		
Course Type	Theoretical	Practical	Total
Total Hours:	-	2 weeks	-
General Objectives	<p>At the end of this educational rotation, the intern should be able to: General Objectives.</p> <ol style="list-style-type: none"> 1. Communicate appropriately with clients, patients, staff, and other health team members, and demonstrate appropriate professional behavior in their interactions. 2. Take a history of patients with common and important symptoms and complaints related to this section (attached list), perform necessary physical examinations, propose important differential diagnoses, and suggest the diagnosis and management of the patient's problem. 3. Identify the problems of patients with common and important diseases related to this section (attached list), and based on scientific evidence and local guidelines, reason and propose preventive, therapeutic, 		

	<p>follow-up, referral, and rehabilitation actions along with patient education as expected from a general practitioner, and participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations).</p> <p>4. Perform essential procedures related to this section (attached list) while adhering to patient safety principles and under appropriate supervision of higher levels (according to the section's regulations).</p>
Course Description	<p>During this educational rotation, the intern should achieve the specified objectives by participating in clinical rounds and educational clinics and completing individual and group assignments. The necessary theoretical knowledge will be provided through theoretical classes.</p>
Essential Content	<p>The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p>
Essential explanations	<p>Considering the different conditions of clinical education in various medical schools, it is necessary to develop a clinical learning guide according to the essential competencies expected of general medical graduates and taking into account the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education, and provide it to the trainees. In each clinical learning guide, the main diagnostic and paraclinical methods and essential drugs that the intern should have sufficient knowledge about must be specified in addition to the above skills.</p> <p>The amount and manner of presenting classes should not interfere with the student's presence with the patient and their clinical practice.</p> <p>The educational group must determine, announce, and implement appropriate scientific methods and programs for intern education and evaluation. The medical school is responsible for the approval of the program, supervision of its implementation, and evaluation of the program.</p> <p>Supervision can be carried out by higher levels (residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns. Determining the appropriate supervision method and responsible person for each procedure or intervention is the responsibility of the medical school.</p>

Course Code:	203		
Course Title	Urology Residency: Type of Rotation: Elective 2-4 units		
Course Level	Internship Presentation Stage		
Prerequisites	Clinical Urology Internship		
Course Type	Theoretical	Practical	Total
Total Hours:	-	2-4 weeks	-
General Objectives	<p>At the end of this educational rotation, the intern should be able to: General Objectives.</p> <ol style="list-style-type: none"> 1. Communicate appropriately with clients, patients, staff, and other health team members, and demonstrate appropriate professional behavior in their interactions. 2. Take a history of patients with common and important symptoms and complaints related to this section (attached list), perform necessary physical examinations, propose important differential diagnoses, and suggest the diagnosis and management of the patient's problem. 3. Identify the problems of patients with common and important diseases related to this section (attached list), and based on scientific evidence and local guidelines, reason and propose preventive, therapeutic, follow-up, referral, and rehabilitation actions along with patient education as expected from a general practitioner, and participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 4. Perform essential procedures related to this section (attached list) while adhering to patient safety principles and under appropriate supervision of higher levels (according to the section's regulations). 		
Course Description	During this educational rotation, the intern should achieve the specified objectives by participating in clinical rounds and educational clinics and completing individual and group assignments. The necessary theoretical knowledge will be provided through theoretical classes.		

Essential Content	The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<p>Considering the different conditions of clinical education in various medical schools, it is necessary to develop a clinical learning guide according to the essential competencies expected of general medical graduates and taking into account the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education, and provide it to the trainees. In each clinical learning guide, the main diagnostic and paraclinical methods and essential drugs that the intern should have sufficient knowledge about must be specified in addition to the above skills.</p> <p>The amount and manner of presenting classes should not interfere with the student's presence with the patient and their clinical practice.</p> <p>The educational group must determine, announce, and implement appropriate scientific methods and programs for intern education and evaluation. The medical school is responsible for the approval of the program, supervision of its implementation, and evaluation of the program.</p> <p>Supervision can be carried out by higher levels (residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns. Determining the appropriate supervision method and responsible person for each procedure or intervention is the responsibility of the medical school.</p>

Appendix: Courses for Clinical Internship and Residency in Urology

Common Symptoms and Complaints in this Section:

1. Genitourinary 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 (decreased urine flow, dribbling, intermittent urination, straining)
4. Sexual dysfunction in men (decreased libido, erectile dysfunction, anejaculation, lack of orgasm, premature ejaculation)
5. Urinary retention
6. Urinary incontinence
7. Nocturnal enuresis
8. Hematospermia
9. Pneumaturia
10. Urethral discharge

11. Fever and chills

Important Syndromes and Diseases in this Section (must know):

1. Urinary stones
2. Common tumors of the kidney and bladder
3. Common anomalies of the genitourinary tract
4. Genitourinary trauma and its management
5. Neurogenic bladder
6. Benign prostatic hyperplasia (BPH)
7. Prostate cancer
8. Urethral diseases: strictures, anomalies (including hypospadias, epispadias)
9. Acute scrotal problems (infections, torsion, trauma)

(Better to Know):

1. Testicular anomalies (cryptorchidism, varicocele)
2. Testicular tumors

During this rotation, it is necessary to teach common diagnostic tests and methods used in the clinical practice of a general practitioner, and how to request and interpret the results of these tests and methods in common urological disorders.

During this rotation, it is necessary to teach common medications used in the clinical practice of a general practitioner, and how to write prescriptions for common urological disorders.

During this period, students must learn and practice patient safety measures.

Essential Procedures in this Section:

1. Performing simple dressings
2. Performing complex dressings with simple debridement (participation)
3. Insertion and removal of bladder catheters
4. Suprapubic puncture
5. Performing specific urological examinations
6. Circumcision (preferred)

The Secretariat of the General Medical Education Council may change the list of common symptoms and signs, important syndromes and diseases, and essential procedures in this section as necessary and in coordination with the General Medical Board and medical schools.

Course Code:	204		
Course Title	Urinary and Genital Tract Diseases (Urology)		
Course Level	internships		
Prerequisites	None		
Course Type	Theoretical	Practical	Total
Total Hours:	17	0	17
General Objectives	<p>By the end of this course, students should be able to:</p> <p>A. In dealing with each of the common and important symptoms and complaints:</p> <ol style="list-style-type: none"> 1. Define it. 2. Describe the necessary physical examinations (focused history taking and physical exam) to approach it. 3. Propose important differential diagnoses and suggest the essential steps to reach a diagnosis and manage the patient's problem. <p>B. Regarding common and important diseases:</p> <ol style="list-style-type: none"> 1. Describe the definition, etiology, and epidemiology of the disease. 2. Explain the problems faced by patients with common and important diseases. 3. Describe the methods of diagnosing the disease. 4. Explain the most important preventive measures at various levels, including treatment and rehabilitation of the patient, based on scientific evidence and local guidelines, to the extent expected from a general practitioner. 5. Apply the learned knowledge for clinical reasoning and propose diagnostic or therapeutic approaches when faced with scenarios or case descriptions related to these diseases. <p>C. Pay attention to important issues that need to be observed in the clinical environment of this field.</p>		

Course Description	In this course, students should achieve the specified objectives through attending classes, clinical skills learning centers (Lab Skill), workshops, and completing individual and group assignments. At least one session should be dedicated to case discussion, where students review a patient's history and practice applying the learned knowledge to analyze the patient's problems and reach a diagnosis or answer clinical questions.
Essential Content	Learning activities for this course should include a balanced combination of theoretical education, individual study, group discussion, case review, and other learning assignments. The timing and combination of these activities and the required settings for each activity (classroom, clinical skills learning center, and clinical settings) should be determined in the study guide in accordance with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<ol style="list-style-type: none"> 1. Given the different clinical education conditions in various medical schools, it is necessary to prepare the clinical learning guide in accordance with the expected competencies of general medical doctorate graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education, and provide it to the learners. 2. The educational group should determine, announce, and implement the methods and program for student education and evaluation based on appropriate scientific principles. The approval of the program, supervision of implementation, and program evaluation are the responsibility of the medical school. 3. In presenting the content of clinical introduction courses, the main emphasis should be on symptoms, signs, and common diseases. It is evident that in each medical school, the curriculum committee should ensure that the content provided by the esteemed professors is appropriate to the unit volume and the expected competencies of general practitioners in the health system.

Outline of Theoretical Course in Urinary and Genital Tract Diseases (Urology)

A. Approach to Common Symptoms and Complaints in Urological Diseases:

1. Genitourinary pain (kidney pain, radicular pain, ureteral pain, bladder pain, prostate pain, penile pain, and scrotal pain)
2. Urinary disorders (irritative and obstructive symptoms in the urinary tract, retention, incontinence, nocturnal enuresis)
3. Sexual dysfunction in men (decreased libido, erectile dysfunction, anejaculation, lack of orgasm, premature ejaculation)

B. Common and Important Diseases:

1. Urinary stones
2. Common tumors of the kidney and bladder
3. Common anomalies of the genitourinary tract
4. Neurogenic bladder
5. Common prostate diseases: benign prostatic hyperplasia (BPH), prostate cancer
6. Urethral diseases: strictures, anomalies (including hypospadias, epispadias)
7. Genitourinary trauma and its management
8. Acute scrotal problems (infections, torsion, trauma)

Course Code:	205		
Course Title	Anesthesia Internship: Type of Rotation: Mandatory 2-4 units		
Course Level	(Can be offered in Internship 1 or 2) 1.5 units		
Prerequisites	Clinical Basics Courses		
Course Type	Theoretical	Practical	Total
Total Hours:	-	2 weeks	-
General Objectives	At the end of this educational rotation, the intern should be able to: General Objectives. 1. Communicate appropriately with clients, patients, staff, and other health team members, and demonstrate appropriate professional behavior in their interactions. 2. Take a history of patients with common and important symptoms and complaints related to this section (attached list), perform necessary physical examinations, propose important differential diagnoses, and suggest the diagnosis and management of the patient's problem. 3. Identify the problems of patients with common and important diseases related to this section (attached list), and based on scientific evidence		

	<p>and local guidelines, reason and propose preventive, therapeutic, follow-up, referral, and rehabilitation actions along with patient education as expected from a general practitioner, and participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations).</p> <p>4. Perform essential procedures related to this section (attached list) while adhering to patient safety principles and under appropriate supervision of higher levels (according to the section's regulations).</p>
Course Description	<p>During this educational rotation, the intern should achieve the specified objectives by participating in clinical rounds and educational clinics and completing individual and group assignments. The necessary theoretical knowledge will be provided through theoretical classes.</p>
Essential Content	<p>The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p>
Essential explanations	<p>Considering the different conditions of clinical education in various medical schools, it is necessary to develop a clinical learning guide according to the essential competencies expected of general medical graduates and taking into account the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education, and provide it to the trainees. In each clinical learning guide, the main diagnostic and paraclinical methods and essential drugs that the intern should have sufficient knowledge about must be specified in addition to the above skills.</p> <p>The amount and manner of presenting classes should not interfere with the student's presence with the patient and their clinical practice.</p> <p>The educational group must determine, announce, and implement appropriate scientific methods and programs for intern education and evaluation. The medical school is responsible for the approval of the program, supervision of its implementation, and evaluation of the program.</p> <p>Supervision can be carried out by higher levels (residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns. Determining the appropriate supervision method and responsible person for each procedure or intervention is the responsibility of the medical school.</p>

Appendix: Courses for Clinical Internship and Residency in Anesthesia

Essential Educational Content in Clinical Anesthesia Rotation

Knowledge Domain:

1. Introduction to anesthesia including regional and general anesthesia and branches of anesthesia such as palliative care and pain management
2. Airway anatomy
3. Airway maintenance
4. Pharmacology of narcotics and sedatives
5. Postoperative pain management (acute) and chronic pain management
6. Principles of mechanical ventilation
7. Principles of CPR, BLS, ACLS, and DNR (Do Not Resuscitate)
8. Introduction to the concepts and outcomes of transfusion and massive transfusion

Practical Skills Domain (Procedures):

1. Skill in using ventilation with bag and mask
2. Selection and use of oral and nasal airways
3. Performing laryngoscopy in class 1 and 2 anesthetized patients
4. Performing orotracheal intubation
5. Performing appropriate venous cannulations from limbs
6. Active participation in cardiopulmonary resuscitation (CPR)
7. Use of hemodynamic monitoring devices
8. Basic use of ventilators (preferred)

During this period, students must learn and practice patient safety measures.

The Secretariat of the General Medical Education Council may change the above list as necessary and in coordination with the General Medical Board and medical schools.

Clinical Training Courses in Obstetrics and Gynecology:

1. **Obstetrics and Gynecology Internship**
2. **Obstetrics and Gynecology Residency**
3. **Theoretical Course in Obstetrics and Gynecology Diseases**

Course Code:	206
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Course Title	Obstetrics and Gynecology Internship Type of Rotation: Mandatory		
Course Level	(Can be offered in Internship 1 or 2) 6 units		
Prerequisites	(Internship 1 or 2)		
Course Type	Theoretical	Practical	Total
Total Hours:	-	2 weeks	-
General Objectives	<p>At the end of this educational rotation, the intern should be able to: General Objectives.</p> <ol style="list-style-type: none"> 1. Communicate appropriately with clients, patients, staff, and other health team members, and demonstrate appropriate professional behavior in their interactions. 2. Take a history of patients with common and important symptoms and complaints related to this section (attached list), perform necessary physical examinations, propose important differential diagnoses, and suggest the diagnosis and management of the patient's problem. 3. Identify the problems of patients with common and important diseases related to this section (attached list), and based on scientific evidence and local guidelines, reason and propose preventive, therapeutic, follow-up, referral, and rehabilitation actions along with patient education as expected from a general practitioner, and participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 4. Perform essential procedures related to this section (attached list) while adhering to patient safety principles and under appropriate supervision of higher levels (according to the section's regulations). 		
Course Description	<p>During this educational rotation, the intern should achieve the specified objectives by participating in clinical rounds and educational clinics and completing individual and group assignments. The necessary theoretical knowledge will be provided through theoretical classes.</p>		

Essential Content	The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<p>Considering the different conditions of clinical education in various medical schools, it is necessary to develop a clinical learning guide according to the essential competencies expected of general medical graduates and taking into account the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education, and provide it to the trainees. In each clinical learning guide, the main diagnostic and paraclinical methods and essential drugs that the intern should have sufficient knowledge about must be specified in addition to the above skills.</p> <p>The amount and manner of presenting classes should not interfere with the student's presence with the patient and their clinical practice.</p> <p>The educational group must determine, announce, and implement appropriate scientific methods and programs for intern education and evaluation. The medical school is responsible for the approval of the program, supervision of its implementation, and evaluation of the program.</p> <p>Supervision can be carried out by higher levels (residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns. Determining the appropriate supervision method and responsible person for each procedure or intervention is the responsibility of the medical school.</p>

Course Code:	207		
Course Title	Obstetrics and Gynecology Residency Type of Rotation: Mandatory		
Course Level	(Can be offered in Internship 1 or 2) 8 units		
Prerequisites	-		
Course Type	Theoretical	Practical	Total

Total Hours:	-	2 weeks	-
General Objectives	<p>At the end of this educational rotation, the intern should be able to: General Objectives.</p> <ol style="list-style-type: none"> 1. Communicate appropriately with clients, patients, staff, and other health team members, and demonstrate appropriate professional behavior in their interactions. 2. Take a history of patients with common and important symptoms and complaints related to this section (attached list), perform necessary physical examinations, propose important differential diagnoses, and suggest the diagnosis and management of the patient's problem. 3. Identify the problems of patients with common and important diseases related to this section (attached list), and based on scientific evidence and local guidelines, reason and propose preventive, therapeutic, follow-up, referral, and rehabilitation actions along with patient education as expected from a general practitioner, and participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 4. Perform essential procedures related to this section (attached list) while adhering to patient safety principles and under appropriate supervision of higher levels (according to the section's regulations). 		
Course Description	<p>During this educational rotation, the intern should achieve the specified objectives by participating in clinical rounds and educational clinics and completing individual and group assignments. The necessary theoretical knowledge will be provided through theoretical classes.</p>		
Essential Content	<p>The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p>		
Essential explanations	<p>Considering the different conditions of clinical education in various medical schools, it is necessary to develop a clinical learning guide according to the essential competencies expected of general medical graduates and taking into account the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education, and provide it to the trainees. In each clinical learning guide, the main diagnostic and paraclinical methods and essential drugs that the intern should have sufficient knowledge about must be specified in addition to the above skills.</p>		

	<p>The amount and manner of presenting classes should not interfere with the student's presence with the patient and their clinical practice.</p> <p>The educational group must determine, announce, and implement appropriate scientific methods and programs for intern education and evaluation. The medical school is responsible for the approval of the program, supervision of its implementation, and evaluation of the program.</p> <p>Supervision can be carried out by higher levels (residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns. Determining the appropriate supervision method and responsible person for each procedure or intervention is the responsibility of the medical school.</p>
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Appendix: Courses for Clinical Internship and Residency in Obstetrics and Gynecology

Common Symptoms and Complaints in this Section:

1. Abnormal vaginal bleeding in pregnant and non-pregnant women
2. Abdominal pain in pregnant and non-pregnant women
3. Abnormal vaginal discharge
4. Seizures in pregnant women
5. Fever in pregnant women
6. Feeling of a mass in the abdomen in pregnant and non-pregnant women
7. Feeling of a mass protruding from the vagina
8. Urinary incontinence
9. Abnormal vaginal discharge in pregnant and non-pregnant women
10. Lesions or sores on the genital tract
11. Nipple discharge

During this rotation, it is necessary to teach common diagnostic tests and methods used in the clinical practice of a general practitioner, and how to request and interpret the results of these tests and methods in common obstetric and gynecological disorders.

During this rotation, it is necessary to teach common medications used in the clinical practice of a general practitioner, and how to write prescriptions for common obstetric and gynecological disorders.

During this period, students must learn and practice patient safety measures.

Important Syndromes and Diseases in this Section (must know):

1. Physiology of pregnancy and prenatal care
2. Management of natural childbirth – postpartum care

3. Fetal health assessment during labor
4. Pregnancy bleeding
5. Complications of the first, second, and third trimesters of pregnancy
6. Hypertensive disorders in pregnancy
7. RH alloimmunization disorders
8. Common medical and surgical disorders in pregnancy
9. Common benign disorders of the vulva, vagina, cervix, uterus, and ovaries
10. Ectopic pregnancy (EP)
11. Abortion (AVB)
12. Family planning

Preferred Cases (Better to Know):

1. Labor dystocia
2. Multiple pregnancies
3. Pelvic pain – Endometriosis
4. Pelvic floor disorders
5. Genital infections – STDs – Urinary infections in women
6. Perimenopause – Menopause
7. Infertility – PCOS syndrome – AKT
8. Amenorrhea – Oligomenorrhea
9. Gestational trophoblastic disease (GTD)
10. Cancers of the vulva, vagina, cervix, uterus, and ovaries
11. Puberty and its disorders
12. Benign breast diseases

Essential Procedures in this Section:

1. Pregnancy examinations
2. Gynecological examinations
3. Management of natural childbirth
4. Management of incomplete abortion evacuation with forceps in cases of life-threatening bleeding
5. Management of postpartum hemorrhage
6. Performing Pap smears
7. Performing urinary pregnancy tests

The Secretariat of the General Medical Education Council may change the list of common symptoms and signs, important syndromes and diseases, and essential procedures in this section as necessary and in coordination with the General Medical Board and medical schools.

Course Code:	208		
Course Title	Obstetrics and Gynecology Diseases		
Course Level	internships		
Prerequisites	None		
Course Type	Theoretical	Practical	Total
Total Hours:	68	0	68
General Objectives	<p>By the end of this course, students should be able to:</p> <p>A. In dealing with each of the common and important symptoms and complaints:</p> <ol style="list-style-type: none"> 1. Define it. 2. Describe the necessary physical examinations (focused history taking and physical exam) to approach it. 3. Propose important differential diagnoses and suggest the essential steps to reach a diagnosis and manage the patient's problem. <p>B. Regarding common and important diseases:</p> <ol style="list-style-type: none"> 1. Describe the definition, etiology, and epidemiology of the disease. 2. Explain the problems faced by patients with common and important diseases. 3. Describe the methods of diagnosing the disease. 4. Explain the most important preventive measures at various levels, including treatment and rehabilitation of the patient, based on scientific evidence and local guidelines, to the extent expected from a general practitioner. 5. Apply the learned knowledge for clinical reasoning and propose diagnostic or therapeutic approaches when faced with scenarios or case descriptions related to these diseases. <p>C. Pay attention to important issues that need to be observed in the clinical environment of this field.</p>		
Course Description	<p>In this course, students should achieve the specified objectives through attending classes, clinical skills learning centers (Lab Skill), workshops, and completing individual and group assignments. At least one session should be dedicated to case discussion, where students review a patient's history and</p>		

	practice applying the learned knowledge to analyze the patient's problems and reach a diagnosis or answer clinical questions.
Essential Content	Learning activities for this course should include a balanced combination of theoretical education, individual study, group discussion, case review, and other learning assignments. The timing and combination of these activities and the required settings for each activity (classroom, clinical skills learning center, and clinical settings) should be determined in the study guide in accordance with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<ol style="list-style-type: none"> 1. Given the different clinical education conditions in various medical schools, it is necessary to prepare the clinical learning guide in accordance with the expected competencies of general medical doctorate graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education, and provide it to the learners. 2. The educational group should determine, announce, and implement the methods and program for student education and evaluation based on appropriate scientific principles. The approval of the program, supervision of implementation, and program evaluation are the responsibility of the medical school. 3. In presenting the content of clinical introduction courses, the main emphasis should be on symptoms, signs, and common diseases. It is evident that in each medical school, the curriculum committee should ensure that the content provided by the esteemed professors is appropriate to the unit volume and the expected competencies of general practitioners in the health system.

Appendix: Theoretical Course in Obstetrics and Gynecology Diseases

A. midwifery:

1. General introduction and definitions in obstetrics and gynecology, establishing communication, and ethical-religious considerations in obstetric and gynecological examinations
2. Review of the anatomy and functional physiology of the reproductive system
3. Physiology of the placenta
4. Signs and various methods of pregnancy diagnosis
5. Prenatal examinations and history taking
6. Physiology of pregnancy
7. Pelvic structure and its abnormalities
8. Prenatal care (including national prenatal care programs)

9. Common complaints during pregnancy
10. Physiology of labor, labor progression, and intrapartum care
11. Postpartum care (including national postpartum care programs)
12. Labor in abnormal presentations
13. Labor induction
14. Labor dystocia
15. Fetal distress and related care
16. Preterm labor, post-term pregnancy
17. Intrauterine growth restriction
18. Multiple pregnancies
19. Third-trimester bleeding
20. Types of placenta and placental and umbilical cord abnormalities
21. Postpartum complications (infection, hemorrhage, thrombophlebitis, breast problems)
22. Blood group incompatibility
23. Trophoblastic diseases
24. Physiological childbirth, use of assistive devices in childbirth (vacuum, forceps)
25. Cesarean section and its types
26. Hydramnios, oligohydramnios
27. Hypertensive diseases in pregnancy
28. Premature rupture of membranes
29. Cardiac 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. Diseases of the vulva and vagina
5. Vaginitis and cervicitis
6. Benign diseases of the cervix and uterus
7. Malignant diseases of the cervix
8. Malignant diseases of the uterus and tubes
9. Benign ovarian tumors
10. Malignant ovarian tumors
11. Abnormal uterine bleeding
12. Pelvic infections
13. Amenorrhea
14. Infertility
15. Endometriosis
16. Congenital anomalies of the reproductive system
17. Contraceptive methods

The Secretariat of the General Medical Education Council may change the list of common symptoms and signs, important syndromes and diseases, and essential procedures in this section as necessary and in coordination with the General Medical Board and medical schools.

Clinical Training Courses in Social and Family Medicine:

1. **Social and Family Medicine Internship**
2. **Social and Family Medicine Residency**

Course Code:	209		
Course Title	Social and Family Medicine Internship Type of Rotation: Mandatory		
Course Level	Internship Presentation Stage: (Internship 1 or 2) 3 units		
Prerequisites	-		
Course Type	Theoretical	Practical	Total
Total Hours:	-	1 month	-
General Objectives	<p>At the end of this educational rotation, in line with achieving the expected competencies of general medical graduates, the intern should be able to:</p> <ul style="list-style-type: none"> • Communicate appropriately with clients, patients, staff, and other health team members, and demonstrate appropriate professional behavior in their interactions. • Understand the structure, function, and interrelationship of the components of the health system and primary health care, and be able to: <ol style="list-style-type: none"> 1. Examine the structure of different levels of the health care system, compare it with standards, and report. 2. Perform health services activities for reproductive health, children, mothers, adolescents, young adults, middle-aged adults, and the elderly at the primary level of service delivery based on national guidelines and under the supervision of qualified educators. 		

	<ol style="list-style-type: none"> 3. Conduct health education activities for individuals, families, and communities at the primary level of service delivery based on national guidelines and under the supervision of qualified educators. 4. Perform environmental and occupational health activities at the primary level of service delivery based on national guidelines and under the supervision of qualified educators. 5. Carry out oral and dental health activities at the primary level of service delivery based on national guidelines and under the supervision of qualified educators. 6. Implement school health activities at the primary level of service delivery based on national guidelines and under the supervision of qualified educators. 7. Conduct immunization-related activities at the primary level of service delivery based on national guidelines and under the supervision of qualified educators. 8. Perform activities related to the prevention and screening of non-communicable diseases at the primary level of service delivery based on national guidelines and under the supervision of qualified educators. 9. Understand the electronic health information system and analyze its results. 10. Apply methods and techniques for communicating with the target community and social participation at the primary level of service delivery
Course Description	During this educational rotation, the intern should achieve the specified objectives by participating in clinical rounds and educational clinics and completing individual and group assignments. The necessary theoretical knowledge will be provided through theoretical classes.
Essential Content	The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	Considering the different conditions of clinical education in various medical schools, it is necessary to develop a clinical learning guide according to the essential competencies expected of general medical graduates and taking into account the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education, and provide it to the trainees. In each clinical learning guide, the main diagnostic and paraclinical methods and essential drugs that the intern

	<p>should have sufficient knowledge about must be specified in addition to the above skills.</p> <p>The amount and manner of presenting classes should not interfere with the student's presence with the patient and their clinical practice.</p> <p>The educational group must determine, announce, and implement appropriate scientific methods and programs for intern education and evaluation. The medical school is responsible for the approval of the program, supervision of its implementation, and evaluation of the program.</p> <p>Supervision can be carried out by higher levels (residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns. Determining the appropriate supervision method and responsible person for each procedure or intervention is the responsibility of the medical school.</p>
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Course Code:	210		
Course Title	Social and Family Medicine Residency Type of Rotation: Mandatory		
Course Level	Internship Presentation Stage: (Internship 1 or 2) 3 units		
Prerequisites	-		
Course Type	Theoretical	Practical	Total
Total Hours:	-	Duration of Orientation Workshops During the Course: One month (maximum 5 days)	-

		<p>Participation in Urban Areas: 71% of the course duration</p> <p>Participation in Rural Areas: 31% of the course duration, based on the population distribution in the country</p>	
General Objectives	<p>At the end of this educational rotation, in line with achieving the expected competencies of general medical graduates, the resident should be able to:</p> <ol style="list-style-type: none"> 1. Communicate appropriately with clients, patients, staff, and other members of the health team, and demonstrate appropriate professional behavior in their interactions. 2. Correctly and successfully perform risk management and reduction assessments for clients. 3. Properly implement and, if necessary, critique national health programs. 4. Examine and prioritize the most important risk factors and health problems of the population or region covered in the educational fields, and develop and present appropriate solutions and operational plans considering available resources and intersectoral cooperation. 5. Critique screening and prevention services for common and priority diseases at the individual, family, and community levels. 6. Implement a project in the form of analysis, prioritization, and problem-solving. 7. Calculate and analyze health indicators based on working with the electronic health system. 8. Propose ways to improve health indicators using monitoring and evaluation methods in the region. 9. Have the ability to take a comprehensive, integrated, and complete history in adults, children, pregnant women, and the elderly in family medicine clinics or comprehensive health service centers. 10. Have the ability to perform a general and comprehensive physical examination of adults, children (according to common age classifications), pregnant women, and the elderly while respecting patient privacy and being aware of related religious boundaries in family medicine clinics or comprehensive health service centers. 11. Apply the principles and correct methods of referral to higher levels. 12. Evaluate social determinants of health at the individual, family, and community levels. 13. Apply methods and techniques for comprehensive advocacy in solving problems. 		

	<p>14. Apply methods of early diagnosis and screening of common diseases at the individual, family, and community levels.</p> <p>15. Write necessary prescriptions based on the principles of rational drug prescribing.</p>
Course Description	<p>During this educational rotation, the resident should achieve the specified objectives through participation in the proposed fields and completion of individual and group assignments. To provide theoretical knowledge, necessary theoretical classes should be conducted in the form of orientation workshops by the Social and Family Medicine group.</p> <p>Proposed Educational Fields:</p> <ul style="list-style-type: none"> • Comprehensive urban or urban-rural health service centers • Health houses • Prevention clinics • Family medicine clinics • Health houses and municipal neighborhood centers (if possible) • County health centers • Visits to elderly care centers, orphanages, prisons, etc. (if possible) <p>If possible, ensuring safety and security for students and staying in rural areas is recommended.</p>
Essential Content	<p>The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p>
Essential explanations	<p>Considering the different conditions of clinical education in various medical schools, it is necessary to develop a clinical learning guide according to the essential competencies expected of general medical graduates and taking into account the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education, and provide it to the trainees. In each clinical learning guide, the main diagnostic and paraclinical methods and essential drugs that the intern should have sufficient knowledge about must be specified in addition to the above skills.</p> <p>The amount and manner of presenting classes should not interfere with the student's presence with the patient and their clinical practice.</p> <p>The educational group must determine, announce, and implement appropriate scientific methods and programs for intern education and evaluation. The</p>

	<p>medical school is responsible for the approval of the program, supervision of its implementation, and evaluation of the program.</p> <p>Supervision can be carried out by higher levels (residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns. Determining the appropriate supervision method and responsible person for each procedure or intervention is the responsibility of the medical school.</p>
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Clinical Training Courses in Psychiatry:

1. **Psychiatry Internship**
2. **Psychiatry Residency**
3. **Theoretical Course in Psychiatric Diseases**

Course Code:	211		
Course Title	Psychiatry Internship: Type of Rotation: Mandatory		
Course Level	Preferably Internship 2 3 units		
Prerequisites	-		
Course Type	Theoretical	Practical	Total
Total Hours:	-	One month	-
General Objectives	At the end of this educational rotation, the intern should be able to: <ol style="list-style-type: none"> 1. Communicate appropriately with clients, patients, staff, and other members of the health team, and demonstrate appropriate professional behavior in their interactions. 2. Take a history from patients with common and important symptoms and complaints related to this section (see attached list), perform necessary 		

	<p>physical examinations, propose important differential diagnoses, and suggest the diagnosis and management of the patient's problem.</p> <p>3. Identify problems in patients with common and important diseases related to this section (see attached list), and based on scientific evidence and local guidelines, reason and propose preventive, therapeutic, follow-up, referral, and rehabilitation actions along with patient education to the extent expected from a general practitioner. Participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations).</p>
Course Description	<p>During this educational rotation, the resident should achieve the specified objectives by participating in the proposed fields and completing individual and group assignments. To provide theoretical knowledge, necessary theoretical classes should be conducted in the form of orientation workshops by the Social and Family Medicine group.</p> <p>Proposed Educational Fields:</p> <ul style="list-style-type: none"> • Comprehensive urban or urban-rural health service centers • Health houses • Prevention clinics • Family medicine clinics • Health houses and municipal neighborhood centers (if possible) • County health centers • Visits to elderly care centers, orphanages, prisons, etc. (if possible) <p>If possible, ensuring safety and security for students and staying in rural areas is recommended.</p>
Essential Content	<p>The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p>
Essential explanations	<p>Considering the different conditions of clinical education in various medical schools, it is necessary to develop a clinical learning guide according to the essential competencies expected of general medical graduates and taking into account the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education, and provide it to the trainees. In each clinical learning guide, the main diagnostic and paraclinical methods and essential drugs that the intern should have sufficient knowledge about must be specified in addition to the above skills.</p>

	<p>The amount and manner of presenting classes should not interfere with the student's presence with the patient and their clinical practice.</p> <p>The educational group must determine, announce, and implement appropriate scientific methods and programs for intern education and evaluation. The medical school is responsible for the approval of the program, supervision of its implementation, and evaluation of the program.</p> <p>Supervision can be carried out by higher levels (residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns. Determining the appropriate supervision method and responsible person for each procedure or intervention is the responsibility of the medical school.</p>
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Course Code:	211		
Course Title	Psychiatry Residency Type of Rotation: Mandatory		
Course Level	Preferably Internship 2 4 units		
Prerequisites	-		
Course Type	Theoretical	Practical	Total
Total Hours:	-	One month	-
General Objectives	At the end of this educational rotation, the resident should be able to: <ol style="list-style-type: none"> 1. Collaborate appropriately with staff and other members of the health team. 2. Demonstrate appropriate professional behavior in their interactions, particularly in various clinical situations, showing that they have acquired the necessary responsibility, proficiency, and confidence to perform professional duties. 3. Take a history from patients with common and important symptoms and complaints in this section (see attached list), perform necessary physical examinations, list important differential diagnoses, and perform 		

	<p>necessary actions for the diagnosis and management of the patient's problem to the extent expected from general practitioners and according to the standards of the clinical section under the supervision of the relevant instructor.</p> <ol style="list-style-type: none"> 4. Diagnose problems in patients with common and important diseases in this section (see attached list), reason and propose preventive, therapeutic, and rehabilitative actions based on scientific evidence and local guidelines to the extent expected from a general practitioner, and perform the stages of management and treatment of the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 5. Independently perform essential procedures related to this section (see attached list) with appropriate supervision and adherence to patient safety principles (according to the section's regulations).
Course Description	<p>During this educational rotation, residents should achieve the necessary competencies for independently providing related services in the field of general medicine by:</p> <ul style="list-style-type: none"> • Participating in health service delivery in relevant fields (hospitals, clinics, health service centers, etc.) • Attending designated educational sessions • Engaging in individual study <p>These activities will help residents acquire the skills and knowledge expected from general practitioners according to the competency framework.</p>
Essential Content	<p>The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p>
Essential explanations	<p>Considering the different conditions of clinical education in various medical schools, it is necessary to develop a clinical learning guide according to the essential competencies expected of general medical graduates and taking into account the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education, and provide it to the trainees. In each clinical learning guide, the main diagnostic and paraclinical methods and essential drugs that the intern should have sufficient knowledge about must be specified in addition to the above skills.</p> <p>The amount and manner of presenting classes should not interfere with the student's presence with the patient and their clinical practice.</p>

	<p>The educational group must determine, announce, and implement appropriate scientific methods and programs for intern education and evaluation. The medical school is responsible for the approval of the program, supervision of its implementation, and evaluation of the program.</p> <p>Supervision can be carried out by higher levels (residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns. Determining the appropriate supervision method and responsible person for each procedure or intervention is the responsibility of the medical school.</p>
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Appendix: Courses for Clinical Internship and Residency in Psychiatry

Common Symptoms and Complaints in this Section:

1. Anxiety
2. Aggression
3. Depression
4. Substance dependence
5. Communication problems
6. Amnesia
7. Hyperactivity
8. Behavior inconsistent with social norms
9. Abnormal speech
10. Sleep disorders
11. Sexual dysfunction
12. Psychosomatic disorders
13. Suicide attempts
14. Drug side effects
15. Urinary and fecal incontinence (children)
16. Personality problems

Important Syndromes and Diseases in this Section:

1. Anxiety disorders (generalized anxiety disorder, panic disorder, phobia, post-traumatic stress disorder, substance-induced anxiety disorder, anxiety disorder due to medical conditions)
2. Mood disorders (major depression, dysthymia, bipolar disorder, grief and loss, adjustment disorder, premenstrual dysphoric disorder, postpartum depression and psychosis, substance-induced mood disorder, mood disorder due to medical conditions)
3. Psychotic disorders (schizophrenia, other psychotic disorders, delusional disorder, brief psychotic disorder, substance-induced psychotic disorders, psychotic disorders due to medical conditions such as tumors and metabolic diseases)

4. Substance abuse (recognition of common substances, symptoms of abuse, addiction, and withdrawal symptoms)
5. Sexual disorders (normal cycle, functional disorders)
6. Sleep disorders
7. Physical disorders in psychiatric diseases
8. Psychiatric issues in medical diseases and psychosomatic disorders
9. Somatoform disorders (somatization disorder, conversion disorder, body dysmorphic disorder, hypochondriasis)
10. Personality disorders
11. Cognitive disorders (dementia, delirium)
12. Geriatric psychiatry
13. Psychiatric emergencies (suicide, homicide, risk assessment)
14. Common psychiatric disorders in children and adolescents (attention deficit hyperactivity disorder, conduct disorder, oppositional defiant disorder, tic disorder, depression, anxiety, urinary and fecal incontinence, intellectual disability)

Other Topics:

1. Pharmacological and non-pharmacological treatments in psychiatry

During this rotation, it is necessary to teach common diagnostic tests and methods used in the clinical practice of a general practitioner, and how to request and interpret the results of these tests and methods in common neurological disorders.

During this rotation, it is necessary to teach common medications used in the clinical practice of a general practitioner, and how to write prescriptions for common neurological disorders.

During this period, students must learn and practice patient safety measures.

Essential Procedures in this Section:

- None

During Residency: Observation and assistance in patient care during ECT

The Secretariat of the General Medical Education Council may change the list of common symptoms and signs, important syndromes and diseases, and essential procedures in this section as necessary and in coordination with the General Medical Board and medical schools.

Course Code:	213
Course Title	Psychiatric Diseases

Course Level	internships		
Prerequisites	None		
Course Type	Theoretical	Practical	Total
Total Hours:	26	0	26
General Objectives	<p>By the end of this course, students should be able to:</p> <p>A. In dealing with each of the common and important symptoms and complaints:</p> <ol style="list-style-type: none"> 4. Define it. 5. Describe the necessary physical examinations (focused history taking and physical exam) to approach it. 6. Propose important differential diagnoses and suggest the essential steps to reach a diagnosis and manage the patient's problem. <p>B. Regarding common and important diseases:</p> <ol style="list-style-type: none"> 6. Describe the definition, etiology, and epidemiology of the disease. 7. Explain the problems faced by patients with common and important diseases. 8. Describe the methods of diagnosing the disease. 9. Explain the most important preventive measures at various levels, including treatment and rehabilitation of the patient, based on scientific evidence and local guidelines, to the extent expected from a general practitioner. 10. Apply the learned knowledge for clinical reasoning and propose diagnostic or therapeutic approaches when faced with scenarios or case descriptions related to these diseases. <p>C. Pay attention to important issues that need to be observed in the clinical environment of this field.</p>		
Course Description	<p>In this course, students should achieve the specified objectives through attending classes, clinical skills learning centers (Lab Skill), workshops, and completing individual and group assignments. At least one session should be dedicated to case discussion, where students review a patient's history and practice applying the learned knowledge to analyze the patient's problems and reach a diagnosis or answer clinical questions.</p>		

Essential Content	Learning activities for this course should include a balanced combination of theoretical education, individual study, group discussion, case review, and other learning assignments. The timing and combination of these activities and the required settings for each activity (classroom, clinical skills learning center, and clinical settings) should be determined in the study guide in accordance with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<ol style="list-style-type: none"> 4. Given the different clinical education conditions in various medical schools, it is necessary to prepare the clinical learning guide in accordance with the expected competencies of general medical doctorate graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education, and provide it to the learners. 5. The educational group should determine, announce, and implement the methods and program for student education and evaluation based on appropriate scientific principles. The approval of the program, supervision of implementation, and program evaluation are the responsibility of the medical school. 6. In presenting the content of clinical introduction courses, the main emphasis should be on symptoms, signs, and common diseases. It is evident that in each medical school, the curriculum committee should ensure that the content provided by the esteemed professors is appropriate to the unit volume and the expected competencies of general practitioners in the health system.

Outline of Theoretical Course in Psychiatric Diseases

1. **Anxiety Disorders:** Generalized anxiety disorder, panic disorder, phobia, post-traumatic stress disorder, substance-induced anxiety disorder, anxiety disorder due to medical conditions
2. **Mood Disorders:** Major depression, dysthymia, bipolar disorder, grief and loss, adjustment disorder, premenstrual dysphoric disorder, postpartum depression and psychosis, substance-induced mood disorder, mood disorder due to medical conditions
3. **Psychotic Disorders:** Schizophrenia, other psychotic disorders, delusional disorder, brief psychotic disorder, substance-induced psychotic disorders, psychotic disorders due to medical conditions such as tumors and metabolic diseases
4. **Substance Abuse:** Recognition of common substances, symptoms of abuse, addiction, and withdrawal symptoms
5. **Sexual Disorders:** Normal cycle, functional disorders
6. **Sleep Disorders**

7. **Physical Disorders in Psychiatric Diseases**
8. **Psychiatric Issues in Medical Diseases and Psychosomatic Disorders**
9. **Somatoform Disorders:** Somatization disorder, conversion disorder, body dysmorphic disorder, hypochondriasis
10. **Personality Disorders**
11. **Cognitive Disorders:** Dementia, delirium
12. **Geriatric Psychiatry**
13. **Psychiatric Emergencies:** Suicide, homicide, risk assessment
14. **Common Psychiatric Disorders in Children and Adolescents:** Attention deficit hyperactivity disorder, conduct disorder, oppositional defiant disorder, tic disorder, depression, anxiety, urinary and fecal incontinence, intellectual disability
15. **Pharmacological and Non-Pharmacological Treatments in Psychiatry**

The Secretariat of the General Medical Education Council may change the list of topics in this course as necessary and in coordination with the General Medical Board and medical schools.

Clinical Training Courses in Emergency Medicine:

1. **Emergency Medicine Internship**
2. **Emergency Medicine Residency**

Course Code:	214		
Course Title	Clinical Internship: Type of Rotation: Mandatory		
Course Level	Preferably Internship 2 1.5 units		
Prerequisites	-		
Course Type	Theoretical	Practical	Total

Total Hours:	-	2 week	-
General Objectives	<p>At the end of this educational rotation, the intern should be able to:</p> <ol style="list-style-type: none"> 1. Communicate appropriately with clients, patients, staff, and other members of the health team, and demonstrate appropriate professional behavior in their interactions. 2. Take a history from patients with common and important symptoms and complaints related to this section (see attached list), perform necessary physical examinations, propose important differential diagnoses, and suggest the diagnosis and management of the patient's problem. 3. Identify problems in patients with common and important diseases related to this section (see attached list), and based on scientific evidence and local guidelines, reason and propose preventive, therapeutic, follow-up, referral, and rehabilitation actions along with patient education to the extent expected from a general practitioner. Participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 		
Course Description	<p>During this educational rotation, the resident should achieve the specified objectives by participating in the proposed fields and completing individual and group assignments. To provide theoretical knowledge, necessary theoretical classes should be conducted in the form of orientation workshops by the Social and Family Medicine group.</p> <p>Proposed Educational Fields:</p> <ul style="list-style-type: none"> • Comprehensive urban or urban-rural health service centers • Health houses • Prevention clinics • Family medicine clinics • Health houses and municipal neighborhood centers (if possible) • County health centers • Visits to elderly care centers, orphanages, prisons, etc. (if possible) <p>If possible, ensuring safety and security for students and staying in rural areas is recommended.</p>		

Essential Content	The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, and clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<p>Considering the different conditions of clinical education in various medical schools, it is necessary to develop a clinical learning guide according to the essential competencies expected of general medical graduates and taking into account the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education, and provide it to the trainees. In each clinical learning guide, the main diagnostic and paraclinical methods and essential drugs that the intern should have sufficient knowledge about must be specified in addition to the above skills.</p> <p>The amount and manner of presenting classes should not interfere with the student's presence with the patient and their clinical practice.</p> <p>The educational group must determine, announce, and implement appropriate scientific methods and programs for intern education and evaluation. The medical school is responsible for the approval of the program, supervision of its implementation, and evaluation of the program.</p> <p>Supervision can be carried out by higher levels (residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns. Determining the appropriate supervision method and responsible person for each procedure or intervention is the responsibility of the medical school.</p>

Appendix: Emergency Medicine Internship Course

Common Symptoms and Complaints in this Section:

1. Cardiopulmonary arrest
2. Multiple trauma
3. Chest pain
4. Abdominal pain
5. Shortness of breath
6. Weakness and lethargy
7. Decreased level of consciousness
8. Common neurological symptoms: headache, dizziness, and seizures

Essential Procedures in this Section:

1. Performing and practicing standard patient triage in normal conditions based on protocol (including categorization/classification and determining the patient's needs)
2. Basic airway management maneuvers and using auxiliary airway equipment such as oral airways
3. Basic cardiopulmonary resuscitation (BLS) including chest compressions, mouth-to-mouth breathing, mask ventilation, Heimlich maneuver, and AED
4. Electrocardiogram (ECG) and cardiopulmonary monitoring
5. Venipuncture
6. Familiarity with necessary equipment for bladder catheterization and nasogastric tube insertion
7. Subcutaneous, intramuscular, and intravenous injections
8. Wound care (cleaning, dressing, types of wounds, and necessary equipment for repair)
9. Primary trauma care

The Secretariat of the General Medical Education Council may change the list of common symptoms and signs, important syndromes and diseases, and essential procedures in this section as necessary and in coordination with the General Medical Board and medical schools.

Course Code:	215		
Course Title	Emergency Medicine Residency: Type of Rotation: Mandatory		
Course Level	residency program 4 units		
Prerequisites	Completion of at least six months of the residency program		
Course Type	Theoretical	Practical	Total
Total Hours:	-	2 week	-
General Objectives	At the end of this educational rotation, the resident should be able to: <ol style="list-style-type: none"> 1. Collaborate appropriately with staff and other members of the health team. 2. Demonstrate appropriate professional behavior in their interactions, particularly in various clinical situations, showing that they have acquired the necessary responsibility, proficiency, and confidence to perform professional duties. 3. While resuscitating and stabilizing patients with common and important symptoms and complaints (see attached list), take a history, 		

	<p>perform necessary physical examinations, list important differential diagnoses, and take necessary steps to diagnose and manage the patient's problem to the extent expected from general practitioners and according to the standards of the clinical section under the supervision of the relevant instructor.</p> <ol style="list-style-type: none"> 4. Diagnose problems in patients with common and important diseases (see attached list), reason and propose diagnostic and therapeutic actions based on scientific evidence and local guidelines according to emergency medicine protocols to the extent expected from a general practitioner, and perform the stages of management and treatment of the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 5. Independently perform essential procedures (see attached list) with appropriate supervision and adherence to patient safety principles (according to the section's regulations). 6. Perform patient triage in normal conditions and emergencies according to approved protocols to the extent expected from general practitioners.
Course Description	<p>During this educational rotation, residents should achieve the necessary competencies for independently providing related services in the field of general medicine by:</p> <ul style="list-style-type: none"> • Participating in health service delivery in relevant fields (emergency department) • Attending designated educational sessions • Engaging in individual study <p>Educational sessions may include:</p> <ul style="list-style-type: none"> • Morning reports • Theoretical classes • Practical skill workshops, such as airway management, advanced cardiopulmonary resuscitation, trauma care, and common procedures like splinting
Essential Content	<p>The timing and combination of these activities and the required fields for each activity (including hospital, clinic, health service centers, laboratory, emergency room, and clinical skills learning center) should be determined in the Clinical Guide Study in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p>

<p>Essential explanations</p>	<p>Considering the different conditions of clinical education in various medical schools, it is necessary to develop a clinical learning guide according to the essential competencies expected of general medical graduates and taking into account the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education, and provide it to the trainees. In each clinical learning guide, the main diagnostic and paraclinical methods and essential drugs that the intern should have sufficient knowledge about must be specified in addition to the above skills.</p> <p>The amount and manner of presenting classes should not interfere with the student's presence with the patient and their clinical practice.</p> <p>The educational group must determine, announce, and implement appropriate scientific methods and programs for intern education and evaluation. The medical school is responsible for the approval of the program, supervision of its implementation, and evaluation of the program.</p> <p>Supervision can be carried out by higher levels (residents, fellows, professors) or other qualified health team members to ensure patient safety and rights while also achieving the learning objectives of the interns. Determining the appropriate supervision method and responsible person for each procedure or intervention is the responsibility of the medical school.</p>
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Appendix: Emergency Medicine Residency Course

Common Symptoms and Complaints in this Section:

1. Cardiopulmonary arrest
2. Shock
3. Decreased consciousness
4. Animal bites
5. Insect stings
6. Wounds
7. Seizures
8. Headache
9. Dizziness
10. Shortness of breath
11. Chest pain
12. Abdominal pain

Important Syndromes and Diseases in this Section:

1. Multiple trauma

2. Thermal, electrical, and radioactive burns
3. Blood transfusion reactions
4. Hypertensive emergencies
5. Environmental diseases including frostbite, heatstroke, pressure-related diseases (mountain sickness, diving), drowning, hypothermia, hyperthermia
6. Poisonings including acetaminophen, alcohol, tricyclic antidepressants, carbon monoxide, opioids, psychoactive substances, pesticides, insecticides, hydrocarbons, mushroom poisoning
7. Anaphylaxis
8. Bioterrorism and weapons of mass destruction
9. Common dysrhythmias

During this rotation, it is necessary to teach common diagnostic tests and methods used in the clinical practice of a general practitioner, and how to request and interpret the results of these tests and methods in common emergency conditions.

During this rotation, it is necessary to teach common medications used in the clinical practice of a general practitioner, and how to write prescriptions for common emergency conditions.

During this period, students must learn and practice patient safety measures.

Essential Procedures in this Section:

1. Performing accurate and complete standard patient triage in normal conditions and emergencies based on protocol (including categorization/classification and determining the patient's needs)
2. Basic airway management maneuvers
3. Using auxiliary airway equipment such as oral airways, nasal airways, BMV, LMA
4. Intubation
5. Basic cardiopulmonary resuscitation (BLS) including chest compressions, mouth-to-mouth breathing, mask ventilation, Heimlich maneuver, and AED
6. Advanced cardiopulmonary resuscitation and electrical shock
7. Performing and interpreting ECG and cardiopulmonary monitoring
8. Venipuncture
9. Bladder catheterization
10. Nasogastric tube insertion
11. Subcutaneous, intramuscular, intravenous, and intraosseous injections
12. Performing and interpreting ABG
13. Immobilizing limbs (splinting) and spine (backboard and collar)
14. Wound care (cleaning, compression, tourniquet, local anesthesia, dressing various wounds, and using necessary equipment for repair and suturing)
15. Thoracentesis
16. Abdominocentesis
17. Lumbar puncture (LP)
18. Eye care and reducing initial injuries (eye washing)

19. Epistaxis management

The Secretariat of the General Medical Education Council may change the list of common symptoms and signs, important syndromes and diseases, and essential procedures in this section as necessary and in coordination with the General Medical Board and medical schools.

Clinical Training Courses in Radiology:

Course Code:	216		
Course Title	Radiology Internship Type of Rotation: Mandatory		
Course Level	Internship Presentation Stage: 3 units		
Prerequisites	-		
Course Type	Theoretical	Practical	Total
Total Hours:	-	1 month	-
General Objectives	<p>At the end of this educational rotation, the intern should be able to:</p> <ol style="list-style-type: none"> 1. Communicate appropriately with clients, patients, staff, and other members of the health team, and demonstrate appropriate professional behavior in their interactions. 2. Gain sufficient knowledge about important radiological imaging of various body parts and systems (see attached list). 3. Select and request optimal radiological imaging for common cases based on radiological indications, considering diagnostic value, cost, radiation exposure to the patient, and relevance to general practice. 4. Utilize radiology and imaging as a scientific method for diagnosing and treating patients (especially with pre- and post-consultations) rather than merely as a professional skill tool. 5. Visualize and identify normal variations in important common radiographs (see attached list) to avoid unnecessary diagnostic and therapeutic actions. 6. Timely identify important imaging findings in common emergency cases. 		

	<ol style="list-style-type: none"> 7. Correlate important points in radiology reports (from specialists and radiology departments) with findings in radiographs. 8. Correlate important findings in radiographs and related points in radiology reports with the patient's clinical findings and participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 9. Recognize simple radiological procedures.
Course Description	<p>During this rotation, the intern should gain sufficient knowledge about the principles, techniques, and applications of radiology; normal anatomy in imaging of the chest, abdomen, gastrointestinal and urinary systems, central nervous system, spine, and skeletal system; and the use of various imaging modalities available for each of the mentioned parts concerning common and emergency lesions, disorders, and injuries in radiology. This knowledge should enable the intern to correlate important findings in radiographs and related points in radiology reports with the patient's clinical findings. Necessary theoretical classes should be conducted to provide theoretical knowledge.</p>
Essential Content	<p>Learning activities in this section should include a balanced combination of bedside teaching, patient preparation before imaging, radiograph reading sessions, and participation in group educational sessions. The timing and combination of these activities and the required fields for each activity should be determined in the clinical learning guide (Study Guide) in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p>
Essential explanations	<p>Given the different clinical education conditions in various medical schools, the clinical learning guide should be developed by the medical school according to the document of essential competencies expected from general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education and provided to the learners.</p> <p>The amount and manner of conducting classes should not overshadow or disrupt the student's presence with the patient and their clinical practice.</p> <p>The educational group should determine, announce, and implement the methods and program for intern education and evaluation based on appropriate scientific principles. The medical school is responsible for approving the program, supervising its implementation, and evaluating the program.</p>

Appendix: Radiology Internship Course

Important Radiological Imaging of Various Body Parts and Systems:

1. **Gastrointestinal Imaging (Hollow Viscus):** Normal barium study, normal CT scan, introduction to CT colonography, ultrasound, common lesions, and approach to each disease
2. **Bone, Joint, and Soft Tissue Imaging:** Common diseases and approach to each disease
3. **Bone, Joint, and Soft Tissue Imaging:** Plain radiographs, CT scan, MRI
4. **Imaging of Common Head and Neck Diseases:** Approach to each disease
5. **Urinary System Imaging:** Normal ultrasound, normal IVP, normal CT scan, common diseases, and approach
6. **Breast Imaging:** Equipment, normal mammography, special views, BIRADS system and approach to each BIRADS, role of ultrasound in MRI
7. **Gynecological and Obstetric Imaging:** Normal ultrasound, CT, and MRI, normal hysterosalpingography, common lesions, and approach to each disease, indications for transvaginal ultrasound
8. **Mediastinal, Cardiac, and Vascular Imaging:** CXR, normal CT scan, MRI, diseases, and approach to each disease
9. **Pediatric Imaging**

During this rotation, it is necessary to teach common diagnostic imaging used in the clinical practice of a general practitioner, and how to request and interpret the results of these imaging studies in important and common disorders and diseases.

During this period, students must learn and practice patient safety measures.

Modalities and Types of Important Radiological Imaging: Minimum Learning Requirements for Each Radiology Modality:

- **Plain Radiography - Required Views:**
 - Chest x-ray: PA, lateral, decubitus
 - Abdominal x-ray: supine, erect
 - Skull x-ray: AP, lateral, occipitomenal
 - Spine x-ray: AP, lateral
 - Extremities: Upper and lower limbs
- **Fluoroscopy/Contrast Studies - Required Studies:**
 - Gastrointestinal system:
 - Barium swallow
 - Barium follow-through
 - Barium enema
 - Urinary-genital system:
 - Intravenous venography
 - Micturating cystourethrogram
- **Ultrasound - Required Studies:**
 - Liver and biliary ducts
 - Pancreas
 - Spleen

- Kidneys and bladder
- Uterus and ovaries
- **CT Scan - Required Studies:**
 - Chest: At least 3 thoracic CT scans with different indications and protocols
 - Abdomen and pelvis: At least 3 abdominal and pelvic CT scans with different indications and protocols
 - Brain: At least 3 brain CT scans with different diagnoses
 - CT angiography: Limbs, mesentery, heart

At the beginning of each main topic, it is necessary to review the anatomy of the relevant section with an emphasis on clinical application in the duties of a general practitioner.

Teach how to write radiological requests for common cases in the clinical practice of a general practitioner.

Theoretical Topics in this Section:

1. Introduction to various radiology methods and radiographic techniques
2. Radiobiology and radiation protection
3. Familiarity with various contrast agents used in radiology
4. Radiological signs and indications for the application of various radiological methods in bone diseases and bone trauma
5. Normal chest radiography (positions, indications for plain radiography, CT scan, and other chest imaging methods)
6. Radiological signs and brief introduction to chest diseases (mediastinum, pleura, parenchymal diseases, infectious, and tumoral pulmonary diseases)
7. Plain abdominal radiography and indications for various imaging methods in gastrointestinal examination
8. Brief introduction to gastrointestinal diseases and acute abdomen
9. Brief introduction to urinary-genital diseases and indications for various imaging methods in examination
10. Pediatric imaging
11. Familiarity with preparation steps for imaging studies such as studies using oral and injectable contrast agents, ultrasound, nuclear medicine, MRI, and CT scan
12. Familiarity with potential complications of various imaging procedures
13. Familiarity with various contrast agents and common drugs used in imaging; indications, contraindications, and side effects of contrast agents
14. Familiarity with the advantages and limitations of radiology in diagnosing and treating diseases
15. Familiarity with the harmful effects of ionizing radiation on humans (including pregnancy) and methods of radiation protection

The Secretariat of the General Medical Education Council may change the list of topics and essential procedures in this section as necessary and in coordination with the General Medical Board and medical schools.

Clinical Training Courses in Infectious Diseases:

1. **Infectious Diseases Internship**
2. **Infectious Diseases Residency**
3. **Theoretical Course in Infectious Diseases**

Course Code:	217		
Course Title	Infectious Diseases Internship Type of Rotation: Mandatory		
Course Level	Internship Presentation Stage: 3 units		
Prerequisites	Clinical Basics Courses		
Course Type	Theoretical	Practical	Total
Total Hours:	-	1 month	-
General Objectives	<p>At the end of this educational rotation, the intern should be able to:</p> <ol style="list-style-type: none"> 1. Communicate appropriately with clients, patients, staff, and other members of the health team, and demonstrate appropriate professional behavior in their interactions. 2. Take a history from patients with common and important symptoms and complaints related to this section (see attached list), perform necessary physical examinations, propose important differential diagnoses, and suggest the diagnosis and management of the patient's problem. 3. Identify problems in patients with common and important diseases related to this section (see attached list), and based on scientific evidence and local guidelines, reason and propose preventive, therapeutic, follow-up, referral, and rehabilitation actions along with patient education to the extent expected from a general practitioner. Participate in the management of the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 		

	4. Perform essential procedures related to this section (see attached list) with adherence to patient safety principles and appropriate supervision from higher levels (according to the section's regulations).
Course Description	During this rotation, the intern should achieve the specified objectives by participating in clinical rounds educational clinics, and completing individual and group assignments. Necessary theoretical classes should be conducted to provide theoretical knowledge.
Essential Content	Learning activities in this section should include a balanced combination of bedside teaching, individual study, group discussions, case presentations, performing practical procedures under the supervision of an instructor, and participation in group educational sessions. The timing and combination of these activities and the required fields for each activity (including hospitals, clinics, health service centers, laboratories, emergency departments, and clinical skill learning centers) should be determined in the clinical learning guide (Study Guide) in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<p>Given the different clinical education conditions in various medical schools, the clinical learning guide should be developed by the medical school according to the document of essential competencies expected from general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education and provided to the learners.</p> <p>The amount and manner of conducting classes should not overshadow or disrupt the student's presence with the patient and their clinical practice.</p> <p>The educational group should determine, announce, and implement the methods and program for intern education and evaluation based on appropriate scientific principles. The medical school is responsible for approving the program, supervising its implementation, and evaluating the program.</p>

Course Code:	218
Course Title	Infectious Diseases Residency Type of Rotation: Elective

Course Level	Residency Presentation Stage: 3 units		
Prerequisites	Basics and Clinical Internship in Infectious Diseases		
Course Type	Theoretical	Practical	Total
Total Hours:	-	2 week to 1 month	-
General Objectives	Overall Objectives: <ol style="list-style-type: none"> 1. Collaborate appropriately with staff and other members of the health team. 2. Demonstrate appropriate professional behavior in their interactions, particularly in various clinical situations, showing that they have acquired the necessary responsibility, proficiency, and confidence to perform professional duties. 3. Take a history from patients with common and important symptoms and complaints in this section (see attached list), perform necessary physical examinations, list important differential diagnoses, and take necessary steps for the diagnosis and management of the patient's problem to the extent expected from general practitioners and according to the standards of the clinical section under the supervision of the relevant instructor. 4. Diagnose problems in patients with common and important diseases in this section (see attached list), reason and propose preventive, therapeutic, and rehabilitative actions based on scientific evidence and local guidelines to the extent expected from a general practitioner, and perform the stages of management and treatment of the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 5. Independently perform essential procedures related to this section (see attached list) with appropriate supervision and adherence to patient safety principles (according to the section's regulations). 5. 		
Course Description	During this rotation, the intern should achieve the specified objectives by participating in clinical rounds educational clinics, and completing individual and group assignments. Necessary theoretical classes should be conducted to provide theoretical knowledge.		

Essential Content	Learning activities in this section should include a balanced combination of bedside teaching, individual study, group discussions, case presentations, performing practical procedures under the supervision of an instructor, and participation in group educational sessions. The timing and combination of these activities and the required fields for each activity (including hospitals, clinics, health service centers, laboratories, emergency departments, and clinical skill learning centers) should be determined in the clinical learning guide (Study Guide) in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<p>Given the different clinical education conditions in various medical schools, the clinical learning guide should be developed by the medical school according to the document of essential competencies expected from general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health and Medical Education and provided to the learners.</p> <p>The amount and manner of conducting classes should not overshadow or disrupt the student's presence with the patient and their clinical practice.</p> <p>The educational group should determine, announce, and implement the methods and program for intern education and evaluation based on appropriate scientific principles. The medical school is responsible for approving the program, supervising its implementation, and evaluating the program.</p>

Appendix: Infectious Diseases Internship and Residency Courses

Common Symptoms and Complaints in this Section:

General Symptoms:

- Fever
- Chills
- Generalized pain
- Burning sensation (eyes, throat, stomach, urethra)
- Itching (eyes, throat, skin, genital area)
- Altered consciousness

Specific Symptoms by Organ:

- **Head:** Headache, dizziness, scalp itching

- **Eyes:** Blurred vision, decreased vision, double vision, scotoma, morning eyelid sticking, recurrent stye
- **Ears:** Hearing loss, pain, discharge, balance disorders
- **Nose:** Runny nose, nasal congestion, colored nasal discharge
- **Throat:** Postnasal drip, sore throat, odynophagia, hoarseness
- **Lungs:** Cough (dry, productive, croupy), sputum (colorless, yellow or green, bloody), wheezing, chest pain exacerbated by breathing or coughing, shortness of breath (dyspnea, orthopnea), central cyanosis, intercostal muscle retraction
- **Gastrointestinal:** Loss of appetite, nausea, vomiting, belching, bitter taste in the mouth, dysphagia, heartburn, hematemesis, abdominal bloating, colic, tenesmus, diarrhea (simple, dysentery), constipation, stool (bulky, fatty, foul-smelling, pale, melena), mucus in stool, rectal bleeding, anal itching
- **Urinary System:** Urethral burning, frequency, urgency, dribbling, urine color (colorless, dark yellow, cloudy yellow, red), hematuria
- **Genital System:** Genital discharge, dyspareunia, vaginosis, dysmenorrhea, spotting, vaginal bleeding, testicular pain, genital discharge
- **Skin:** Itching

Common Signs in Infectious Diseases:

General Signs:

- General condition
- Fever curves
- Observation of shivering
- Night sweats
- Altered consciousness
- Tonic-clonic seizures
- Tremor
- Paresis and paralysis of limbs
- Generalized lymphadenopathy

Specific Signs by Organ:

- **Head:** Observation of lice and nits, kerion, fungal scaling lesions, split ends
- **Eyes:** Red eyes, conjunctivitis, stye and chalazion, anisocoria, miosis and mydriasis, strabismus, retinal hemorrhage, papilledema
- **Ears:** Bulging tympanic membrane, perforation of the tympanic membrane, purulent discharge
- **Nose and Sinuses:** Simple and purulent rhinorrhea, irritation of Kiesselbach's plexus, nasal flaring during breathing, positive sinus illumination, opacity of paranasal sinuses on radiography
- **Mouth, Throat, and Pharynx:** Cyanosis of the lips, labial herpes, cheilitis, strawberry tongue, gingivitis, pyorrhea, dental abscess, pharyngitis (erythematous or exudative), palatal petechiae, Forchheimer spots, Koplik spots, uvular inflammation and deviation, bull neck, cervical lymphadenopathy

- **Neck:** Torticollis, neck masses, neck redness
- **Lungs and Chest:** Apnea, dry lung rales, wet lung rales, decreased lung sounds, wheezing, lung dullness, mastitis
- **Abdomen:** Abdominal tenderness on examination, rebound tenderness, positive Murphy's sign, hepatomegaly, splenomegaly, ascites, inguinal hernia
- **Buttocks and Anus:** Hemorrhoids, anal fissure, pilonidal sinus
- **Genital System:** Meatitis, epididymitis, orchitis, prostatitis (on rectal examination), genital discharge, morning drop, genital ulcer, chancre, severely itchy maculopapulovesicular rashes in the pubic area, cervicitis, Bartholin's cyst
- **Limbs and Skin:** Joint deformity, joint swelling, erythema, gait disturbance, paravertebral muscle spasm, paronychia, interdigital fungal infection, cellulitis, erythema nodosum, vasculitis, angioma, skin ulcers, subcutaneous masses, maculopapulovesicular-pustular rashes, blisters, petechiae, purpura, vasculitis, ecchymosis, urticaria

Clinical Tests:

- Kernig's sign
- Brudzinski's sign
- Babinski's sign
- Trousseau and Chvostek's signs
- Neurological reflex testing
- Sinus illumination
- Shifting dullness for ascites
- Ziegler's test
- Liver span measurement

Important Syndromes and Diseases in this Section:

Common Diseases:

Bacterial Diseases:

- Streptococcal infections (streptococcal pharyngitis, rheumatic fever)
- Staphylococcal infections (abscesses, pneumonia, folliculitis, stye)
- Meningitis
- Otitis
- Sinusitis
- Tuberculosis
- Brucellosis
- Typhoid
- Shigellosis
- Cholera
- Cellulitis
- Orchitis
- Urinary tract infections
- Pneumonia

- Sepsis and septic shock syndrome
- Acute food poisoning
- Sexually transmitted diseases

Viral Diseases:

- Common cold
- Influenza
- Chickenpox and shingles
- Herpes
- HIV/AIDS
- Hepatitis

Parasitic Diseases:

- Malaria
- Hydatid cyst
- Intestinal parasitic diseases
- Scabies
- Pediculosis

Better to Know

- ☐ Botulism
- ☐ Common fungal infections such as mucormycosis
- ☐ Salmonellosis
- ☐ Crimean-Congo hemorrhagic fever (CCHF)
- ☐ Hepatitis
- ☐ AIDS
- ☐ Tetanus
- ☐ Endocarditis
- ☐ Osteomyelitis

During this rotation, it is essential to teach the common diagnostic tests and procedures used in the clinical practice of general practitioners, as well as how to request and interpret the results of these tests and procedures in common infectious disorders and diseases.

During this rotation, it is essential to teach the common medications used in the clinical practice of general practitioners, as well as how to write prescriptions for common infectious disorders and diseases.

During this course, students must learn and practically apply patient safety measures.

Essential procedures in this section include:

1. Preparation and staining of peripheral blood smears
2. Performing and interpreting the tuberculin test
3. Gram staining of samples
4. Standard precautions for infection control, such as proper handwashing and the use of personal protective equipment
5. Correct blood culture sampling
6. Throat swabbing
7. Proper sampling from skin wounds
8. Cerebrospinal fluid puncture on a model or under supervision

The Secretariat of the General Medical Education Council may modify the list of common signs and symptoms, important syndromes and diseases, and essential procedures in this section as necessary and based on priorities, in consultation with the General Medical Board and medical schools.

Course Code:	219		
Course Title	Infectious Diseases		
Course Level	Internship Presentation Stage: 3 units		
Prerequisites	Clinical Basics Courses		
Course Type	Theoretical	Practical	Total
Total Hours:	34	-	34
General Objectives	at the End of This Course: A. When encountering each of the common and important symptoms and complaints: 1. Define it.		

	<ol style="list-style-type: none"> Describe the necessary physical examinations (focused history taking and physical exam) for approaching it. Discuss important differential diagnoses and suggest essential steps to reach a diagnosis and manage the patient's problem. <p>B. Regarding common and important diseases:</p> <ol style="list-style-type: none"> Describe the definition, etiology, and epidemiology of the disease. Explain the problems of patients with common and important diseases. Describe the diagnostic methods for the disease. Explain the most important preventive measures at various levels, including treatment and rehabilitation of the patient, based on scientific evidence and local guidelines, as expected from a general practitioner. Apply the learned knowledge for clinical reasoning and suggest diagnostic or therapeutic approaches when faced with scenarios or case descriptions related to these diseases. <p>C. Pay attention to important issues that need to be observed in the clinical environment of this field.</p>
Course Description	In this course, students must achieve specific objectives through attending classroom sessions, clinical skills learning centers (Skill Lab), workshops, and completing individual and group assignments.
Essential Content	<p>The learning activities of this course should include a balanced combination of theoretical education, individual study and group discussion, case review, and other learning assignments.</p> <p>The timing and combination of these activities and the required settings for each activity (including classroom, clinical skills learning center, and clinical settings) are determined in the study guide in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p>
	<ol style="list-style-type: none"> Given the different clinical education conditions in various medical schools, the clinical learning guide must be developed by the medical school in accordance with the expected competencies of general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education, and made available to learners.

Essential explanations	<ol style="list-style-type: none"> 2. The amount and timing of theoretical classes should not disrupt the clinical learning of students. 3. The methods and program for student education and evaluation must be determined, announced, and implemented by the educational group based on appropriate scientific principles. The approval of the program, supervision of its implementation, and evaluation of the program are the responsibility of the medical school.
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1. Common Symptoms and Complaints in Infectious Diseases

6. Common Bacterial Diseases:

- Streptococcal infections (Streptococcal pharyngitis - Rheumatic fever)
- Staphylococcal infections (Abscesses - Pneumonias - Folliculitis and Styes)
- Meningitis
- Otitis
- Sinusitis
- Tuberculosis
- Brucellosis
- Typhoid
- Shigellosis
- Cholera
- Cellulitis
- Orchitis
- Urinary tract infections
- Pneumonia
- Sepsis and Septic shock syndrome
- Acute food poisoning
- Sexually transmitted diseases

3. Common Viral Diseases:

- Common cold
- Influenza
- Chickenpox and Shingles
- Herpes
- HIV/AIDS
- Hepatitis

9. Common Parasitic Diseases:

- Malaria

- Hydatid cyst
- Intestinal parasitic diseases
- Scabies
- Pediculosis

5. Infection Control in Healthcare Centers and Hospitals

2. Rational Prescription of Antibiotics

In teaching infectious diseases, it is essential to pay special attention to national protocols and the epidemiology of infectious diseases in Iran and the region.

The Secretariat of the General Medical Education Council may modify the list of common signs and symptoms, important diseases, and essential procedures in this section as necessary and based on priorities, in consultation with the General Medical Board and medical schools.

Clinical Education Courses in Neurological Diseases (Neurology):

- Neurology Internship
- Neurology Residency
- Neurological Diseases (Theoretical Course)

Course Code:	220		
Course Title	Neurology Internship Type of Educational Rotation: Mandatory		
Course Level	Preferably Internship 2 3 units		
Prerequisites	Internal Medicine Internship (1 month), Pediatrics Internship (1 month), General Surgery Internship		
Course Type	Theoretical	Practical	Total
Total Hours:		1 month	

General Objectives	<p>at the End of This Educational Rotation:</p> <ol style="list-style-type: none"> 1. Establish appropriate communication with clients, patients, staff, and other members of the health team, and demonstrate suitable professional behavior in interactions. 2. Take a history from patients with common and important symptoms and complaints related to this section (attached list), perform necessary physical examinations, discuss important differential diagnoses, and suggest diagnosis and management of the patient's problem. 3. Identify the problems of patients with common and important diseases related to this section (attached list), reason and suggest preventive, therapeutic, follow-up, referral, and rehabilitation actions along with patient education based on scientific evidence and local guidelines as expected from a general practitioner, and participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 4. Perform essential procedures related to this section (attached list) with patient safety principles and under appropriate supervision of higher levels (according to the section's regulations).
Course Description	<p>In this educational rotation, the intern must achieve the specified objectives through attending clinical rounds, educational clinics, and completing individual and group assignments. Necessary theoretical classes should be held to provide theoretical knowledge.</p>
Essential Content	<p>The learning activities of this section should include a balanced combination of bedside teaching, individual study and group discussion, case presentations, performing practical procedures under the supervision of the instructor, and participating in group educational sessions.</p> <p>The timing and combination of these activities and the required settings for each activity (including hospital, clinic, health service centers, laboratory, emergency department, clinical skills learning center) are determined in the Clinical Learning Guide in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p> <p>.</p>
	<ol style="list-style-type: none"> 1. Given the different clinical education conditions in various medical schools, the clinical learning guide must be developed by the medical school in accordance with the expected competencies of general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry

Essential explanations	<p>of Health, Treatment, and Medical Education, and made available to learners. In each clinical learning guide, in addition to the above skills, the main diagnostic and paraclinical methods and essential drugs that the intern must have sufficient knowledge about should be specified.</p> <ol style="list-style-type: none"> 2. The amount and manner of presenting classes should not disrupt the student's presence beside the patient and their clinical practice. 3. The methods and program for intern education and evaluation must be determined, announced, and implemented by the educational group based on appropriate scientific principles. The approval of the program, supervision of its implementation, and evaluation of the program are the responsibility of the medical school. 4. Supervision can be carried out by higher levels (interns, residents, fellows, professors) or other qualified members of the health team in a way that ensures patient safety and rights while achieving the learning objectives of the interns. The determination of the appropriate supervision method and responsible person for each procedure or intervention is the responsibility of the medical school.
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Course Code:	221		
Course Title	Neurology Residency		
	Type of Educational Rotation: Elective		
Course Level	Preferably Internship 2		
	Number of Units: Corresponding to the length of the rotation, one unit per week		
Prerequisites	-		
Course Type	Theoretical	Practical	Total
Total Hours:		Two weeks to one month	
General Objectives	At the End of This Educational Rotation: <ol style="list-style-type: none"> 1. Collaborate appropriately with staff and other members of the health team. 2. Demonstrate suitable professional behavior in interactions, particularly in various clinical settings, showing that they have acquired the 		

	<p>necessary responsibility, proficiency, and confidence to perform professional duties.</p> <ol style="list-style-type: none"> 3. Take a history from patients with common and important symptoms and complaints in this section (attached list), perform necessary physical examinations, list important differential diagnoses, and perform essential steps for diagnosis and management of the patient's problem as expected from general practitioners and according to the clinical standards of the training site, under the supervision of the relevant instructor. 4. Identify the problems of patients with common and important diseases in this section (attached list), reason and suggest preventive, therapeutic, and rehabilitative actions based on scientific evidence and local guidelines as expected from a general practitioner, and perform the stages of managing and treating the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 5. Perform essential procedures related to this section (attached list) independently with appropriate supervision (according to the section's regulations) while adhering to patient safety principles to the section's regulations).
Course Description	In this educational rotation, externs achieve the necessary competencies for independently performing services related to this section in the field of general medicine through participation in providing health services in relevant settings (hospital, clinic, health service centers, etc.), attending designated educational sessions, and individual study.
Essential Content	The timing and combination of these activities and the required settings for each activity (including hospital, clinic, health service centers, laboratory, emergency department, clinical skills learning center) are determined in the Clinical Learning Guide in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<ol style="list-style-type: none"> 1. Given the different clinical education conditions in various departments and medical schools, the clinical learning guide must be developed by the medical school in accordance with the expected competencies of general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education, and made available to learners. 2. The amount and manner of presenting classes should not disrupt the extern's presence beside the patient and their clinical practice. Additionally, the type and amount of service tasks assigned to the extern in each clinical rotation should be appropriate to the educational objectives of the section and should not interfere with learning the essential skills expected.

	<ol style="list-style-type: none"> 3. At least one-third of the externs' training time must be dedicated to clinical education. 4. Supervision can be carried out by higher levels (residents, fellows, professors) in a way that ensures patient safety and rights while achieving the learning objectives of the externs and gaining proficiency in independently performing essential procedures listed in the expected competencies of general practitioners. The determination of the appropriate supervision method and responsible person for each procedure or intervention is the responsibility of the medical school.
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Common Symptoms and Complaints in This Section:

1. Headache
2. Dizziness
3. Seizures
4. Muscle weakness
5. Sensory disturbances
6. Balance and gait disorders
7. Decreased level of consciousness
8. Cognitive and memory disorders
9. Sleep disorders
10. Abnormal movements (hypokinetic and hyperkinetic)
11. Back pain, neck pain, and limb pain
12. Speech disorders
13. Blurred vision

Important Syndromes and Diseases in This Section:

Mandatory (Must Know):

1. Coma
2. Stroke
3. Seizures, epilepsy, and status epilepticus
4. Migraine and tension headache
5. Guillain-Barré syndrome
6. Acute bacterial meningitis

Preferred (Better to Know):

1. Cluster headache and other autonomic headaches, temporal arteritis, trigeminal neuralgia
2. Increased intracranial pressure syndrome including brain tumors
3. Parkinson's disease

4. Multiple sclerosis
5. Alzheimer's disease, vascular dementia, and degenerative dementias
6. Myasthenia gravis
7. Inflammatory myopathies
8. Encephalitis including herpes encephalitis
9. Amyotrophic lateral sclerosis (ALS)

During this rotation, it is essential to teach the common diagnostic tests and procedures used in the clinical practice of general practitioners, as well as how to request and interpret the results of these tests and procedures in common neurological disorders and diseases.

During this rotation, it is essential to teach the common medications used in the clinical practice of general practitioners, as well as how to write prescriptions for common neurological disorders and diseases.

During this course, students must learn and practically apply patient safety measures.

Essential Procedures in This Section:

1. Basic procedures such as nasogastric tube insertion, urinary catheterization, venous and arterial blood sampling, as needed in this section.
2. Performing lumbar puncture (at least on a model for interns and on a patient under direct supervision for externs).

The Secretariat of the General Medical Education Council may modify the list of common signs and symptoms, important syndromes and diseases, and essential procedures in this section as necessary and based on priorities, in consultation with the General Medical Board and medical schools.

Course Code:	222		
Course Title	Neurological Diseases		
Course Level	Internship		
Prerequisites	Clinical Basics Courses		
Course Type	Theoretical	Practical	Total
Total Hours:	25	-	25

<p>General Objectives</p>	<p>at the End of This Course:</p> <p>A. When encountering each of the common and important symptoms and complaints:</p> <ol style="list-style-type: none"> 1. Define it. 2. Describe the necessary physical examinations (focused history taking and physical exam) for approaching it. 3. Discuss important differential diagnoses and suggest essential steps to reach a diagnosis and manage the patient's problem. <p>B. Regarding common and important diseases:</p> <ol style="list-style-type: none"> 6. Describe the definition, etiology, and epidemiology of the disease. 1. Explain the problems of patients with common and important diseases. 2. Describe the diagnostic methods for the disease. 3. Explain the most important preventive measures at various levels, including treatment and rehabilitation of the patient, based on scientific evidence and local guidelines, as expected from a general practitioner. 4. Apply the learned knowledge for clinical reasoning and suggest diagnostic or therapeutic approaches when faced with scenarios or case descriptions related to these diseases. <p>C. Pay attention to important issues that need to be observed in the clinical environment of this field.</p>
<p>Course Description</p>	<p>In this course, students must achieve specific objectives through attending classroom sessions, clinical skills learning centers (Skill Lab), workshops, and completing individual and group assignments.</p>
<p>Essential Content</p>	<p>The learning activities of this course should include a balanced combination of theoretical education, individual study and group discussion, case review, and other learning assignments.</p> <p>The timing and combination of these activities and the required settings for each activity (including classroom, clinical skills learning center, and clinical settings) are determined in the study guide in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p>

<p>Essential explanations</p>	<ol style="list-style-type: none"> 1. Given the different clinical education conditions in various medical schools, the clinical learning guide must be developed by the medical school in accordance with the expected competencies of general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education, and made available to learners. 2. The amount and timing of theoretical classes should not disrupt the clinical learning of students. 3. The methods and program for student education and evaluation must be determined, announced, and implemented by the educational group based on appropriate scientific principles. The approval of the program, supervision of its implementation, and evaluation of the program are the responsibility of the medical school.
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Topics for Theoretical Course on Neurological Diseases:

1. Approach to Neurological Diseases
2. Stroke (Diagnostic and Therapeutic Approach)
3. Seizures and Epilepsy (Principles of Diagnosis, Treatment, and Follow-up)
4. Headache Disorders (Migraine, Tension, Cluster, etc.)
5. Cognitive Disorders and Dementia
6. Myopathies and Neuromuscular Junction Disorders
7. Neuropathies and Motor Neuron Diseases
8. Introduction to Sleep Disorders (Apnea, Hypersomnia, Insomnia, Narcolepsy, Parasomnia)
9. Infections of the Central Nervous System (Meningitis, Encephalitis, Abscess)
10. Multiple Sclerosis (MS) and Other Demyelinating Diseases of the Central Nervous System
11. Movement Disorders (Parkinson's, Chorea, Athetosis, Dystonia, Myoclonus)
12. Introduction to Paraclinical Procedures (Laboratory, Imaging, Electrophysiology, and Lumbar Puncture) in Neurological Diseases (Necessity, Physiology, Technique, and Interpretation)
13. Neurological Complications of Internal Diseases
14. Management of Patients with Decreased Consciousness (Coma and Brain Death)

The Secretariat of the General Medical Education Council may modify the list of common signs and symptoms, important syndromes and diseases, and essential procedures in this section as necessary and based on priorities, in consultation with the General Medical Board and medical schools.

Clinical Education in Dermatological Diseases

Dermatology Internship

Dermatology Residency

Course Code:	223		
Course Title	Dermatology Internship Type of Educational Rotation: Elective		
Course Level	2-4 units		
Prerequisites	-		
Course Type	Theoretical	Practical	Total
Total Hours:		Two weeks to one month	
General Objectives	at the End of This Educational Rotation: 1. Establish appropriate communication with clients, patients, staff, and other members of the health team, and demonstrate suitable professional behavior in interactions. 2. Take a history from patients with common and important symptoms and complaints related to this section (attached list), perform necessary physical examinations, discuss important differential diagnoses, and suggest diagnosis and management of the patient's problem. 3. Identify the problems of patients with common and important diseases related to this section (attached list), reason and suggest preventive,		

	<p>therapeutic, follow-up, referral, and rehabilitation actions along with patient education based on scientific evidence and local guidelines as expected from a general practitioner, and participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations).</p> <p>4. Perform essential procedures related to this section (attached list) with patient safety principles and under appropriate supervision of higher levels (according to the section's regulations).</p>
Course Description	<p>In this educational rotation, the intern must achieve the specified objectives through attending clinical rounds, educational clinics, and completing individual and group assignments. Necessary theoretical classes should be held to provide theoretical knowledge.</p>
Essential Content	<p>The learning activities of this section should include a balanced combination of bedside teaching, individual study and group discussion, case presentations, performing practical procedures under the supervision of the instructor, and participating in group educational sessions.</p> <p>The timing and combination of these activities and the required settings for each activity (including hospital, clinic, health service centers, laboratory, emergency department, clinical skills learning center) are determined in the Clinical Learning Guide in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p> <p>.</p>
Essential explanations	<ol style="list-style-type: none"> 1. Given the different clinical education conditions in various medical schools, the clinical learning guide must be developed by the medical school in accordance with the expected competencies of general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education, and made available to learners. In each clinical learning guide, in addition to the above skills, the main diagnostic and paraclinical methods and essential drugs that the intern must have sufficient knowledge about should be specified. 2. The amount and manner of presenting classes should not disrupt the student's presence beside the patient and their clinical practice. 3. The methods and program for intern education and evaluation must be determined, announced, and implemented by the educational group based on appropriate scientific principles. The approval of the program, supervision of its implementation, and evaluation of the program are the responsibility of the medical school.

	<p>4. Supervision can be carried out by higher levels (interns, residents, fellows, professors) or other qualified members of the health team in a way that ensures patient safety and rights while achieving the learning objectives of the interns. The determination of the appropriate supervision method and responsible person for each procedure or intervention is the responsibility of the medical school.</p>
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Course Code:	224		
Course Title	Neurology Residency		
	Type of Educational Rotation: Elective		
Course Level	Preferably Internship 2		
	Number of Units: Corresponding to the length of the rotation, one unit per week		
Prerequisites	-		
Course Type	Theoretical	Practical	Total
Total Hours:		Two weeks to one month	
General Objectives	<p>At the End of This Educational Rotation:</p> <ol style="list-style-type: none"> 1. Collaborate appropriately with staff and other members of the health team. 2. Demonstrate suitable professional behavior in interactions, particularly in various clinical settings, showing that they have acquired the necessary responsibility, proficiency, and confidence to perform professional duties. 3. Take a history from patients with common and important symptoms and complaints in this section (attached list), perform necessary physical examinations, list important differential diagnoses, and perform essential steps for diagnosis and management of the patient's problem as expected from general practitioners and according to the clinical standards of the training site, under the supervision of the relevant instructor. 4. Identify the problems of patients with common and important diseases in this section (attached list), reason and suggest preventive, therapeutic, and rehabilitative actions based on scientific evidence and local guidelines as expected from a general practitioner, and perform 		

	<p>the stages of managing and treating the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations).</p> <p>5. Perform essential procedures related to this section (attached list) independently with appropriate supervision (according to the section's regulations) while adhering to patient safety principles to the section's regulations).</p>
Course Description	<p>In this educational rotation, externs achieve the necessary competencies for independently performing services related to this section in the field of general medicine through participation in providing health services in relevant settings (hospital, clinic, health service centers, etc.), attending designated educational sessions, and individual study.</p>
Essential Content	<p>The timing and combination of these activities and the required settings for each activity (including hospital, clinic, health service centers, laboratory, emergency department, clinical skills learning center) are determined in the Clinical Learning Guide in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p>
Essential explanations	<ol style="list-style-type: none"> 1. Given the different clinical education conditions in various departments and medical schools, the clinical learning guide must be developed by the medical school in accordance with the expected competencies of general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education, and made available to learners. 2. The amount and manner of presenting classes should not disrupt the extern's presence beside the patient and their clinical practice. Additionally, the type and amount of service tasks assigned to the extern in each clinical rotation should be appropriate to the educational objectives of the section and should not interfere with learning the essential skills expected. 3. At least one-third of the externs' training time must be dedicated to clinical education. 4. Supervision can be carried out by higher levels (residents, fellows, professors) in a way that ensures patient safety and rights while achieving the learning objectives of the externs and gaining proficiency in independently performing essential procedures listed in the expected competencies of general practitioners. The determination of the appropriate supervision method and responsible person for each procedure or intervention is the responsibility of the medical school.

Appendix for Dermatology Clinical Internship and Externship Courses in the General Medical Doctorate Program

Common Symptoms and Complaints in This Section:

1. Skin lesions (macule, ecchymosis, petechiae, purpura, maculopapular, papule, vesicle, pustule, bulla/blister, nodule/erythema nodosum, necrotic ulcer, gangrene, exfoliation/scaling, vasculitis/crust, urticaria, scar, acne)
2. Pruritus (itching)
3. Hair loss

During this rotation, it is essential to teach the common diagnostic tests and procedures used in the clinical practice of general practitioners, as well as how to request and interpret the results of these tests and procedures in common dermatological disorders and diseases.

Important Syndromes and Diseases in This Section:

1. Acne and rosacea
2. Dermatitis (including atopic, seborrheic, contact, nummular, photodermatitis, diaper dermatitis)
3. Superficial fungal skin diseases (including dermatophytosis, candidiasis, and pityriasis versicolor)
4. Bacterial skin diseases (including impetigo, cellulitis, folliculitis, furuncle, carbuncle, and erythrasma)
5. Viral skin diseases (including herpes simplex, herpes zoster, chickenpox, warts, molluscum contagiosum)
6. Common hair diseases (hair loss: alopecia areata, androgenetic alopecia, cicatricial alopecia)
7. Common nail diseases
8. Parasitic skin diseases (including scabies, lice, leishmaniasis) (diseases caused by bites)
9. Mycobacterial skin diseases (cutaneous tuberculosis, leprosy)
10. Sexually transmitted diseases: syphilis, HIV/AIDS
11. Immunobullous skin diseases (pemphigus, bullous pemphigoid, dermatitis herpetiformis)
12. Erythematous skin diseases (including psoriasis, lichen planus, pityriasis rosea)
13. Dermatological emergencies (urticaria, angioedema, erythroderma, Stevens-Johnson syndrome)
14. Pigmentary skin diseases (vitiligo)
15. Patients with generalized pruritus
16. Common endemic diseases in the region

At the beginning of each main topic of the rotation, a review of the anatomy, histology, and physiology of the relevant section with an emphasis on clinical application in the scope of general practitioners' duties must be conducted.

At the end of the rotation, it is essential to teach the list of common dermatological medications and how to write prescriptions for common conditions in this field as used in the clinical practice of general practitioners.

During this course, students must learn and practically apply patient safety measures.

Procedures in This Section:

1. Subungual hematoma drainage (elective for externship)

The Secretariat of the General Medical Education Council may modify the list of common signs and symptoms, important syndromes and diseases, and essential procedures in this section as necessary and based on priorities, in consultation with the General Medical Board and medical schools.

Clinical Education Courses in Ophthalmological Diseases:

Ophthalmology Internship

Ophthalmology Externship

Course Code:	225		
Course Title	Ophthalmology Internship Type of Educational Rotation: Mandatory		
Course Level	Phase of Internship: Internship 2 Units: 1.5		
Prerequisites	Internal Medicine Internship, Surgery Internship, Pediatrics Internship		
Course Type	Theoretical	Practical	Total
Total Hours:		2 weeks	

General Objectives	<p>at the End of This Educational Rotation:</p> <ol style="list-style-type: none"> 1. Establish appropriate communication with clients, patients, staff, and other members of the health team, and demonstrate suitable professional behavior in interactions. 2. Take a history from patients with common and important symptoms and complaints related to this section (attached list), perform necessary physical examinations, discuss important differential diagnoses, and suggest diagnosis and management of the patient's problem. 3. Identify the problems of patients with common and important diseases related to this section (attached list), reason and suggest preventive, therapeutic, follow-up, referral, and rehabilitation actions along with patient education based on scientific evidence and local guidelines as expected from a general practitioner, and participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 4. Perform essential procedures related to this section (attached list) with patient safety principles and under appropriate supervision of higher levels (according to the section's regulations).
Course Description	<p>In this educational rotation, the intern must achieve the specified objectives through attending clinical rounds, educational clinics, and completing individual and group assignments. Necessary theoretical classes should be held to provide theoretical knowledge.</p>
Essential Content	<p>The learning activities of this section should include a balanced combination of bedside teaching, individual study and group discussion, case presentations, performing practical procedures under the supervision of the instructor, and participating in group educational sessions.</p> <p>The timing and combination of these activities and the required settings for each activity (including hospital, clinic, health service centers, laboratory, emergency department, clinical skills learning center) are determined in the Clinical Learning Guide in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p> <p>.</p>
	<ol style="list-style-type: none"> 1. Given the different clinical education conditions in various medical schools, the clinical learning guide must be developed by the medical school in accordance with the expected competencies of general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry

Essential explanations	<p>of Health, Treatment, and Medical Education, and made available to learners. In each clinical learning guide, in addition to the above skills, the main diagnostic and paraclinical methods and essential drugs that the intern must have sufficient knowledge about should be specified.</p> <ol style="list-style-type: none"> 2. The amount and manner of presenting classes should not disrupt the student's presence beside the patient and their clinical practice. 3. The methods and program for intern education and evaluation must be determined, announced, and implemented by the educational group based on appropriate scientific principles. The approval of the program, supervision of its implementation, and evaluation of the program are the responsibility of the medical school. 4. Supervision can be carried out by higher levels (interns, residents, fellows, professors) or other qualified members of the health team in a way that ensures patient safety and rights while achieving the learning objectives of the interns. The determination of the appropriate supervision method and responsible person for each procedure or intervention is the responsibility of the medical school.
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Course Code:	226		
Course Title	Ophthalmology Residency		
	Type of Educational Rotation: Elective		
Course Level	Residency		
	Number of Units: One unit per week		
Prerequisites	Ophthalmology Clinical Internship		
Course Type	Theoretical	Practical	Total
Total Hours:		1 to 4 weeks	
General Objectives	<p>At the End of This Educational Rotation:</p> <ol style="list-style-type: none"> 1. Collaborate appropriately with staff and other members of the health team. 2. Demonstrate suitable professional behavior in interactions, particularly in various clinical settings, showing that they have acquired the necessary responsibility, proficiency, and confidence to perform professional duties. 		

	<ol style="list-style-type: none"> 3. Take a history from patients with common and important symptoms and complaints in this section (attached list), perform necessary physical examinations, list important differential diagnoses, and perform essential steps for diagnosis and management of the patient's problem as expected from general practitioners and according to the clinical standards of the training site, under the supervision of the relevant instructor. 4. Identify the problems of patients with common and important diseases in this section (attached list), reason and suggest preventive, therapeutic, and rehabilitative actions based on scientific evidence and local guidelines as expected from a general practitioner, and perform the stages of managing and treating the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 5. Perform essential procedures related to this section (attached list) independently with appropriate supervision (according to the section's regulations) while adhering to patient safety principles to the section's regulations).
Course Description	In this educational rotation, externs achieve the necessary competencies for independently performing services related to this section in the field of general medicine through participation in providing health services in relevant settings (hospital, clinic, health service centers, etc.), attending designated educational sessions, and individual study.
Essential Content	The timing and combination of these activities and the required settings for each activity (including hospital, clinic, health service centers, laboratory, emergency department, clinical skills learning center) are determined in the Clinical Learning Guide in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<ol style="list-style-type: none"> 1. Given the different clinical education conditions in various departments and medical schools, the clinical learning guide must be developed by the medical school in accordance with the expected competencies of general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education, and made available to learners. 2. The amount and manner of presenting classes should not disrupt the extern's presence beside the patient and their clinical practice. Additionally, the type and amount of service tasks assigned to the extern in each clinical rotation should be appropriate to the educational objectives of the section and should not interfere with learning the essential skills expected. 3. At least one-third of the externs' training time must be dedicated to clinical education.

	<p>4. Supervision can be carried out by higher levels (residents, fellows, professors) in a way that ensures patient safety and rights while achieving the learning objectives of the externs and gaining proficiency in independently performing essential procedures listed in the expected competencies of general practitioners. The determination of the appropriate supervision method and responsible person for each procedure or intervention is the responsibility of the medical school.</p>
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Appendix for Ophthalmology Clinical Internship and Externship Courses

Common Symptoms and Complaints in This Section:

1. Red eye
2. Decreased vision / refractive errors (hyperopia and myopia) / blurred vision
3. Foreign body sensation in the conjunctiva and cornea
4. Foreign body sensation inside the eye
5. Ptosis (drooping eyelid)
6. Diplopia (double vision) and strabismus
7. Eye burns (thermal and chemical)
8. Traumatic eye injuries (e.g., eyelid laceration)
9. Penetrating and non-penetrating eye and orbit injuries (intraocular hemorrhages and eye wall ruptures)
10. Flashes and floaters
11. Pterygium
12. Computer vision syndrome: dry eye sensation and light scattering
13. Color blindness, tearing, eye pain (eye strain)
14. Increased intraocular pressure

Important Syndromes and Diseases in This Section:

1. Common ophthalmic emergencies: sudden vision loss, eyelid laceration, foreign body in the conjunctiva and cornea, intraocular foreign body, chemical and thermal eye burns, intraocular hemorrhages, eye wall ruptures, effects of various radiations on the eye, closed-angle glaucoma, endophthalmitis, orbital fractures, retinal vascular occlusion, optic nerve infarction, corneal epithelial defect, retinal detachment
2. Eye and systemic diseases: diabetic retinopathy, hypertensive retinopathy, thyroid-associated ophthalmopathy, autoimmune diseases (including lupus, rheumatoid arthritis, Wegener's granulomatosis, Sjogren's syndrome, Behcet's syndrome), hereditary connective tissue diseases (Marfan syndrome), enzymatic deficiency (galactosemia)
3. Strabismus and amblyopia
4. Refractive errors and optics: refractive errors (myopia, hyperopia, and astigmatism), presbyopia, and accommodation disorders
5. Cataract
6. Glaucoma

7. Eyelid and lacrimal duct diseases: infections and inflammations of the eyelid (including sty, chalazion, and blepharitis), ptosis, eyelid tumors (including nevus, papilloma, xanthelasma, hemangioma, and carcinomas), lacrimal system disorders (including dacryoadenitis, acute, chronic, and congenital nasolacrimal duct obstruction), and dry eye syndrome
8. Conjunctival and scleral diseases: microbial and allergic conjunctivitis, pterygium, conjunctival tumors, scleritis, episcleritis
9. Corneal diseases: keratitis, degenerative corneal diseases (including keratoconus and arcus senilis)
10. Uveal diseases: uveitis and melanoma
11. Vitreous and retinal diseases: retinal vascular diseases, intraocular tumors
12. Neuro-ophthalmologic disorders: optic neuritis, optic neuropathies (ischemic, toxic, and nutritional), parasympathetic system diseases, Horner's syndrome, and nystagmus
13. Orbital diseases: infections (including cellulitis), dermoid cysts, and tumors (including hemangioma, neurofibromatosis, melanoma, retinoblastoma, and rhabdomyosarcoma)

At the beginning of the rotation, a review of the anatomy and physiology of the eye with an emphasis on clinical application must be conducted.

Essential Procedures in This Section:

1. Central visual acuity test
2. Color vision test
3. Pinhole test
4. Visual field test
5. Confrontation test
6. Pupil examination / Confrontation
7. Extraocular muscle movement examination
8. External eye examination
9. Slit lamp examination (anterior segment - optional)
10. Direct ophthalmoscopy
11. Removal of superficial foreign body from the eye with a slit lamp (optional)
12. Tonometry (optional)

At the end of the rotation, it is essential to teach the list of common ophthalmic medications and how to write prescriptions for common ophthalmic conditions as used in the clinical practice of general practitioners.

During this course, students must learn and practically apply patient safety measures.

The Secretariat of the General Medical Education Council may modify the list of common signs and symptoms, important syndromes and diseases, and essential procedures in this section as necessary and based on priorities, in consultation with the General Medical Board and medical schools.

Clinical Education Courses in Otorhinolaryngological Diseases:

ENT (Ear, Nose, and Throat) Internship

ENT (Ear, Nose, and Throat) Externship

Course Code:	227		
Course Title	ENT (Ear, Nose, and Throat) Internship		
	Type of Educational Rotation: Mandatory		
Course Level	Phase of Internship: Internship 2		
	Units: 3		
Prerequisites	Internal Medicine Internship, General Surgery Internship, Pediatrics Internship		
Course Type	Theoretical	Practical	Total
Total Hours:		4 weeks	
General Objectives	at the End of This Educational Rotation: 5. Establish appropriate communication with clients, patients, staff, and other members of the health team, and demonstrate suitable professional behavior in interactions. 6. Take a history from patients with common and important symptoms and complaints related to this section (attached list), perform necessary physical examinations, discuss important differential diagnoses, and suggest diagnosis and management of the patient's problem. 7. Identify the problems of patients with common and important diseases related to this section (attached list), reason and suggest preventive, therapeutic, follow-up, referral, and rehabilitation actions along with patient education based on scientific evidence and local guidelines as expected from a general practitioner, and participate in managing the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 8. Perform essential procedures related to this section (attached list) with patient safety principles and under appropriate supervision of higher levels (according to the section's regulations).		

Course Description	In this educational rotation, the intern must achieve the specified objectives through attending clinical rounds, educational clinics, and completing individual and group assignments. Necessary theoretical classes should be held to provide theoretical knowledge.
Essential Content	<p>The learning activities of this section should include a balanced combination of bedside teaching, individual study and group discussion, case presentations, performing practical procedures under the supervision of the instructor, and participating in group educational sessions.</p> <p>The timing and combination of these activities and the required settings for each activity (including hospital, clinic, health service centers, laboratory, emergency department, clinical skills learning center) are determined in the Clinical Learning Guide in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.</p> <p>.</p>
Essential explanations	<ol style="list-style-type: none"> 5. Given the different clinical education conditions in various medical schools, the clinical learning guide must be developed by the medical school in accordance with the expected competencies of general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education, and made available to learners. In each clinical learning guide, in addition to the above skills, the main diagnostic and paraclinical methods and essential drugs that the intern must have sufficient knowledge about should be specified. 6. The amount and manner of presenting classes should not disrupt the student's presence beside the patient and their clinical practice. 7. The methods and program for intern education and evaluation must be determined, announced, and implemented by the educational group based on appropriate scientific principles. The approval of the program, supervision of its implementation, and evaluation of the program are the responsibility of the medical school. 8. Supervision can be carried out by higher levels (interns, residents, fellows, professors) or other qualified members of the health team in a way that ensures patient safety and rights while achieving the learning objectives of the interns. The determination of the appropriate supervision method and responsible person for each procedure or intervention is the responsibility of the medical school.

Course Code:	228		
Course Title	ENT (Ear, Nose, and Throat Residency		
	Type of Educational Rotation: Elective		
Course Level	Residency Number of Units: 1-4		
Prerequisites	-		
Course Type	Theoretical	Practical	Total
Total Hours:		1 to 4 weeks	
General Objectives	<p>At the End of This Educational Rotation:</p> <ol style="list-style-type: none"> 1. Collaborate appropriately with staff and other members of the health team. 2. Demonstrate suitable professional behavior in interactions, particularly in various clinical settings, showing that they have acquired the necessary responsibility, proficiency, and confidence to perform professional duties. 3. Take a history from patients with common and important symptoms and complaints in this section (attached list), perform necessary physical examinations, list important differential diagnoses, and perform essential steps for diagnosis and management of the patient's problem as expected from general practitioners and according to the clinical standards of the training site, under the supervision of the relevant instructor. 4. Identify the problems of patients with common and important diseases in this section (attached list), reason and suggest preventive, therapeutic, and rehabilitative actions based on scientific evidence and local guidelines as expected from a general practitioner, and perform the stages of managing and treating the patient's problem according to the section's standards under the supervision of higher levels (according to the section's regulations). 5. Perform essential procedures related to this section (attached list) independently with appropriate supervision (according to the section's regulations) while adhering to patient safety principles to the section's regulations). 		

Course Description	In this educational rotation, externs achieve the necessary competencies for independently performing services related to this section in the field of general medicine through participation in providing health services in relevant settings (hospital, clinic, health service centers, etc.), attending designated educational sessions, and individual study.
Essential Content	The timing and combination of these activities and the required settings for each activity (including hospital, clinic, health service centers, laboratory, emergency department, clinical skills learning center) are determined in the Clinical Learning Guide in coordination with the standards announced by the Secretariat of the General Medical Education Council by each medical school.
Essential explanations	<ol style="list-style-type: none"> 1. Given the different clinical education conditions in various departments and medical schools, the clinical learning guide must be developed by the medical school in accordance with the expected competencies of general medical graduates and considering the standards announced by the Secretariat of the General Medical Education Council of the Ministry of Health, Treatment, and Medical Education, and made available to learners. 2. The amount and manner of presenting classes should not disrupt the extern's presence beside the patient and their clinical practice. Additionally, the type and amount of service tasks assigned to the extern in each clinical rotation should be appropriate to the educational objectives of the section and should not interfere with learning the essential skills expected. 3. At least one-third of the externs' training time must be dedicated to clinical education. 4. Supervision can be carried out by higher levels (residents, fellows, professors) in a way that ensures patient safety and rights while achieving the learning objectives of the externs and gaining proficiency in independently performing essential procedures listed in the expected competencies of general practitioners. The determination of the appropriate supervision method and responsible person for each procedure or intervention is the responsibility of the medical school.

Appendix for ENT (Ear, Nose, and Throat) Clinical Internship and Externship Courses

Common Symptoms and Complaints in This Section:

1. Ear pain
2. Ear discharge
3. Facial nerve paralysis

4. Hearing loss
5. Tinnitus
6. Dizziness
7. Nasal discharge
8. Facial tenderness
9. Nasal congestion
10. Olfactory disorders
11. Hoarseness
12. Stridor
13. Dysphagia
14. Odynophagia
15. Odynophonia
16. Neck masses
17. Acute respiratory obstruction
18. Thyroid nodules
19. Mucosal lesions of the oral cavity and pharynx
20. Skin lesions of the head and neck

Important Syndromes and Diseases in This Section:

1. External ear diseases
2. Middle ear diseases
3. Inner ear diseases
4. Temporal bone trauma
5. Epistaxis
6. Rhinosinusitis
7. Nasal and paranasal sinus tumors
8. Infectious and inflammatory diseases of the oral cavity
9. Tumors and cysts of the oral cavity
10. Mandibular trauma
11. Congenital lesions 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 laryngeal diseases
16. Laryngeal tumors
17. Laryngeal trauma
18. Congenital, inflammatory, and infectious diseases of the salivary glands
19. Cysts and tumors of the salivary glands
20. Salivary gland trauma

At the beginning of each main topic of the rotation, a review of the anatomy and physiology of the relevant section with an emphasis on clinical application in the scope of general practitioners' duties must be conducted.

During this rotation, it is essential to teach the common diagnostic tests and procedures used in the clinical practice of general practitioners, as well as how to request and interpret the results of these tests and procedures in common ENT disorders and diseases.

At the end of the rotation, it is essential to teach the list of common ENT medications and how to write prescriptions for common conditions in this field as used in the clinical practice of general practitioners.

During this course, students must learn and practically apply patient safety measures.

Essential Procedures in This Section:

A. Mandatory Procedures (Internship):

1. General examination of ENT patients
2. Complete ear examination
3. History taking and examination of the ear canal and tympanic membrane, use of laryngeal mirror and tongue depressor
4. Nasal examination
5. Examination of the oral cavity and pharynx
6. Examination of the neck and lymph nodes
7. Thyroid examination
8. Removal of simple foreign bodies from the throat and nose
9. Throat culture preparation
10. Interpretation of basic radiographs of the nose and paranasal sinuses
11. Otoscopy
12. Tuning fork tests
13. Removal of cerumen from the ear
14. Control of nasal bleeding (nasal packing for bleeding control)
15. Cricothyrotomy (in the Clinical Skills Lab)
16. Tracheostomy (in the Clinical Skills Lab)
17. Heimlich maneuver (in the Clinical Skills Lab)

B. Preferred Procedures (Externship):

1. Nasopharyngeal examination including indirect nasopharyngoscopy (elective externship)
2. Laryngeal examination including indirect laryngoscopy (elective externship)
3. Interpretation of radiographs of patients with maxillofacial trauma (elective externship)
4. Ear irrigation (elective externship)
5. Reduction of nasal fractures (elective externship)
6. Reduction of mandibular dislocations (elective externship)

The Secretariat of the General Medical Education Council may modify the list of common signs and symptoms, important syndromes and diseases, and essential procedures in this section as necessary and based on priorities, in consultation with the General Medical Board and medical schools.

Course Code:	229		
Course Title	Medical Ethics		
Course Level	Phase of Presentation: Internship (Preferably in the early months of the internship) 2 uniits		
Prerequisites	-		
Course Type	Theoretical	Practical	Total
Total Hours:	34	0	34
General Objectives	<p>It is expected that medical students, after completing this course, will:</p> <p>A. In the Domain of Knowledge:</p> <ol style="list-style-type: none"> 1. Recognize the human and ethical aspects of the medical profession. 2. Be aware of the expectations that Islamic teachings and medical jurisprudence have from a competent physician. 3. Have the ability to identify ethical issues in their profession. 4. Acquire the foundational knowledge to make ethical decisions in medicine. 5. Be aware of their commitments as a physician. <p>B. In the Domain of Skills:</p> <p>The following competencies must be developed:</p> <ol style="list-style-type: none"> 1. Establish proper professional communication with clients based on medical ethics. 2. Make ethical decisions in their profession. 3. Engage patients and their families in decision-making. 4. Interact appropriately with other colleagues in the health sector. 5. Fulfill their commitments as a physician. <p>C. In the Domain of Attitude:</p> <ol style="list-style-type: none"> 1. Pay special attention to the dignity and respect of clients. 2. Consider duty, responsibility, justice, and fairness in providing health services. 3. Prioritize the patient's interests over personal interests as a physician. 4. Consider respect for clients' rights as essential. 		

	5. Pay attention to the cultural and religious aspects of clients.
Course Description	In this course, medical ethics topics are presented in an applied manner, with the necessary subtleties in teaching, so that ethical teachings can lead to changes in professional behavior and attitudes of physicians. It is recommended to use interactive methods to deliver the course to ensure the best possible student participation.
Essential Content	<ol style="list-style-type: none"> 1. Introduction, history, and importance of medical ethics 2. Medical ethics from the perspective of Islam and ethical theories 3. Professional commitment 4. The four principles and tools of ethical analysis 5. Physician-patient relationship, physician-community relationship, and physician-colleague relationship 6. Dress code and grooming standards - privacy 7. Confidentiality and truth-telling 8. Autonomy and informed consent 9. Patient rights and satisfaction 10. Ethics in education 11. Ethics in research 12. Conflict of interest in the three areas of education, research, and health service delivery 13. Ethics in the health system (including resource allocation components) 14. Medical errors and physician responsibility 15. Ethical considerations in providing services during crises 16. Breaking bad news 17. Ethical considerations at the beginning of life 18. Ethical considerations at the end of life 19. Familiarity with medical law and regulations 20. New technologies (including the use of stem cells) and emerging issues in medicine - medical jurisprudence

Course Code:	230		
Course Title	Forensic Medicine and Toxicology		
Course Level	Phase of Presentation: Internship 2 uniits		
Prerequisites	-		
Course Type	Theoretical	Practical	Total
Total Hours:	34	0	34
General Objectives	<p>Cognitive:</p> <ol style="list-style-type: none"> 1. Be familiar with the legal rules and requirements related to general medical practice. 2. Have complete knowledge of the laws and regulations of the medical profession (such as issuing certificates like general medical certificates, death reports, mandatory disease reports, prescriptions, compulsory hospitalization, and virginity certificates upon personal request). 3. Be familiar with the legal aspects of consent, exoneration, and medical errors. 4. Know the penalties for issuing false certificates. 5. Be fully familiar with the medical cases that require referral to forensic medicine. <p>Attitudinal:</p> <ol style="list-style-type: none"> 1. Accept and apply professional medical commitments in their practice. 2. Be familiar with the medical oath and forensic medical guidelines to adhere to them in their practice. 3. Be committed to the regulations and professional duties assigned by the institution or health system. 4. Consider themselves accountable to the health system's supervisory authorities. <p>Skill-Based:</p> <ol style="list-style-type: none"> 1. Be able to adhere to legal rules and requirements during general and specific examinations (trauma, identification, asphyxia, sexual issues, and poisonings). 		

	<ol style="list-style-type: none"> 2. Be able to analyze and make appropriate decisions regarding medical issues of patients and their families based on legal rules and requirements.
Course Description	<p>The forensic medicine course should be designed and implemented to familiarize interns with legal medical issues and enable them to accurately adhere to these in their medical practice within the framework of the scientific, practical, and professional competencies of a general practitioner, following the rules outlined in this syllabus. It is expected that by providing real examples and practical cases, the students' attitude towards adhering to legal rules and requirements will also be enhanced.</p>
Essential Content	<ol style="list-style-type: none"> 1. General principles of forensic medicine 2. Ethical principles, laws, and regulations related to medical practice 3. Thanatology, writing death reports, and issuing burial permits 4. Identification and recognition of human remains and traces 5. Asphyxia 6. Sexual issues 7. Traumatology: general principles, assault and battery, accidents, heat and cold, radiation and electricity, noise 8. Poisonings 9. Sexual issues in forensic medicine / sexual deviations and related legal issues 10. Firearms 11. Pregnancy, abortion, infanticide 12. Sudden natural deaths 13. Child abuse and neonatal deaths 14. Legal principles related to certification and record-keeping 15. Consent forms and exoneration forms 16. Islamic penal code (based on the Islamic Penal Code book)

Chapter Four

Evaluation of the Medical Education Program

In the General Doctor of Medicine

Evaluation of the General Doctor of Medicine Education Program

The evaluation of the general medical education program is conducted with two approaches: formative and summative.

A. Formative Approach to the Evaluation of the General Medical Education Program:

In the formative approach, the goal of the evaluation is to improve the ongoing programs by examining the extent to which the implemented curriculum aligns with the planned curriculum and its standards. To achieve this, monitoring indicators for program implementation are developed, and a monitoring system is established at two levels: university (centered on the General Medical Curriculum Committee in the medical school) and ministerial (under the responsibility of the Secretariat of the General Medical Education Council). Based on the monitoring results, corrective decisions are made at the faculty level. If the problems are widespread and changes are needed at the national level, the Secretariat of the General Medical Education Council is responsible for pursuing the necessary actions and reforms to ensure proper program implementation.

B. Summative Approach to the Evaluation of the General Medical Education Program:

The summative approach is conducted every five years to determine the extent to which the program standards are observed in medical schools. The accreditation model will be used to achieve this approach. The standard document for the general medical education program (Appendix 1), which has been developed through scientific processes and the participation of general medical education experts from across the country, serves as the basis for accrediting general medical education programs in the medical schools of the Islamic Republic of Iran.

Frequency of Evaluation:

- Formative evaluation is conducted continuously.
- Summative evaluation (program accreditation) is conducted every five years.

List of Appendices:

1. Document of Expected Competencies from Graduates of the General Medical Program – Approved by the Supreme Council of Planning (Year 2015)
2. Physical Standards of the General Medical Program – Approved by the 249th Session of the Council for the Expansion of Medical Universities, Ministry of Health (Year 2015)
3. Standards of the General Medical Program in the Islamic Republic of Iran
4. Patient Rights Charter in Iran
5. Executive Regulations for Dress Code and Professional Ethics of Students in Laboratory-Clinical Environments
6. Regulations for Working with Laboratory Animals

Appendix No. 4:

Patient Rights Charter in Iran

1. Receiving appropriate health services is the right of the patient.**

Health services should:

- 1.1. Be worthy of human dignity and respect cultural and religious values and beliefs;
- 1.2. Be based on honesty, fairness, politeness, and accompanied by kindness;
- 1.3. Be free from any discrimination, including ethnic, cultural, religious, type of illness, and gender;
- 1.4. Be based on up-to-date knowledge;
- 1.5. Be based on the superiority of the patient's interests;
- 1.6. Be based on justice and the treatment priorities of patients in the distribution of health resources;
- 1.7. Be based on the coordination of care elements, including prevention, diagnosis, treatment, and rehabilitation;
- 1.8. Include the provision of all basic and necessary welfare facilities and be free from imposing unnecessary pain, suffering, and restrictions;
- 1.9. Pay special attention to the rights of vulnerable groups in society, including children, pregnant women, the elderly, psychiatric patients, prisoners, mentally and physically disabled individuals, and those without guardians;
- 1.10. Be provided in the shortest possible time and with respect for the patient's time;
- 1.11. Consider variables such as the language, age, and gender of the service recipients;

- 1.12. In essential and urgent care (emergency), services should be provided regardless of the cost. In non-urgent (elective) cases, it should be based on defined regulations;
- 1.13. In essential and urgent care (emergency), if appropriate services cannot be provided, it is necessary to provide essential services and explanations and facilitate the transfer of the patient to an equipped unit;
- 1.14. In the final stages of life, when the disease is irreversible and the patient's death is imminent, the goal is to maintain their comfort. Comfort means reducing the patient's pain and suffering, addressing their psychological, social, spiritual, and emotional needs, and those of their family during the dying process. The dying patient has the right to be accompanied by someone they wish in their final moments.

2. Information should be provided to the patient in an appropriate and sufficient manner.**

The content of the information should include:

- 2.1. The provisions of the Patient Rights Charter at the time of admission;
 - 2.2. Predictable hospital rules and costs, including medical and non-medical services, insurance regulations, and the introduction of support systems at the time of admission;
 - 2.3. The name, responsibility, and professional rank of the medical team members responsible for providing care, including the doctor, nurse, and student, and their professional relationship with each other;
 - 2.4. Diagnostic and therapeutic methods, the strengths and weaknesses of each method, their potential side effects, disease diagnosis, prognosis, and its complications, as well as all information affecting the patient's decision-making process;
 - 2.5. How to access the treating physician and the main medical team members during treatment;
 - 2.6. All actions that have a research nature;
 - 2.7. Providing necessary training for the continuation of treatment.
-
- 2.8. The manner of providing information should be as follows:
 - 2.9. Information should be provided at an appropriate time and in accordance with the patient's conditions, including anxiety, pain, and individual characteristics such as language, education, and understanding ability, unless:
 - 2.10. Delaying treatment due to providing the above information causes harm to the patient; (In this case, the information should be provided after the necessary action, at the earliest appropriate time.)
 - 2.11. The patient, despite being informed of the right to receive information, refuses it, in which case the patient's wish should be respected unless the lack of information puts the patient or others at serious risk;
 - 2.12. The patient can access all recorded information in their clinical file, receive a copy of it, and request the correction of any errors contained therein.

3. The patient's right to free choice and decision-making in receiving health services should be respected.**

- The scope of choice and decision-making includes:

3.1. Choosing the treating physician and the health service provider within the framework of regulations;

3.2. Consulting with a second physician as an advisor;

3.3. Participating or not participating in any research, ensuring that their decision does not affect the continuation of receiving health services;

3.4. Accepting or rejecting proposed treatments after being informed of the potential side effects of acceptance or rejection, except in cases of suicide or when refusal of treatment puts another person at serious risk;

3.5. The patient's prior declaration regarding future medical actions when they have the capacity to make decisions should be recorded and considered as a guide for medical actions when they lack decision-making capacity, in accordance with legal standards and the health service providers' considerations.

The conditions for choice and decision-making include:

- ✓ The patient's choice and decision-making should be free and informed, based on receiving sufficient and comprehensive information (mentioned in the second clause);
- ✓ After providing information, the patient should be given the necessary and sufficient time to make a decision and choice.

4. Providing health services should be based on respecting the patient's privacy (right to solitude) and maintaining confidentiality.**

4.1. Maintaining confidentiality regarding all patient-related information is mandatory unless the law provides an exception;

4.2. In all stages of care, including diagnosis and treatment, the patient's privacy should be respected. It is necessary to provide all necessary facilities to ensure the patient's privacy;

4.3. Only the patient, the treatment team, authorized individuals by the patient, and those legally permitted can access the information;

4.4. The patient has the right to have a trusted person accompany them during diagnostic stages, including examinations. The presence of one of the child's parents during all stages of treatment is the child's right unless it contradicts medical necessities.

5. Access to an efficient complaint handling system is the patient's right.**

- 5.1. Every patient has the right to complain to competent authorities without disrupting the quality of health services if they claim their rights, as stated in this charter, have been violated;
- 5.2. Patients have the right to be informed of the handling process and the results of their complaint;
- 5.3. Damages caused by the error of health service providers should be compensated as soon as possible after investigation and proof, in accordance with regulations.

In implementing the provisions of this charter, if the patient lacks decision-making capacity for any reason, the exercise of all patient rights mentioned in this charter will be the responsibility of the legal substitute decision-maker. However, if the substitute decision-maker prevents the patient's treatment against the physician's opinion, the physician can request a review of the decision through relevant authorities. If a patient who lacks sufficient decision-making capacity can make reasonable decisions in part of the treatment process, their decision should be respected.

Appendix No. 5: Dress Code and Professional Ethics for Students in Laboratory-Clinical Environments

The attire and behavior of all service providers in the medical sciences group should be such that, while maintaining professional dignity, it facilitates appropriate and effective professional communication with patients, their companions, colleagues, and others in educational environments. Therefore, adherence to the following regulations is ethically mandatory for all those studying or providing services in clinical and laboratory educational environments.

Chapter One: Clothing and Dress Code

- Students' attire for entering educational environments, especially clinical and laboratory settings, should be uniform and include the following features:
 - A long white coat reaching the knees, non-tight, with long sleeves.
 - The coat must have the emblem of the relevant University of Medical Sciences and Health Services.

- All buttons of the coat must be fully fastened at all times while in educational environments.
- Wearing a valid photo ID card containing the first letter of the name, surname, title, faculty name, and field of study on the left chest area is mandatory at all times in educational environments.
- Female students must cover their entire head, neck, areas below the neck, and hair with appropriate coverings.
- Pants should be long, conventional, simple, and non-tight. Wearing torn jeans and similar attire is not befitting the medical profession.
- Wearing simple socks that cover the entire foot and calf is essential.
- Wearing lace or decorated socks is prohibited.
- Shoes should be comfortable and appropriate, without making noise while walking.
- The coat, clothing, and shoes should be comfortable, clean, tidy, and conventional, and should not have bright or unconventional colors.
- Using symbols unrelated to the medical profession and attaching them to the coat, pants, and shoes is prohibited.

- Wearing and displaying any rings, bracelets, necklaces, and earrings (except for wedding rings) in educational environments is prohibited.

- Wearing slippers and sandals in educational environments, except in the operating room and delivery room, is prohibited.

Appendix No. 5: Dress Code and Professional Ethics for Students in Laboratory-Clinical Environments

Chapter Two: Personal Hygiene and Grooming Standards in Educational Environments

- Medical professionals are role models for personal cleanliness and hygiene; therefore, maintaining a clean appearance and hygiene in medical educational environments is essential.

- Nails must be short and clean. Nail polish and nail stickers of any kind are prohibited. The use of artificial nails and long nails increases the chance of infection transmission and the risk of harm to others and medical equipment.

- Unconventional and unprofessional hairstyles and facial grooming are prohibited.

- Displaying any form of body art, such as tattoos, or using rings or studs in the nose or any part of the hands and face is prohibited.

- The use of strong and allergenic perfumes and colognes in educational environments is prohibited.

Chapter Three: Student Behavior Standards in Medical Educational Environments

- Adherence to professional ethics, humility, and modesty in interactions with patients, their companions, professors, students, and staff is mandatory.

- Speaking in educational environments should be done calmly and politely. Any loud noise or use of language that is not befitting the medical profession is prohibited.
- Smoking is prohibited at all times in educational environments.
- Chewing gum and similar items in laboratories, conference halls, patient rounds, and in the presence of professors, staff, and patients is prohibited.
- During classes, laboratories, and patient rounds, mobile phones must be turned off, and their use should be minimized to necessity at other times.
- Any discussion and joking in public places such as elevators, cafes, and restaurants is prohibited.

Chapter Four: Supervision and Follow-up of Violations of the Regulations

- Supervision of adherence to these regulations in educational hospitals and other clinical medical educational environments is the responsibility of the hospital's educational deputy, department head, section chief, and educational and student affairs experts of the respective unit.
- Individuals who do not adhere to professional ethics and the principles of these regulations will first be warned, and if they persist in violating the regulations, they will be referred to the student disciplinary council.

Appendix No. 6: Regulations for Working with Laboratory Animals

Animals play a very important role in the advancement and expansion of medical science research, and ethical principles and religious teachings dictate that we adhere to their rights. Therefore, researchers must comply with relevant ethical principles in their studies involving animals. As a result, according to the resolutions of the Publications Commission, mentioning

the ethics committee code in research articles submitted to scientific journals is mandatory. Below are the principles and regulations for working with laboratory animals:

1. The space and building for housing animals must have the necessary facilities for their health.
2. Before the arrival of animals, the necessary conditions for their housing must be provided based on their type and species.
3. Cages, walls, floors, and other parts of the building must be washable and disinfectable.
4. In enclosed spaces, the necessary conditions in terms of light, oxygen, humidity, and temperature must be provided.
5. If kept outdoors, the animal must have a shelter.
6. The space and cage must be appropriate for the animal species.
7. Cages must allow the animal to rest.
8. During the transportation of the animal, the conditions of temperature, light, and breathable air from the place of purchase to the permanent location of the animal must be provided.
9. The vehicle for transporting the animal must have suitable conditions and the necessary permit.

10. The health of the animal must be checked by the recipient.
11. Quarantine of newly arrived animals must be observed.
12. Animals should not be kept in proximity to their predators.
13. Cages must be in the sight of the caretaker.
14. There should be no possibility of the animal escaping from the cage.
15. Any additional noises that cause distress to the animal must be eliminated from the environment.
16. The possibility of injury to the animal during transportation must be prevented.
17. The bedding and resting place of the animal must be cleaned regularly.
18. The housing space must be continuously washed and disinfected.
19. Standard disinfectants must be used to clean the environment and sanitize work tools.
20. The food and water consumed by the animal must be suitable and hygienic.

21. Ventilation and waste disposal must be carried out continuously in such a way that there is no offensive odor or possibility of allergy and disease transmission to staff and laboratory animals.
22. There must be a suitable space for the disposal of animal carcasses and remains.
23. There must be sufficient, comfortable, and hygienic space for administrative staff, technicians, and caretakers.
24. Sick animals or those with special conditions such as pregnancy and lactation should not be used in research.
25. Before any research action, the necessary time for the animal to adapt to the environment and individuals must be provided.
26. Staff must be trained in working with animals.

Conditions for Conducting Animal Research

- The specific animal species selected for the experiment and research must be appropriate.
- The minimum number of animals required for statistical and research validity should be used.
- There should be no possibility of using optimal replacement programs instead of using animals.
- At various stages of research and in the method of euthanizing animals after research, minimal distress should be applied.
- The codes for working with animals must be observed throughout the study.
- The results should lead to the improvement of public health.