BAU TIP

BAHÇEŞEHİR UNIVERSITY SCHOOL OF MEDICINE

"scientia et amore vitae"

BAHÇEŞEHİR UNIVERSITY

SCHOOL OF MEDICINE

CLASS 3

ACADEMIC PROGRAMME

2026-2027

BAU TIP
BAHÇEŞEHİR ÜNİVERSİTESİ TIP FAKÜLTESİ
"scientia et amore vitae"

Dean	Adnan Kaya, Prof.
Vice Dean	Timuçin Avşar, Assoc. Prof.
Vice Dean, Head Coordinator	Özlem Unay Demirel, Assoc. Prof.
Class 3 Coordinator	Zehra Kipritçi, Assist. Prof.

THIRD YEAR					
5.Semester					
CODE	**COURSE**	**T**	**P**	**C**	**E**
	General Elective	3	0	3	6
	Non-Departmental Elective	2	0	2	4
	Departmental Elective	2	0	2	2
TMED3100					
MED3101	Introduction Muscoskeletal and Sensory Systems Disorders	1	1		
MED3102	Introduction to Cardiovascular, Respiratory Systems disorders	1	1		
MED3103	Introduction to Gastrointestinal Systems disorders	1	1		
		10	**3**	**12**	**20**
6.Semester					
CODE	**COURSE**	**T**	**P**	**C**	**E**
	General Elective	3	0	2	6
	Non-Departmental Elective	2	0	2	4
	Departmental Elective	2	0	2	2
MED3104	Introduction to Endocrine, Renal and Urogenital Systems Disorders	1			
MED3105	Introduction to Peripheral and Central Nervous System Diseases	2	2		
		10	**2**	**11**	**20**

	COURSE 1		COURSE 2		COURSE 3		COURSE 4		COURSE 5		TOTAL
	T	P	T	P	T	P	T	P	T	P	
Clinical Anatomy	10	-	20	-	9	-	9	-	15	-	63
Biochemistry	6	-	9	-	10	-	-	-	2	-	27
Pathology	-	-	5	3	4	3	4	3	3	3	28
Pharmacology	5+2		3	8	2	8	2	8	2	10	50
Medical Microbiology	4	1	7	1	11	1	6	1	4	1	37
Patophysiology	2	-	11		9		24		3		49
Internal Medicine	11		-		15	4	33		-		63
Pulmonary Medicine	-		4		-		-		-		4
Cardiology	-		6		-		-		-		6
General Surgery	-		-		40		-		-		40
Radiology	-		-		3		-		3		6
Pediatrics	6	2	9	3	7	2	5		6	2	42
Obstetrics and Gynecology	-				-		35		-		35
Neurology	-				-		-		30	1	31
Neurosurgery	-				-		-		11		11
Clinical Ethics and Philosophy of Medicines	3		3		3		3		1	1	14
Medical Education	-		2		2						4
TOTAL	**49**	**3**	**79**	**15**	**115**	**18**	**121**	**12**	**80**	**18**	**510**
Clinical Skills		3		2				2		3	**10**
Panels	2		2		2		4		2		**12**
PBL	1		1		1				1		**4**
Research Methodology	-	-	-	-	-	-	-	-	-	-	**28**
Public Health	-	-	-	-	-	-	-	-	-	-	**28**
STUDY TIME	68	-	53	-	40	-	44	-	97	-	**302**

BAHCESEHIR UNIVERSITY SCHOOL OF MEDICINE 2026 – 2027 ACADEMIC CALENDAR FOR THE THIRD YEAR	
2026 – 2027 ACADEMIC YEAR FALL SEMESTER	
September 14, 2026, Monday	**Orientation Program**
September 14, 2026 – October 23, 2026	**Committee 1 –** Introduction Muscoskeletal and Sensory Systems Disorders
October 22, 2026, Thursday	**1st Block Committee Exam**
October 26, 2026 – December 11, 2026	**Committee 2 –** Introduction to Cardiovascular, Respiratory Systems Disorders
December 10, 2027, Thursday	**2nd Block Committee Exam**
December 14, 2026 – February 12, 2027	**Committee 3 -** Introduction to Gastrointestinal Systems Disorders
February 11, 2027 Thursday	**3rd Block Committee Exam**
October 29, 2026, Thursday	**National Holiday (Republic Day)**
January 01, 2027, Friday	**New Year Holiday**
January 18 – 29, 2027	**Semester Break**

BAHCESEHIR UNIVERSITY SCHOOL OF MEDICINE 2026 – 2027 ACADEMIC CALENDAR FOR THE THIRD YEAR	
2026 – 2027 ACADEMIC YEAR SPRING SEMESTER	
February 15, 2027 – April 9, 2027	**Committee 4** Introduction to Endocrine, Renal and Urogenital Systems disorders
April 8, 2027, Thursday	**4rd Block Committee Exam**
April 12, 2027 – June 11, 2027	**Committee 5** Introduction to Peripheral and Central Nervous System Diseases
June 10, 2027, Thursday	**5th Block Committee Exam**
March 9 – 11, 2027, Tuesday – Thursday	**Ramadan Feast Holiday**
April 23, 2027, Friday	**National Sovereignty and Children's Day**
May 01, 2027, Saturday	**Labor and Solidarity Day**
May 19, 2027, Wednesday	**Commemoration of Atatürk, Youth and Sports Day**
May 16 – 19, 2027, Sunday – Wednesday	**Feast of Sacrifice**
June 14-15, 2027	**Make-up Exams for Committees**
June 23, 2027, Wednesday	**Final Exam**
July 07, 2027, Wednesday	**Resit Exam for the Final Exam**

EVALUATION TABLE

		Theoretical Exam		AVERAGE OF COMMITTEE GRADES	FINAL EXAM	YEAREND GRADE
	Committee Names	**Method**	**%**			
YEAR 3	Committee 1: Introduction Muscoskeletal and sensory systems disorders	MCQ	100 %	C1+ C2+ C3+C4+C5 / 5	MCQ	**AVERAGE OF COMMITTEE GRADES (60%) + FINAL EXAM SCORE (40%)**
	Committee 2: Introduction to Cardiovascular, Respiratory Systems disorders	MCQ	100 %			
	Committee 3: Introduction to Gastrointestinal Systems disorders	MCQ	100 %			
	Committee 4: Introduction to Endocrine, Renal and Urogenital Systems disorders	MCQ	100 %			
	Committee 5: Introduction to Peripheral and Central Nervous System Diseases	MCQ	100%			

* Each committee examination will include one question from each Problem-Based Learning (PBL) case and one question from each Pharmacology Case-Based Learning (CBL) case conducted within that committee. In addition, for each panel, one question will be included from each academic department participating in the panel.

PASSING GRADE					
YEAREND GRADE	**CLINICAL SKILLS [1]+ OSCE**	**PROBLEM BASED LEARNING (PBL)[2] + CORE**	**PHARMACOLOGY CASE BASED LEARNING (CBL)[3]**	**MICROBIOLOGY CASE BASED LEARNING (CBL)[4]**	**TOTAL**
85%	**4% + 1%**	**4% + 1%**	**3%**	**2%**	**100**

[1] : Clinical Skills are Evaluated According to APPENDİX 1

[2] : Problem Based Learning (PBL) are Evaluated According to APPENDİX 2

[3] : Pharmacology Case-Based Learning (CBL) are Evaluated According to APPENDİX 3

[4] : Microbiology Case-Based Learning (CBL) are Evaluated According to APPENDİX 4

APPENDIX 1

CLINICAL SKILLS EVALUATION: 2026-2027

	Satisfactory	Needs Improvement	Poor
A- Professionalism			
Always on time and has no unexcused tardiness/absence	**2**	**1**	**0**
Appearance is appropriate: respects dress code, wears name tag	**2**	**1**	**0**
Has team work ability	**2**	**1**	**0**
Shows effective time management	**2**	**1**	**0**
Obeys clinical skills laboratory rules	**2**	**1**	**0**
TOTAL			
B- Medical Knowledge and Clinical Reasoning			
Demonstrates theoretical knowledge	**2**	**1**	**0**
Demonstrates analytical thinking	**2**	**1**	**0**
TOTAL			
C-Interpersonal and Communication Skills			
Demonstrate the ability to communicate effectively with the lecturer and friends	**2**	**1**	**0**
TOTAL			
D- Clinical Skills			
Performs steps of the clinical skill in the guideline appropriately	**2**	**1**	**0**
Applies standard precautions for infection prevention and control	**2**	**1**	**0**
TOTAL			

APPENDIX 2

THE NAMES OF PROBLEM-BASED LEARNING (PBL) EVALUATION

Evaluation of Parameters	GRADES
Identifying of hypotheses	1 | 2 | 3 | 4
Linking and explaining hypothesis to the problems using prior knowledge	1 | 2 | 3 | 4
In the inquiry process, asking questions by using evidence; questioning the accuracy of the information; research, etc.	1 | 2 | 3 | 4
Active participation in questioning the case, examining it, requesting the necessary tests	1 | 2 | 3 | 4
Contribution to the setting of learning goals	1 | 2 | 3 | 4
Able to discuss the case with its biological, social, behavioral, and ethical dimensions	1 | 2 | 3 | 4
Get ready by using classical resources and appropriate resources in the independent work hours	1 | 2 | 3 | 4
Sharing information with the group, creating drawings, diagrams, and concept maps	1 | 2 | 3 | 4
Communication Skills (active listening, making clear explanations, expressing herself/himself; supporting group dynamics; encouraging; upholding rights; making appropriate explanations where the group is blocked, etc.)	1 | 2 | 3 | 4
Evaluation Skills (evaluation of: herself/himself, group, training guide, the scenario in an objective, content-oriented, supportive of development manner)	1 | 2 | 3 | 4
TOTAL GRADE	

APPENDIX 3

PHARMACOLOGY CASE-BASED LEARNING EVALUATION 2026-2027

PHARMACOLOGY CASE BASED PRESENTATION EVALUATION

Presenter (Name-Surname): Date: Presentation Topic:	
	0-20 points
Presentation reflects up to date knowledge	
Case question is presented concisely and clearly	
Slides prepared satisfactorily	
Effective justification of the answer	
Interesting presentation and maintenance of audience interest	

Total Presentation Point: 100

APPENDIX 4

MICROBIOLOGY CASE-BASED LEARNING EVALUATION 2026-2027

Microbiology CBL Assessment Form

Case Number/Date:
Students name/Surname
Students number:

Scoring key:

1. Insufficient / incomplete, requires guidance
2. Developing / requires frequent guidance
3. Satisfactory / minor deficiencies
4. Competent / independent and consistent performance

Assessment criterion	1	2	3	4	Observation note
1. Accurately summarizing the case and identifying the main clinical problem					
2. Discussing the appropriate diagnostic approach based on the case					
3. Identifying the appropriate specimen type and timing of collection					
4. Evaluating pre-analytical processes: transport, storage, contamination, and biosafety					
5. Selecting the appropriate laboratory test / test sequence					
6. Interpreting laboratory material: Gram stain, smear, colony, plate, or other displayed findings					
7. Relating the results to the clinical picture and justifying the possible diagnosis					
8. Recommending additional tests, confirmatory tests, or repeat sampling when needed					
9. Participation in group discussion, communication, and active listening					
10. Stating the main message of the session briefly and clearly					

CLINICAL OBSERVATION IN HOSPITAL EVALUATION: 2026-2027

Clinical rotation is one of the integral parts of undergraduate medical students. Clinical skills learning requires the exposure of students into the clinical environment.

The objectives of these rotations include:

- Understanding the concepts of hospital organization
- Understanding the roles of doctors and other health care workers in clinical situations
- Understanding the concepts of patient safety
- Developing communication skills with patients and other healthcare workers
- Developing teamwork skills
- Developing interdepartmental collaboration in workplace
- Developing and enhancing professionalism in medical students

Clinical observation assessment will be included as part of the portfolio. Students are required to complete observations at five different locations from the list below and answer the reflection questions for each observation.

CLINICAL OBSERVATION SITES

Students are assigned to clinical observation sites according to the rotation schedule.

No	Observation Site	Number of Students
1	Angiography Unit	2
2	Echocardiography / Exercise Stress Testing	2
3	Coronary Intensive Care Unit	2
4	Chemotherapy Unit	2
5	ECG Unit	1
6	Endoscopy Unit	3
7	Dressing / Wound Care Room	1
8	Audiology / Balance Unit	2
9	Pediatric Blood Collection Unit	1
10	Pulmonary Function Testing (PFT)	1
11	Ophthalmology Unit	1
12	Emergency Department	2
13	Delivery Room	1
14	Obstetrics and Gynecology Blood Collection / NST	1
15	Transfusion Center	1
16	Microbiology / Laboratory	2
17	Interventional Radiology	1

CLINICAL OBSERVATION ACTIVITIES

During the clinical observation period, students may observe the following activities:

A. History taking
B. Taking vital signs (Pulse, Blood Pressure, Temperature, Respiratory rate)
C. Pulse oximeter placement
D. Other (explain)

LEVEL OF PARTICIPATION

A - Observer Status
B - May be performed under supervision

DATE	NAME OF THE UNIT	ACTIVITY / PROCEDURE	LEVEL	SUPERVISOR'S* SIGNATURE	PEER SUPPORTER'S** SIGNATURE

*: Supervisor; The nurse responsible for supervising third-year medical students during their clinical observations in the hospital.
**: Peer Supporter: 6th grade student-intern who contributes to peer education

Reflection questions:

1. Briefly describe the activity/task you participated in.
2. How is this activity related to your medical education or professional development as a future physician?
3. What is the most important thing you learned from this experience?
4. How may this experience influence your future professional behavior?
5. Is there anything in which you think you need further development?

CLASS 3

AIM: The purpose of the Class 3 Program is to integrate students' basic science knowledge with their use in clinical settings by different types of teaching methods, to introduce basic clinical fields and basic concepts used in research.

PROGRAM CONTENT:

In the first 3 courses, basic science knowledge of the most common diseases mentioned in the National Core Educational Program is given by associating them with the clinic. The distribution of courses is:

COURSE 1 Introduction Muscoskeletal and sensory systems disorders

COURSE 2: Introduction to Cardiovascular, Respiratory Systems disorders

COURSE 3: Introduction to Gastrointestinal Systems disorders

COURSE 4: Introduction to Endocrine, Renal and Urogenital Systems disorders

COURSE 5: Introduction to Peripheral and Central Nervous System Diseases

TEACHING METHODS:

- **Class Lessons:** Theoretical lectures are mainly based on cases in connection with the clinic.
- **Student Presentations:** Clinical Pharmacology sessions are conducted as Case-Based Learning (CBL) activities. Students prepare and present assigned clinical cases and receive feedback from the facilitator.
- **Panels:** The panels are designed as sessions in which a group of experts shares their knowledge and experience with students in a question-and-answer format. The goal of these sessions is to provide students with the opportunity to encounter different perspectives and to learn about the discipline-specific approaches of experts involved in the diagnosis, treatment, and follow-up of relevant patient groups. Thus, students are expected to develop their critical thinking skills while gaining an understanding of the unique needs and disease management of various patient groups.
- **Problem-Based Learning:** Students work in small groups to analyze clinical problems, identify learning needs, and develop clinical reasoning and self-directed learning skills under the guidance of a facilitator.
- **Clinical Skills**: Students practice fundamental clinical skills in the Clinical Skills Laboratory in a structured and supervised learning environment
- **Clinical Observations:** Students attend designated clinical settings as observers to become familiar with patient care, healthcare teams, hospital organization, and professional practice.
- **Self-Study:** Students undertake independent learning activities, including Research Methodology assignments and preparation for national and international examinations, to support self-directed learning and academic development**.**

LEARNING OBJECTIVES:

At the end of this class, the students should be able to:

KNOWLEDGE:

1. Describe the basic anatomy and physiology of the major body systems covered in the course.
2. Describe the basic pathophysiological mechanisms of common disorders affecting these systems.
3. Recognize the common diseases of the musculoskeletal, sensory, cardiovascular, respiratory, gastrointestinal, endocrine, renal, urogenital, peripheral nervous, and central nervous systems.
4. Identify the most common signs and symptoms associated with these diseases.
5. Relate basic sciences to the clinical manifestations of common diseases.
6. Recognize major risk factors and predisposing conditions associated with common disorders.
7. Demonstrate an integrated understanding of the basic mechanisms underlying common clinical conditions.

SKILLS:

1. Perform various clinical skills in Clinical Skills Laboratory.
2. Get skills in taking history from a patient and making physical examination
3. Get skills in taking inform consent
4. Get skills in presenting a case.
5. Observe patients in hospital settings.
6. Understand the importance of effective communication between a patient and a doctor.
7. Understand the importance of research ethics.

ATTITUDES:

1. Have the perception that medicine is an honorable and respected profession, reflect this on his/her behavior.
2. Observe the rules of professional ethics in his/her relations with the colleagues.
3. Realize the importance of following the working principles in clinical skills laboratories.
4. Realize the importance of hand hygiene in preventing diseases.
5. Realize the importance of introducing himself/herself to the patient, giving information about the interventions to be made, and getting approval.
6. Realize the importance of teamwork.
7. Gain the program evaluation culture.

MED 3101: INTRODUCTION MUSCOSKELETAL AND SENSORY SYSTEMS DISORDERS				
Course Date	14.09.2026- 23.10.2026			
Exam Dates	Committee Exam: 22.10.2026			
Course Coordinators:	Zehra KİPRİTÇİ			
Academic Unit	**Academic Staff**	**Theoretical hours**	**Practical Hours**	**Total**
Clinical Anatomy	Uğur Baran Kasırga, Assist. Prof.	10	-	10
Clinical Biochemistry	İrem Kırış, Assist. Prof.	6	-	6
Pharmacology	Kevser Erol, Prof. Şahika Güner, Assist. Prof.	5	-	5
Clinical Microbiology	Gülden Çelik, Prof. Yasemin Koçer Tulgar, Assist. Prof.	4	1	5
Patophysiology	Betilay Arslan, Assist. Prof.	2	-	2
Internal Medicine	Fulya Coşan, Prof. H.Levent Doğanay, Prof. Fatma Paksoy, Prof.	11	-	11
Pediatrics	Yiğit Mustafa Ertunç, Assist. Prof. Ayberk Özkavaklı, Dr.	6	2	8
Clinical Pharmacology (Case Presentations)	Kevser Erol, Prof. Şahika Güner, Assist. Prof.	2	-	2
Clinical Ethics and Philosophy of Medicine	Kadircan Keskinbora, Prof Yasemin Koçer Tulgar, Assist. Prof.	3	-	3
PBL sessions	Yasemin Çanıllıoğlu, Assoc. Prof.		10	10
Clinical Skills	Mahmut Aşırdizer, Prof. Ufuk Utku Göktuğ, Assoc. Prof. Özlem Unay Demirel, Assoc. Prof.	4	3	7
Panel	Department of Physiology Department of Orthopedics and Traumatology Department of Physical Medicine and Rehabilitation	2		2
CLINICAL OBSERVATIONS			4	4
TOTAL		55	20	75
STUDY TIME		68		

COURSE AIM:

The aim of this course is;

- To provide the integration of basic sciences with the most common musculoskeletal and sensory system disorders mentioned in the National Core Educational Program, including osteoporosis, osteoarthritis, inflammatory arthritis, back pain, nerve entrapment syndromes, myasthenia gravis, bone and soft tissue infections, and related clinical conditions to get skills in preparing to initiate an intravenous infusion.
- To introduce students to hospital conditions.

LEARNING OUTCOMES:

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL ANATOMY	Spine pain anatomy: curvature, disc herniation, radiculopathy and red flags (T-1)	1. Describe the anatomical basis of spinal curvature and disc herniation. 2. Identify the anatomical landmarks used to localize spinal levels on physical examination. 3. Correlate dermatomal and myotomal patterns with the level of nerve root compression. 4. Apply anatomical knowledge to interpret imaging findings of disc herniation. 5. Recognize anatomical red-flag signs indicating serious spinal pathology requiring urgent referral
	Lumbar puncture, epidural/spinal anesthesia and neuraxial safety (T-1)	1. Identify the vertebral levels and surface landmarks used for safe lumbar puncture and neuraxial anesthesia. 2. Describe the tissue layers traversed during needle insertion and the structures at risk of injury. 3. Differentiate the anatomical approach used for spinal versus epidural anesthesia. 4. Apply anatomical landmarks to select a safe needle insertion site in a clinical scenario. 5. Explain the anatomical basis of contraindications and complications of neuraxial procedures
	Upper-limb entrapments: carpal tunnel, ulnar neuropathy, radial nerve palsy (T-1)	1. Identify the anatomical sites of common upper-limb nerve entrapments. 2. Correlate motor and sensory deficits with the anatomical level of nerve compression. 3. Differentiate carpal tunnel syndrome from ulnar and radial neuropathy based on anatomical distribution. 4. Describe the clinical tests used to localize upper-limb nerve entrapments. 5. Apply anatomical reasoning to predict the functional deficits resulting from each nerve lesion

	Lower-limb entrapments and foot pain: tarsal tunnel, common fibular nerve, plantar fascia differential (T-1)	1. Identify the anatomical structures involved in lower-limb nerve entrapments. 2. Differentiate neuropathic from mechanical causes of foot pain on an anatomical basis. 3. Correlate clinical examination findings with the anatomical site of nerve compression. 4. Apply anatomical landmarks to perform relevant clinical tests for tarsal tunnel and fibular nerve entrapment. 5. Differentiate entrapment neuropathy from plantar fasciitis based on anatomical pain distribution
	Hip biomechanics and gait: coxa vara/valga, DDH/SCFE logic, Trendelenburg gait (T-1)	1. Describe the biomechanical basis of hip alignment abnormalities. 2. Identify anatomical landmarks used in clinical assessment of hip alignment. 3. Explain the anatomical mechanism underlying Trendelenburg gait. 4. Apply biomechanical principles to interpret abnormal gait patterns observed on examination. 5. Correlate developmental hip anatomy with the presentations of DDH and SCFE
	Knee-foot alignment: genu varum/valgum, pes planus and mechanical axis (T-1)	1. Describe normal and abnormal lower-limb mechanical axis alignment. 2. Identify anatomical landmarks used to assess mechanical axis on clinical and radiographic examination. 3. Correlate structural malalignment with its functional and clinical consequences. 4. Apply alignment principles to anticipate long-term joint complications of malalignment. 5. Explain the anatomical basis of pes planus.
CLINICAL ANATOMY	Shoulder and scapular mechanics: winged scapula, axillary/radial nerve and brachial plexus clinical entry (T-1)	1. Identify the nerves responsible for scapular and shoulder motor function. 2. Explain the anatomical basis of winged scapula. 3. Identify the anatomical tests used to demonstrate scapular winging and nerve injury. 4. Differentiate nerve-related from muscular causes of shoulder dysfunction on an anatomical basis. 5. Correlate brachial plexus injury patterns with their clinical presentation
	TMJ dislocation and maxillofacial functional anatomy (T-1)	1. Describe the anatomy of the temporomandibular joint and its stabilizing structures. 2. Identify the anatomical landmarks used in clinical examination of the TMJ. 3. Explain the anatomical mechanism of TMJ dislocation. 4. Apply anatomical knowledge to guide safe reduction of TMJ dislocation. 5. Correlate maxillofacial anatomy with functional and emergency clinical presentations.

	Pelvic fractures and bony pelvis anatomy for trauma and obstetrics (T-1)	1. Describe the bony and ligamentous anatomy of the pelvis. 2. Identify anatomical landmarks used to classify pelvic fracture stability. 3. Explain the clinical significance of common pelvic fracture patterns. 4. Apply anatomical reasoning to anticipate associated vascular and visceral injuries in pelvic trauma. 5. Correlate pelvic anatomy with obstetric and trauma-related clinical considerations.
	Spina bifida and congenital spine defects: anatomy-to-clinic bridge (T-1)	1. Describe the embryological and anatomical basis of spina bifida and related congenital spine defects. 2. Identify the anatomical features distinguishing spina bifida occulta from cystica on examination and imaging. 3. Correlate the anatomical defect with expected clinical and neurological findings. 4. Apply anatomical knowledge of neural tube closure timing to explain the rationale for prenatal screening. 5. Explain the relevance of these anomalies to prenatal and pediatric care.

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL BIOCHEMISTRY	Calcium & Phosphate Metabolism (T-2)	1. Explain the distribution and biochemical importance of calcium and phosphate in the human body. 2. Explain the physicochemical forms and normal plasma concentrations of calcium and phosphate. 3. Explain the factors affecting ionized calcium levels and the interpretation of calcium measurements in hypoalbuminemia. 4. Explain the intestinal absorption of calcium and the mechanisms regulating calcium homeostasis. 5. Outline the major regulators of calcium and phosphate metabolism. 6. Explain the synthesis, regulation, and mechanisms of action of parathyroid hormone, calcitriol, calcitonin, and FGF-23 in calcium and phosphate metabolism
	Disorders of Calcium & Phosphate Metabolism (T-2)	1. Outline the major causes of hypocalcemia and hypercalcemia. 2. Explain the hormonal regulation of calcium and phosphate homeostasis in hypocalcemia and hypercalcemia. 3. Explain the roles of vitamin D and FGF23 in disorders of calcium and phosphate metabolism. 4. Explain the pathophysiology of hypercalcemia, including primary hyperparathyroidism and malignancy-associated hypercalcemia. 5. Describe the biochemical laboratory evaluation of disorders of calcium and phosphate metabolism. 6. Recognize the clinical manifestations of hypocalcemia and hypercalcemia.

	Formation and degradation of bone, markers of bone turnover (T-2)	1. Explain the structure, composition, and matrix proteins of bone tissue. 2. Describe the processes of bone formation, resorption, and remodeling. 3. Explain the biochemical markers of bone formation and bone resorption. 4. Interpret the clinical significance of bone turnover markers

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
PHARMACOLOGY	Factors Affecting Drug Activity (T-1)	1. Comprahend the importance of pharmacokinetic and pharmacodynamic characteristics affecting drug response 2. Define and describe the importance of body weight on drug response 3. Describe the effects of elimination organs on drug activity 4. Understand the chronopharmacology 5. Define the effects of administration route and diet on the pharmacokinetics of drugs 6. Predict the gender effects on drug activity 7. Identify the importance of specific diseases, secondary factors, biologic variations on the response of drugs 8. Describe placebo effects, compliance, chirality, tolerance
	Drug development (T-1)	1. Comprehend the overall process of drug development from discovery molecules to market approval 2. Define and describe the importance of preclinical studies (in vitro, ex vivo, in vivo, in silico modeling) in drug development, and how artificial intelligence and machine learning accelerate drug-target prediction and drug repurposing 3. Describe the phases of clinical trials (Phase I, II, III, IV) and the role of regulatory agencies (FDA, EMA, national authorities) in the drug approval process 4. Define the principles of GLP, GCP, and GMP, and evaluate the importance of pharmacodynamic, pharmacokinetic, and toxicological screening in candidate selection 5. Identify the ethical principles involved in drug development, and describe the concepts of drug patents, generic drugs, biosimilars, and pharmacovigilance
	Pharmacovigilance (T-1)	1. Comprehend the definition, scope, and importance of pharmacovigilance in drug safety 2. Define and describe the concepts of adverse drug reactions (ADRs) and adverse events (AEs), and their classification (Type A, B, C, D, E, F) and risk factors (age, gender, genetics, comorbidities, drug interactions) 3. Understand the role of national and international pharmacovigilance systems (WHO-UMC, EMA, FDA, national authorities) 4. Understand the role of healthcare professionals in adverse drug reaction reporting systems 5. Describe the impact of pharmacovigilance data on regulatory decisions, post-marketing surveillance, drug withdrawals, and label changes.

	Clinical Pharmacology of NSAIDs (T-1)	1. List the indications of antiinflammatory drugs 2. Describe the treatment of rheumatoid arthritis 3. Compare the tratments of anchylotic spondilitis, osteoarthritis, psoriatic arthritis, Reiter syndrome and rheumatic fever 4. Define the treatments of cancer pain and others 5. Define the other indications of NSAIDs (cardiovascular, genitourinary, eye operations, and colorectal cancers 6. Comprahend the clinical importance of fever and the treatment of fever
	Treatment of osteoartritis and osteoporosis (T-1)	1. Comprehend the pathophysiology, risk factors, and clinical diagnosis of osteoarthritis and osteoporosis 2. Define the classification of drugs used in the treatment of osteoarthritis and osteoporosis 3. Understand the mechanism of action, indications, and adverse effects of analgesics and NSAIDs in the treatment of osteoarthritis, and of bisphosphonates, selective estrogen receptor modulators (SERMs), and denosumab in the treatment of osteoporosis 4. Describe the importance of calcium and vitamin D supplementation, and explain the role of hormone replacement therapy and newer anabolic agents (teriparatide, romosozumab) in osteoporosis management 5. Identify the drug interactions, contraindications, and drug-drug interactions.

At the end of this lesson, the student will be able to:		
KNOWLEDGE, SKILLS		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL PHARMACOLOGY	Introduction to the case base pharmacology (T-1)	1. Get knowledge about the case presentation of Pharmacology
	Example of case presentation (T-1)	

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP	**TOPIC**	**LEARNING OUTCOMES**
MEDICAL MICROBIOLOGY	Fever of infectious origin (T-1)	1. Define fever and fever types. 2. Explain the mechanism of fever. 3. List the definitions of fever of unknown origin. 4. List the infectious etiological agents responsible from fever. 5. List the steps in investigating fever of unknown origin. 6. Describe the laboratory diagnostic algorithm for fever etiology in a step forward manner.
	Skin, Soft tissueand musculoskeletal infections (T-1)	1. List the main groups of microorganisms responsible for skin and soft tissue infections. 2. Explain the pathogenesis of skin and soft tissue infections. 3. List the main methods in the laboratory diagnosis of skin and soft tissue infections. 4. List the main advantages and disadvantages of the methods and interpretation of the results in skin and soft tissue infections. 5. List the preventive measures and the routine recommended antimicrobial treatment in skin and soft tissue infections.
	Superficial Mycoses and Dermatophytosis (T-1)	1. List the main groups of microorganisms responsible for superficial mycoses and dermatophytosis. 2. Explain the pathogenesis of superficial mycoses and dermatophytosis. 3. List the main methods in the laboratory diagnosis of superficial mycoses and dermatophytosis. 4. List the main advantages and disadvantages of the methods and interpretation of the results in superficial mycoses and dermatophytosis. 5. List the preventive measures and the routine recommended antimicrobial treatment in superficial mycoses and dermatophytosis.
	Subcutaneous mycosis and travma related inoculations (T-1)	1. List the main subcutaneous mycoses and trauma-related fungal inoculation infections. 2. Describe the common routes of inoculation and transmission of subcutaneous fungal infections. 3. Explain the basic clinical features and typical lesion patterns of subcutaneous mycoses. 4. Identify the main laboratory methods used in the diagnosis of subcutaneous mycoses. 5. Describe the general principles of prevention and first-line management of trauma-related inoculation infections
	Clinical microbiology laboratory diagnosis of localized skin-soft tissue and sensory organ infections: From sample to result (P-1)	1. Select the appropriate specimen type and collection site for localized skin, soft tissue, and sensory organ infections. 2. Explain pre-analytical requirements, including transport, storage, and contamination control. 3. Interpret basic Gram stain and culture findings and distinguish infection from contamination. 4. Decide when repeat sampling and antimicrobial susceptibility testing are required. 5. Communicate a brief, clinically relevant laboratory report.

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
PATOPHYSIOLOGY	EMG (T-1)	1. Describe the physiological basis of electromyography (EMG) and the principles of motor unit action potential generation. 2. Explain the basic components of nerve conduction studies and needle EMG. 3. Differentiate between normal and abnormal EMG findings in common neuromuscular disorders. 4. Interpret basic EMG patterns associated with neuropathic and myopathic processes. 5. Relate EMG findings to the underlying pathophysiological mechanisms of neuromuscular diseases.
	Myestenia Gravis (T-1)	1. Describe the normal physiology of neuromuscular transmission. 2. Explain the immunopathogenesis of myasthenia gravis. 3. Recognize the characteristic clinical manifestations and disease course of myasthenia gravis. 4. Interpret the basic diagnostic findings, including electrophysiological and serological tests, in patients with myasthenia gravis.

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
INTERNAL MEDICINE	History taking, case presentation and preparing a patient file in rheumatology (T-1)	1. Identify key constitutional and musculoskeletal symptoms specific to rheumatic diseases (e.g., inflammatory versus mechanical joint pain, morning stiffness duration, fatigue). 2. Differentiate between systemic inflammatory conditions (such as rheumatoid arthritis or systemic lupus erythematosus) and localized mechanical or degenerative disorders through targeted chronological questioning. 3. Structure a focused rheumatologic history including extra-articular manifestations affecting the skin, eyes, GI tract, and cardiopulmonary system. 4. Inquire about relevant family history, environmental exposures, medication use, and previous diagnostic tests pertinent to autoimmune and autoinflammatory conditions.
	Physical examination in rheumatology (T-2)	1. Demonstrate a systematic approach to musculoskeletal physical examination, covering inspection, palpation, range of motion assessment, and targeted provocative maneuvers. 2. Distinguish primary signs of joint inflammation—including warmth, swelling, tenderness, and effusion—from non-inflammatory mechanical findings. 3. Perform specialized screening maneuvers to evaluate the spine, peripheral joints, and periarticular structures for localized abnormalities or enthesitis. 4. Interpret basic physical examination findings in simulated or clinical scenarios to identify patterns consistent with common rheumatic conditions.

	Approach to musculoskeletal pain (T-1)	1. Recognize prototype presentations of different musculoskeletal pain types, including widespread pain (e.g., fibromyalgia), regional pain, and bone pain (e.g., fracture or metastasis). 2. Distinguish specific pain patterns such as neuropathic pain (e.g., sciatica) and referred pain (e.g., acute pancreatitis) in clinical presentations. 3. Differentiate among articular, periarticular, muscle, and bone origins based on clinical characteristics and prototype examples. 4. Identify the clinical source of pain by matching patient presentation to classic prototype conditions for each pain category.
	Approach to articular and periarticular pain, approach to inflammatory/degenerative articular pain (T-1)	1. Differentiate between articular and periarticular pain based on history taking, physical examination, and anatomical localization. 2. Distinguish inflammatory articular pain from degenerative (mechanical) joint pain using clinical characteristics such as morning stiffness duration and swelling patterns. 3. Describe the key clinical and laboratory features of osteoarthritis as a prototype for non-inflammatory articular conditions. 4. Identify the core clinical and laboratory characteristics of rheumatoid arthritis as a prototype for inflammatory arthritis. 5. Distinguish osteoarthritis and rheumatoid arthritis using clinical and laboratory findings.
	Approach to arthritis (T-1)	1. Classify arthritis presentations into patterns such as acute versus chronic, symmetric versus asymmetric, and oligoarticular versus polyarticular. 2. Establish a systematic differential diagnosis for patients presenting with inflammatory arthritis. 3. Infer the correct arthritis pattern (e.g., acute oligoarthritis) from patient history. 4. Recognize the clinical and laboratory features of prototype conditions representing specific arthritis categories.
	Approach to spinal pain& morning stiffness (T-1)	1. Evaluate low back, neck, back, and pelvic pain through the lens of spondyloarthritis while integrating physical therapy, neurosurgery, and orthopedic perspectives. 2. Identify the clinical characteristics of inflammatory spinal pain and inflammatory morning stiffness associated with spondyloarthropathies. 3. Differentiate inflammatory spinal pain from mechanical or degenerative spinal disorders using clinical history and diagnostic features. 4. Recognize indications requiring multidisciplinary evaluation involving physical therapy, neurosurgery, or orthopedics for spinal and pelvic complaints.

	History taking and physical examination in Internal Medicine (T-1)	1. Elicit the patient's chief complaint, history of present illness, past medical history, social, family, occupational histories and complete a review of systems 2. Perform a physical examination in a logical, organized and thorough manner 3. Describe the steps for obtaining a patient's vital signs 4. State normal values for adult vital signs 5. Demonstrate the ability to use data for clinical decisions
	General Physical Examination and Examination of Head and Neck (T-1)	1. Describe the common methods of physical examination of the head and neck: Inspection, palpation, auscultation 2. Describe the location and examination methods of lymph nodes 3. List the causes of lymph node enlargement
	Approach to patient with weakness (T-1)	1. Determine what the patient means by weak. 2. Take the history of a patient with weakness 3. Make the physical examination of a patient with weakness 4. List the laboratory tests that may aid in diagnosis
	Clinical skills learning (Preparation of a patient file) (T-1)	1. Take history from a patient 2. Prepare a patient file with writing history and physical examination 3. Elicit the patient's past medical history, social, family, and occupational histories 4. Review the symptoms of all systems

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
PEDIATRICS	Approach to the child with arthritis (T-1)	1. Be able to explain the definition and diagnostic criteria of arthritis. 2. Be able to systematically perform a differential diagnosis of joint pain in children. 3. Be able to explain the importance of the medical history in the evaluation of arthritis. 4. Be able to interpret physical examination findings. 5. Be able to evaluate the distinguishing features of septic arthritis, osteomyelitis, and juvenile idiopathic arthritis. 6. Be able to appropriately plan laboratory and imaging studies. 7. To be able to recognize clinical findings requiring emergency intervention
	Thrombocyte disorders and ITP (T-2)	1. Describe the normal physiology of platelets and explain their role in primary hemostasis. 2. Classify platelet disorders into quantitative and qualitative abnormalities and distinguish their clinical features. 3. Explain the major mechanisms of thrombocytopenia, including decreased production, increased destruction, splenic sequestration, and pseudothrombocytopenia. 4. Apply a systematic approach to the evaluation of a patient with thrombocytopenia using clinical findings, complete blood count, and peripheral blood smear.

		5. Recognize situations requiring urgent evaluation and management and describe the general principles of treatment, including appropriate indications for platelet transfusion. 6. Define immune thrombocytopenia (ITP) and describe its epidemiology, classification, and underlying pathophysiology. 7. Recognize the typical clinical presentation and distinguish ITP from other causes of thrombocytopenia using history and physical examination findings. 8. Interpret the characteristic laboratory findings and apply a systematic diagnostic approach to patients with suspected ITP. 9. Identify the indications for treatment and explain the principles of first-line and second-line therapies for ITP
	Bleeding diathesis (T-2)	1. Define bleeding diathesis and describe the basic mechanisms of normal hemostasis. 2. Differentiate the clinical features of primary and secondary hemostatic disorders based on bleeding patterns. 3. Identify the common causes of bleeding diathesis in pediatric patients. 4. Interpret initial laboratory tests (CBC, platelet count, PT, and aPTT) in the evaluation of a child with abnormal bleeding. 5. Apply a systematic clinical approach to the initial assessment and differential diagnosis of pediatric bleeding disorders.
PEDIATRICS	Coagulation cascades (T-1)	1. Describe the mechanisms of secondary hemostasis and explain the roles of the intrinsic, extrinsic, and common coagulation pathways. 2. Identify the major coagulation factors and explain their functions in thrombin generation and fibrin clot formation. 3. Interpret the clinical significance of PT, aPTT, and INR in the evaluation of coagulation disorders. 4. Differentiate common coagulation factor deficiencies based on their clinical presentation and laboratory findings. 5. Explain the regulation of coagulation, including the roles of natural anticoagulants and fibrinolysis in maintaining hemostatic balance
	Physical examination of Head and Neck (P-2)	1. Identify anatomic landmarks of the head, neck, eye, ear, nose and throat 2. Describe the physical examination techniques for routine evaluation of the head, and neck 3. Describe normal findings of the head, neck, eye, ear and nose and throat exam.

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL ETHICS	Ethical issues related to information sharing: informed consent, truth-telling, medical confidentiality, secrecy, and disclosure (T-1)	1. Students should learn about ethical issues related to the sharing of information

	Ethical doctrines: do-not do, double effect, ordinary treatment, extraordinary treatment (T-1)	1. Students should be able to identify do-not do, double effect, normal and extraordinary treatment doctrines.
	Artificial Intelligence Ethics (T-1)	1. Students identifies clinical ethical issues and physician responsibilities that are changing with artificial intelligence.

At the end of this lesson, the student will be able to:		
SKILLS		
DEP	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL SKILLS	Informed consent process (T-2)	1. Describe appropriate settings for informed consent 2. Discuss the guidance and regulations surrounding informed consent and human subject protection 3. Discuss how to enhance the informed consent process 4. Describe best practices for creating and maintaining high quality documentation
	Preparing to initiate an intravenous infusion (P-1)	1. List the CSL Rules 2. Set up appropriate equipment for iv infusion 3. Get skills in preparing an infusion bag 4. Define how to calculate the infusion rate
	Blood Transfusion (T-2)	1. List the equipment needed for a blood transfusion 2. List the critical checks clinical staff have to take before, during and after administering a blood transfusion 3. Describe the potential adverse side effects and the things all healthcare staff should be aware of when caring for someone who has had a blood transfusion.
	Surgical Hand Washing (T-1) (P-1)	1. Define the purpose of surgical hand washing 2. List the equipment 3. Describe and perform a surgical hand scrub

At the end of this lesson, the student will be able to:		
PANEL		
DEP	**TOPIC**	**LEARNING OUTCOMES**
PANEL	Osteoporosis (T-2)	1. Explain the basic physiology of bone remodeling and the pathophysiology of osteoporosis. 2. Identify major risk factors for osteoporosis and fragility fractures. 3. Recognize the clinical consequences and common fracture patterns associated with osteoporosis. 4. Describe the basic principles of diagnosis and fracture risk assessment in osteoporosis. 5. Explain the role of exercise, nutrition, fall prevention, and rehabilitation in osteoporosis management. 6. Discuss osteoporosis from physiological, orthopedic, and rehabilitation perspectives as a multidisciplinary health problem.

MED 3102: INTRODUCTION TO CARDIOVASCULAR, RESPIRATORY SYSTEMS DISORDERS				
Course Date	26.10.2026-11.12.2026			
Exam Dates	Committee Exam: 10.12.2026			
Course Coordinator:	Zehra Kipritçi			
Academic Unit	**Academic Staff**	**Theoretical hours**	**Practical Hours**	**Total**
Anatomy	Uğur Baran Kasırga, Assist. Prof	20	-	20
Clinical Biochemistry	Özlem Unay Demirel, Assoc. Prof. Yeşim Neğiş, Assoc. Prof. Merve Karayel Başar, Assist. Prof	9	-	9
Clinical Microbiology	Gülden Çelik, Prof. Yasemin Koçer Tulgar, Assist. Prof	7	1	9
Clinical Pathology	Zehra Affan, Dr.	5	3	8
Clinical Pharmacology	Kevser Erol, Prof. Şahika Güner, Assist. Prof	3	0	3
Clinical Pharmacology (Case Presentations)	Kevser Erol, Prof. Şahika Güner, Assist. Prof	-	8	8
Pathophysiology	Numan Ermutlu, Prof.	11	-	11
Pulmonary Medicine	Nazlı Zeynep Uslu, Assist. Prof.	4	-	4
Cardiology	Gürkan Karaca, Assist. Prof	6	-	6
Pediatrics	Fatih Fakirullahoğlu, Assist. Prof Yiğit Mustafa Ertunç, Assist. Prof.	9	3	12
Clinical Ethics and Philosophy of Medicines	Aran Arslan, Assist. Prof. Yasemin Koçer Tulgar, Assist. Prof	3	-	3
Medical Education	İnanç Sümbüloğlu, Assist. Prof	2	-	2
Clinical Skills	Zehra Kipritçi, Assist. Prof A.Güliz Dirimen Arıkan, Assist. Prof	-	2	2
PBL sessions	Yasemin Çanıllıoğlu, Assoc Prof.	-	10	10
Panels	Family Medicine Department of Cardiology Department of Nephrology Department of Pharmacology	2	-	2
CLINICAL OBSERVATIONS			2	2
TOTAL		81	29	110

STUDY TIME		53

COURSE AIM:

The aim of this course is:

- To provide the integration of basic sciences with the most common cardiovascular and respiratory system disorders mentioned in the National Core Educational Program, including hypertension, coronary artery disease, heart failure, arrhythmias, myocardial infarction, pulmonary embolism, pneumonia, tuberculosis, asthma, COPD, and common congenital heart diseases.
- To provide basic clinical skills in history taking and appropriate collection of blood and body fluid cultures for accurate clinical assessment and diagnosis.
- To introduce students to hospital conditions.

LEARNING OUTCOMES:

At the end of this lesson, the student will be able to:		
	KNOWLEDGE	
DEP.	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL ANATOMY	Mediastinum by chest X-ray/CT: levels, compartments and clinical map (T-1)	1. Describe the compartments of the mediastinum and their major contents. 2. Identify mediastinal structures on chest X-ray and CT. 3. Apply anatomical knowledge to localize a mediastinal mass to its correct compartment on imaging. 4. Differentiate anterior, middle, and posterior mediastinal pathology based on anatomical content. 5. Correlate mediastinal compartment involvement with corresponding clinical presentations
	Pericardium, transverse sinus, tamponade and surgical access (T-1)	1. Describe the anatomy of the pericardium and pericardial sinuses. 2. Explain the anatomical basis of cardiac tamponade. 3. Identify the anatomical landmarks used for pericardiocentesis. 4. Apply anatomical reasoning to recognize the clinical signs of cardiac tamponade. 5. Identify surgical access routes to the pericardial space.
	Congenital heart anatomy: ASD, VSD and great-vessel variants (T-1)	1. Describe the anatomical basis of common congenital heart defects. 2. Correlate structural cardiac defects with their hemodynamic consequences. 3. Identify congenital heart defects on imaging based on their anatomical features. 4. Apply anatomical knowledge to predict the clinical course of untreated shunt lesions. 5. Identify great-vessel variants relevant to congenital heart disease
	Thoracic aorta and arch anomalies: aneurysm, coarctation and surgical danger zones (T-1)	1. Describe the anatomy of the thoracic aorta and its major branches. 2. Explain the anatomical basis of aortic aneurysm and coarctation. 3. Identify surgical danger zones relevant to thoracic aortic anatomy.

		4. Apply anatomical reasoning to interpret imaging of aortic aneurysm and coarctation. 5. Identify anatomical risk zones for iatrogenic injury during thoracic aortic surgery
	Peripheral vascular anatomy: pulse points, hemorrhage control, collateral circulation (T-1)	1. Identify major peripheral pulse points and their anatomical basis. 2. Explain the principles of hemorrhage control based on vascular anatomy. 3. Apply anatomical knowledge to select the correct pressure point for hemorrhage control in a given limb injury. 4. Differentiate arterial from venous injury based on anatomical bleeding pattern. 5. Describe collateral circulation pathways relevant to vascular occlusion
	Central venous access and subclavian/neck vascular safety (T-1)	1. Describe the anatomical landmarks used for central venous access. 2. Identify structures at risk during subclavian and neck vascular procedures. 3. Apply anatomical landmarks to choose the safest approach for central venous cannulation. 4. Recognize anatomical signs suggesting inadvertent arterial or pleural puncture. 5. Explain techniques to minimize complications during central venous cannulation
	Lower limb and abdominal aorta vascular disease: popliteal aneurysm, AAA and ischemic corridors (T-1)	1. Describe the anatomy of the abdominal aorta and popliteal artery. 2. Explain the anatomical basis of aneurysm formation at these sites. 3. Identify anatomical landmarks for palpating the popliteal and femoral arteries. 4. Apply anatomical reasoning to predict the level of arterial occlusion from the pattern of limb ischemia. 5. Correlate vascular anatomy with patterns of limb ischemia
	Breast anatomy for surgery: quadrants, lymph drainage, supernumerary tissue (T-1)	1. Describe the anatomical quadrants and lymphatic drainage of the breast. 2. Explain the surgical relevance of breast anatomy. 3. Identify anatomical landmarks used to describe tumor location for surgical planning. 4. Apply lymphatic drainage anatomy to predict patterns of regional nodal spread. 5. Identify anatomical variations such as supernumerary breast tissue
ANATOMY	Thoracic wall pain and procedures: dermatomes, herpes zoster, intercostal nerve block (T-1)	1. Describe thoracic dermatomal anatomy. 2. Correlate dermatomal distribution with the presentation of herpes zoster. 3. Identify the anatomical landmarks used to perform a safe intercostal nerve block. 4. Apply dermatomal anatomy to anticipate the distribution of herpes zoster pain. 5. Identify anatomical landmarks for intercostal nerve block
	Thoracic outlet syndrome and cervical/supernumerary rib anatomy (T-1)	1. Describe the anatomy of the thoracic outlet. 2. Explain the anatomical basis of thoracic outlet syndrome. 3. Identify the anatomical structures compressed at each site within the thoracic outlet.

		4. Apply anatomical reasoning to interpret provocative clinical tests for thoracic outlet syndrome. 5. Identify congenital anatomical variants that contribute to compression
	Thoracic surgical access: thoracotomy, VATS logic, intercostal spaces, rib excision (T-1)	1. Describe the anatomical layers of the thoracic wall relevant to surgical access. 2. Identify intercostal space anatomy used in thoracotomy and VATS. 3. Identify the anatomical structures at risk during intercostal instrumentation. 4. Apply anatomical knowledge to select an appropriate intercostal space for a given procedure. 5. Explain the anatomical rationale for rib excision approaches
	Sternum and anterior thoracic access: sternal biopsy, sternotomy, internal thoracic artery (T-1)	1. Describe the anatomy of the sternum and anterior thoracic wall. 2. Identify the course of the internal thoracic artery and its surgical relevance. 3. Identify anatomical landmarks used to guide safe sternotomy. 4. Apply anatomical knowledge to avoid injury to the internal thoracic artery during anterior chest procedures. 5. Explain the anatomical basis of sternal biopsy and sternotomy procedures
	Pleura and pleural space I: pneumothorax, hemothorax, hydrothorax, chylothorax (T-1)	1. Describe the anatomy of the pleura and pleural space. 2. Differentiate types of pleural space pathology on an anatomical and physiological basis. 3. Identify anatomical and imaging features that differentiate pneumothorax, hemothorax, hydrothorax, and chylothorax. 4. Apply anatomical reasoning to predict the clinical consequences of each type of pleural collection. 5. Explain the anatomical mechanisms leading to pneumothorax and related conditions.
ANATOMY	Pleura and pleural space II: thoracentesis, chest tube and complication avoidance (T-1)	1. Identify anatomical landmarks for safe thoracentesis and chest tube insertion. 2. Describe structures at risk during pleural space procedures. 3. Apply anatomical landmarks to select a safe site for thoracentesis and chest tube placement. 4. Recognize anatomical signs of a complication such as neurovascular injury during pleural procedures. 5. Explain strategies to avoid procedural complications based on anatomy
	Diaphragm and phrenic nerve: paralysis, referred pain and imaging (T-1)	1. Describe the anatomy of the diaphragm and the course of the phrenic nerve. 2. Explain the anatomical basis of diaphragmatic paralysis. 3. Identify the anatomical course of the phrenic nerve on imaging and its clinical implications. 4. Apply anatomical knowledge to interpret referred shoulder-tip pain of diaphragmatic origin. 5. Correlate phrenic nerve irritation with characteristic referred pain patterns
	Lung collapse, bronchopulmonary segments and resection anatomy (T-1)	1. Describe the bronchopulmonary segmental anatomy of the lungs. 2. Explain the anatomical basis of lung collapse. 3. Identify bronchopulmonary segments on cross-sectional imaging.

		4. Apply segmental anatomy to determine the extent of resection required for a localized lesion. 5. Identify segmental anatomy relevant to lung resection procedures
	Chest examination anatomy: auscultation, percussion and surface projection (T-1)	1. Describe the surface projection of the lungs, heart, and pleura. 2. Correlate anatomical landmarks with auscultation and percussion findings. 3. Apply surface anatomy to correctly position the stethoscope for auscultation of each lung lobe and valve area. 4. Differentiate normal from abnormal percussion and auscultation findings based on underlying anatomy. 5. Explain how surface anatomy guides physical examination of the chest.
	Upper airway anatomy: laryngoscopy, tracheostomy, foreign body and emergency airway (T-1)	1. Describe the anatomy of the upper airway relevant to laryngoscopy and tracheostomy. 2. Identify anatomical landmarks for emergency airway access. 3. Identify anatomical landmarks used to perform emergency cricothyroidotomy or tracheostomy. 4. Apply anatomical knowledge to anticipate difficult airway anatomy during laryngoscopy. 5. Explain anatomical considerations in foreign body airway obstruction.
ANATOMY	Neck spaces and spread of infection (T-1)	1. Describe the fascial spaces of the neck. 2. Explain how neck space anatomy determines the pattern of spread of infection. 3. Identify the anatomical boundaries of major neck spaces on imaging. 4. Apply anatomical reasoning to predict the route of spread of a deep neck infection. 5. Correlate anatomical compartments with the clinical presentation of deep neck infection
	Integrated chest pain anatomy: cardiac, pleural, esophageal and thoracic wall patterns (T-1)	1. Correlate chest pain patterns with their underlying anatomical origin. 2. Differentiate cardiac, pleural, esophageal, and musculoskeletal chest pain on an anatomical basis. 3. Apply a structured anatomical approach to the differential diagnosis of acute chest pain. 4. Differentiate life-threatening from benign chest pain etiologies based on anatomical origin. 5. Apply anatomical reasoning to the differential diagnosis of chest pain
At the end of this lesson, the student will be able to:		
	KNOWLEDGE	
DEP.	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL BIOCHEMISTRY	Biochemistry of Lipoprotein Metabolism (T-2)	1. Describe the classification, composition, and functions of plasma lipoproteins and apolipoproteins. 2. Explain the metabolism of chylomicrons, VLDL, LDL, and HDL, including the roles of key enzymes, receptors, and transporters. 3. Describe the principles of lipoprotein determination methods, including electrophoresis and ultracentrifugation. 4. Explain the regulation of cholesterol metabolism through the LDL receptor pathway. 5. Describe the structures and clinical significance of lipoprotein(a) [Lp(a)] and lipoprotein X (LpX).

	Biochemistry of Atherosclerosis (T-1)	1. Describe the pathogenesis of atherosclerosis, including the response-to-injury hypothesis. 2. Explain the roles of oxidized LDL, HDL, cytokines, and growth factors in the development of atherosclerosis. 3. Explain the traditional and emerging risk factors for atherosclerosis. 4. Describe the biochemical markers and laboratory tests used to assess lipid metabolism and cardiovascular risk.
	Disorders of Lipid Metabolism: Dyslipidemias and Hypolipoproteinemias (T-2)	1. Explain the primary and secondary causes of disorders of lipid and lipoprotein metabolism. 2. Classify dyslipidemias based on the Fredrickson (WHO) classification. 3. Explain the metabolic and genetic basis, biochemical features, and clinical manifestations of major dyslipidemias. 4. Explain the causes, biochemical features, and clinical manifestations of hypolipoproteinemias. 5. Describe the biochemical laboratory methods used in the diagnosis and evaluation of disorders of lipid and lipoprotein metabolism
	Disorders of Fatty Acid Oxidation (T-2)	1. Describe the structure, synthesis, and physiological functions of carnitine. 2. Explain the role of the carnitine shuttle, including carnitine palmitoyltransferase I and II, in fatty acid oxidation. 3. Explain the metabolic consequences and clinical features of carnitine and carnitine palmitoyltransferase deficiencies. 4. Describe the biochemical basis and laboratory evaluation of disorders of fatty acid oxidation
	Cardiac Injury Markers (T-2)	1. Classify the biochemical markers used in the evaluation of cardiac injury and function. 2. Explain the clinical applications of biomarkers of myocardial injury. 3. Explain the biomarkers used to assess hemodynamic stress, inflammation, and cardiovascular prognosis. 4. Interpret the use of cardiac biomarkers in the diagnosis and management of cardiovascular diseases.

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL PATHOLOGY	Hypertension / Coronary Artery Disease (T-1)	1. Describe the effects of hypertension on the heart and the arteries 2. Explain pathologic basis of coronary artery disease 3. Compare subendocardial and transmural myocardial infarction 4. Get through to the causes of secondary hypertension 5. Describe pathogenesis and causes of syncope 6. Explain the causes of cardiac and noncardiac dyspnea

	Heart Failure / Arrhythmias (T-1)	1. Describe pathogenesis of heart faire and major complications of 2. myocardial infarction 3. Explain pathogenesis of arrhythmia and conduction abnormalities 4. Describe pathogenesis of right heart failure 5. Describe pathogenesis of left heart failure
	Pulmonary Emboli / Pneumonia / Tuberculosis (T-1)	1. Get through the risk factors for lung diseases with associated specific diseases 2. Describe sources and causes of hemoptysis with related diseases 3. Explain pathogenesis and morphological findings of tuberculosis 4. Get through the differential diagnosis of granulomatous inflammation 5. Get through to the microscopic location of the inflammation in classifying pneumonias 6. Describe the complications of pneumonia 7. Get through to risk factors predisposing to pulmonary embolism 8. Explain the complex changes in the pulmonary 9. Vasculature and other parts of the lungs due to pulmonary emboli
	Bronchiolitis / Asthma / COPD (T-1)	1. Describe the pathogenesis of allergic and idiosyncratic forms of asthma 2. Explain pathologic changes in chronic obstructive pulmonary disease
	ARDS / Cystic Fibrosis / SIDS (T-1)	1. Explain the pathogenesis and major risk factors of neonatal respiratory distress syndrome (RDS), cystic fibrosis, and sudden infant death syndrome (SIDS). 2. Describe the characteristic gross and microscopic pathological features of neonatal RDS, cystic fibrosis, and SIDS. 3. Correlate the underlying pathological changes with the major clinical manifestations of neonatal RDS, cystic fibrosis, and SIDS. 4. Identify the major complications, prognosis, and preventive strategies associated with neonatal RDS, cystic fibrosis, and SIDS.

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
PHARMACOLOGY	Clinical pharmacology of antihypertensive drugs (T-1)	1. Describe the main characteristics of primary hypertension and their risks without treatment. 2. List the first line groups of anti hypertensive drugs, and give examples of drugs in each group. (give the one available drug that acts by their mechanisms?) 3. Define the advantages and disadvantages of these groups 4. Describe the differences in the types of angiotensin antagonists. 5. Comprahend the activity mechanisms and indications of beta adrenergic blockers 6. Understand the stepped care of hypertension 7. Define the importance of age and etnicity for choosing the optimal drug 8. Describe the management of the hypertensive emergency

	Clinical pharmacology of antilipemic agents (T-1)	1. Evaluate and classify the risks of cardiovascular diseases 2. Compare the tresholds of treatment for the risks of cardiovascular diseases 3. Describe the dietary management of hyperlipidemia. 4. Define the targets of lipid 5. Comprahend the methods checking dislipidemia 6. On the basis of a set of baseline serum lipid values, propose a rational drug treatment regimen and drug combinations 7. Overview the nonsyndromic and syndromic obesity treatments
	Clinical Pharmacology of the agents for respiratory system infections (T-1)	1. Comprehend the classification of respiratory tract infections and the classification of antimicrobial agents used in their treatment 2. Understand the mechanism of action, spectrum of activity, and adverse effects of beta-lactam antibiotics, macrolides, fluoroquinolones, and tetracyclines 3. Understand the mechanism of action of antiviral and antitubercular agents used in respiratory infections 4. Comprehend the activity, adverse reactions and indications of antitussive and expectorant agents 5. Identify the drug interactions, contraindications, and drug-drug interactions

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL MICROBIOLOGY	Upper Respiratory Tract Infections (T-1)	1. Recall the anatomical structure of Respiratory Tract. 2. List the main group of microorganisms responsible from upper respiratory tract infections. 3. Explain the pathogenesis of Upper Respiratory Tract Infections. 4. List the main methods in the laboratory diagnosis of Upper Respiratory Tract Infections. 5. List the main advantages and disadvantages of the methods and interpretation of the results in Upper Respiratory Tract Infections. 6. List the preventive measures and the routine recommended antimicrobial treatment of Upper Respiratory Tract Infections.
	Lower Respiratory Tract Infections (T-1)	1. List the main group of microorganisms responsible from lower respiratory tract infections. 2. Explain the pathogenesis of lower respiratory tract infections. 3. List the main methods in the laboratory diagnosis of lower respiratory tract infections. 4. List the main advantages and disadvantages of the methods and interpretation of the results in lower respiratory tract infections. 5. List the preventive measures and the routine recommended antimicrobial treatment in lower respiratory tract infections.
	Tuberculosis (T-1)	1. Define tuberculosis infections type. 2. Explain the pathogenesis of tuberculosis. 3. Describe the screening procedures of tuberculosis. 4. List the main methods in the laboratory diagnosis in tuberculosis. 5. List the preventive measures and the routine recommended antimicrobial treatment in tuberculosis.

	Emerging and reemerging infections (T-1)	1. Define emerging and reemerging infections. 2. Classify emerging and reemerging infections. 3. List their important properties of emerging and reemerging infections. 4. List their clinical manifestations of emerging and reemerging infections. 5. Describe the lab diagnosis of emerging and reemerging infections. 6. Describe treatment and prevention measures from emerging and reemerging infections.
	Recent pandemics and outbreaks: COVID-19 (T-1)	1. Define COVID-19. 2. List COVID-19 clinical manifestations. 3. Describe the lab diagnosis of COVID-19. 4. Describe treatment and prevention measures from COVID-19
	Cardiovascular System Infections (T-1)	1. List the main group of microorganisms responsible from cardiovascular system infections. 2. Explain the pathogenesis of cardiovascular system infections. 3. List the main methods in the laboratory diagnosis of cardiovascular system infections. 4. List the main advantages and disadvantages of the methods and interpretation of the results in cardiovascular system infections. 5. List the preventive measures and the routine recommended antimicrobial treatment in cardiovascular system infections
	Sepsis (T-1)	1. List the main group of microorganisms responsible from intra-abdominal infections and sepsis. 2. Explain the pathogenesis of intra-abdominal infections and sepsis. 3. List the main methods in the laboratory diagnosis in intra-abdominal infections and sepsis. 4. List the main advantages and disadvantages of the methods and interpretation of the results in intra-abdominal infections and sepsis. 5. List the preventive measures and the routine recommended antimicrobial treatment in intra-abdominal infections and sepsis.
	Clinical microbiology laboratory diagnosis of cardiovascular and respiratory systems: From sample to result (P-1)	1. Select the appropriate cardiovascular or respiratory specimen according to the clinical scenario. 2. Evaluate specimen quality and describe correct collection and transport conditions. 3. Interpret culture, microscopy, and preliminary laboratory findings in relation to likely pathogens. 4. Determine when blood cultures, repeat cultures, and antimicrobial susceptibility testing are indicated. 5. Correlate laboratory results with the clinical picture and formulate a concise report.

At the end of this lesson, the student will be able to:		
	KNOWLEDGE	
DEP.	**TOPIC**	**LEARNING OUTCOMES**
PATOPHYSIOLOGY	Heart Failure (T-1)	1. Define heart failure and explain its classification. 2. Describe the etiology and risk factors that contribute to the development of heart failure. 3. Explain the pathophysiology of heart failure. 4. Differentiate between left ventricular and right ventricular heart failure. 5. Recognize the common signs and symptoms. 6. Interpret the compensatory mechanisms activated in heart failure. 7. Discuss the structural and cellular changes associated with chronic heart failure. 8. Describe the diagnostic evaluation of heart failure, including history taking, physical examination, imaging studies, electrocardiography, echocardiography, and laboratory biomarkers. 9. Identifies the clinical significance of physical examination findings, such as rales, displaced apical impulse, jugular venous pressure, peripheral edema, hepatomegaly, ascites, and abnormal heart sounds in assessing heart failure severity. 10. Explain the role of comorbidities and complications such as pulmonary hypertension, renal dysfunction, arrhythmias, sleep-disordered breathing, cognitive impairment, and cardiac cachexia in the progression and prognosis of heart failure.
	Valvular Heart Disease (Aortic Stenosis, Aortic Regurgitation, Mitral Stenosis, Mitral Regurgitation) (T-2)	1. Define valvular heart disease and distinguish between valvular stenosis and valvular regurgitation. 2. Explain the mechanisms of heart murmurs and differentiate systolic and diastolic murmurs. 3. Describe the etiology, pathophysiology, and clinical manifestations of aortic stenosis. 4. Discuss the causes, pathophysiology, and clinical presentation of aortic regurgitation. 5. Describe the etiology, pathophysiology, and clinical features of mitral stenosis. 6. Explain the causes, pathophysiology, and clinical manifestations of mitral regurgitation. 7. Interpret the characteristic physical examination. 8. Relate the hemodynamic consequences of pressure overload and volume overload to ventricular remodeling, hypertrophy, and cardiac compensation in valvular heart disease. 9. Compare and contrast the clinical presentation, pathophysiology, and examination findings of aortic stenosis, aortic regurgitation, mitral stenosis, and mitral regurgitation. 10. Recognize the progression and potential complications of untreated valvular heart disease.
	Hypertension (T-1)	1. Define hypertension and distinguish between primary (essential) hypertension and secondary hypertension, including their major causes and classifications. 2. Describe the pathophysiology of hypertension. 3. Explain the diagnostic criteria and classification of hypertension.

		4. Identify the clinical presentation and physical examination findings. 5. Discuss the major complications of uncontrolled hypertension. 6. Describe the mechanisms by which renal disorders, salt sensitivity, and hormonal abnormalities contribute to the development of hypertension. 7. Explain the contribution of neurologic, endothelial, and metabolic factors to the pathogenesis of hypertension. 8. Differentiate the common causes of secondary hypertension, including renal, endocrine, vascular, neurologic, and medication-related disorders. 9. Interpret the pathophysiologic relationship between hypertension and target-organ damage, including left ventricular hypertrophy, atherosclerosis, stroke, nephrosclerosis, and retinopathy. 10. Recognize the importance of early detection, risk factor modification, and management of hypertension in preventing disease progression and reducing long-term morbidity and mortality.
	Shock (T-1)	1. Defines shock and explains its underlying pathophysiologic principles. 2. Classifies the major types of shock—hypovolemic, distributive, cardiogenic, and obstructive—and describes their causes and mechanisms. 3. Explains the compensatory mechanisms activated during shock. 4. Describes the cellular and microcirculatory changes that occur during shock. 5. Recognizes the clinical manifestations of shock, including characteristic changes in vital signs, skin perfusion, mental status, urine output, and laboratory findings. 6. Differentiates the stages of shock—compensated, progressive (decompensated), and refractory (irreversible)—and explains the pathophysiologic changes associated with each stage. 7. Discusses the pathophysiology and clinical consequences of septic shock. 8. Describes the effects of shock on major organ systems and explains the development of multiple organ dysfunction syndrome (MODS). 9. Interprets clinical findings and laboratory data to distinguish among different types of shock.

	Chronic Obstructive Lung Disease (T-1)	1. Describes the epidemiology, risk factors, and common triggers associated with asthma, including genetic and environmental influences. 2. Explains the pathogenesis of asthma. 3. Discusses the pathophysiological changes in asthma. 4. Recognizes the clinical manifestations and physiological consequences of asthma. 5. Interprets pulmonary function test findings in asthma. 6. Defines COPD and distinguishes it from asthma based on its pathophysiology and clinical characteristics. 7. Describes the major risk factors and underlying mechanisms contributing to COPD. 8. Explains the pathophysiological changes in COPD. 9. Identifies the common clinical manifestations and complications of COPD. 10. Interprets pulmonary function test findings in COPD and relates spirometric abnormalities to disease severity and diagnosis.
	Restrictive Lung Disease (T-1)	1. Defines restrictive lung disease and explains the characteristics of diffuse parenchymal (interstitial) lung diseases. 2. Explains the pathophysiology of IPF. 3. Describes the structural and physiologic changes that produce the restrictive ventilatory defect, including decreased lung compliance, reduced lung volumes, impaired diffusion, and altered pulmonary vascular function.
	Pericardial Disease (T-1)	1. Describes the clinical manifestations of pericarditis 2. Lists the etiological causes of pericardial disease 3. Explains pathophysiologic mechanisms of pericardial constriction 4. Describes the clinical manifestations of pericardial effusion and tamponade
	Pulmonary Edema and Pulmonary Embolism (T-1)	1. Defines pulmonary edema and pulmonary. 2. Describes the normal mechanisms of pulmonary fluid balance. 3. Differentiates cardiogenic (hydrostatic) and noncardiogenic pulmonary edema. 4. Explains the pathophysiology of acute respiratory distress syndrome (ARDS). 5. Describes the clinical manifestations of pulmonary edema and ARDS. 6. Describes the etiology, risk factors, and pathogenesis of pulmonary embolism. 7. Explains the hemodynamic, respiratory, and gas exchange abnormalities caused by pulmonary embolism. 8. Identifies the clinical presentation and diagnostic evaluation of pulmonary embolism 9. Discusses the major complications and clinical consequences of pulmonary edema and pulmonary embolism.

	High Altitude Physiology (T-1)	1. Explains how increasing altitude affects atmospheric pressure, alveolar PO_2, and arterial oxygen saturation 2. Describes the role of hypoxia-inducible factors (HIFs) in cellular adaptation to low oxygen. 3. Compares natural acclimatization in high-altitude natives with acclimatization in lowlanders 4. Explains the pathophysiology of high-altitude pulmonary edema (HAPE). 5. Differentiates between acute and chronic mountain sickness. 6. Explains the effects of linear acceleration during spacecraft launch and landing 7. Describes physiological adaptations required during space missions involving high acceleration 8. Explains the effects of prolonged weightlessness on the cardiovascular, muscular, and skeletal systems.
	Physiology of Hyperbaric Conditions (T-1)	1. Describes effects of depth on volume of gases 2. Describes O2 toxicity at high pressures and explains the mechanisms of acute and chronic O2 poisoning. 3. Describes decompression sickness 4. Describes mechanisms of decompression of the diver 5. Explains mechanisms of hyperbaric O2 therapy

At the end of this lesson, the student will be able to:		
	KNOWLEDGE	
DEP.	**TOPIC**	**LEARNING OUTCOMES**
PULMONARY MEDICINE	History taking of the Respiratory System (T-1)	1. Describe the structure and components of the medical history of a patient with a respiratory system disorder
	Physical examination of the Respiratory System (T-1)	1. Describe the structure and components of the clinical examination of a patient with a respiratory system disorder (inspection, palpation, percussion, auscultation)
	Approach to a patient with dyspnea, cyanosis and cough (T-1)	1. Evaluate a patient with dyspnea, cyanosis and cough 2. Define the pathophysiology, diagnostic techniques, and the treatment approaches for these symptoms
	Approach to a patient with hemoptysis, wheezing (T-1)	1. Evaluate a patient with hemoptysis, wheezing 2. Define the pathophysiology, diagnostic techniques, and the treatment approaches for these symptoms

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
CARDIOLOGY	History taking of Cardiovascular System (T-2)	1. Name all the routine questions that are involved in taking a history of the patient with cardiovascular disease 2. Explain why they are being asked. 3. Discuss targeted history taking for cardinal symptoms including chest pain, shortness of breath, palpitations, temporary loss of consciousness, edema, fatigue, exercise intolerance 4. Differentiate between history of chief complaint and past medical history
	Physical examination of Cardiovascular System (T-2)	1. Understand the basics of the cardiac, vascular and respiratory components of the physical exam 2. Explain each part of the physical examination of the cardiovascular system
	Approach to a patient with acute chest pain (T-1)	1. Identify the symptoms and signs of chest pain characteristics of angina pectoris 2. Categorize chest pain as angina pectoris, atypical angina, or non-cardiac chest pain 3. Organize and prioritize a differential diagnosis based on specific physical historical and exam findings 4. Order appropriate laboratory and diagnostic studies for the most likely etiologies of acute chest pain 5. Interpretation of ECG and Troponins in acute coronary syndromes 6. Recognize other life threatening causes of acute chest pain
	Approach to a patient with palpitation, presyncope/syncope (T-1)	1. Evaluate a patient with palpitation, presyncope/syncope 2. Define the pathophysiology, diagnostic techniques, and the treatment approaches for these symptoms

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
PEDIATRICS	Disorders with rash (T-2)	1. Define the skin lesions, learn the terminology 2. Recognize the most common types of rashes 3. Recognize the most common childhood diseases with rash 4. Define the etiology, signs, symptoms and the treatment of the diseases
	Wheezy Infant (T12)	1. Define wheezing 2. Explain the physiology of wheezing 3. Describe the etiology of wheezing 4. Explain the evaluation of wheezing
	Cyanotic congenital heart diseases (T-2)	1. Define cyanosis in children, etiologies and pathogenesis 2. Make differential diagnosis based on cyanosis in children. 3. Define the anatomy and pathophysiology of cyanotic congenital heart diseases 4. Identify the physical examination findings, symptoms and signs of Fallot Tetralogy and transposition of great arteries. 5. Identify the diagnostic techniques, such as ECG, tele cardiogram, echocardiography and others in TOF.

		6. Define the treatment approaches for Tetralogy of Fallot and transposition of great arteries.
	Acyanotic, left to right shunt congenital heart diseases (T-2)	1. Define the anatomy and pathophysiology of VSD, ASD and PDA. 2. Identify the physical examination findings, symptoms and signs of all these left to right shunt lesions 3. Identify the diagnostic techniques, such as ECG, tele cardiogram, echocardiography and others. 4. Define the basic treatment approaches for left to right shunt congenital cardiac abnormalities.
	History taking and physical examination of cardiovascular system in childhood (T-2)	1. Name all the routine questions that are involved in taking history of pediatric patients with cardiovascular disease 2. Explain why they are being asked 3. Discuss targeted history taking for cardinal symptoms including murmur, chest pain, shortness of breath, palpitations, syncope, edema, fatigue, exercise intolerance, and cyanosis 4. Differentiate between history of chief complaint and past medical history 5. Understand the basics of the cardiac vascular components of the physical exam 6. Explain each part of the physical examination of the CVS
	History taking and physical examination of respiratory system (P-1)	1. Revise knowledge of anatomy and physiology 2. Obtain health history about respiratory system 3. Demonstrate physical examination 4. Differentiate between normal and abnormal findings
	Physical examination of newborn (P-2)	1. Quickly identify any danger signs and organize the appropriate referral after pre-referral treatment 2. Assess the normal adaptations of a newborn after birth 3. Identify conditions requiring special care or follow-up observation. 4. Identify any birth defect or birth trauma 5. Monitor growth 6. Counsel the mother

At the end of this lesson, the student will be able to:		
	KNOWLEDGE	
DEP.	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL ETHICS AND PHILOSOPHY OF MEDICINE	Ethical issues related to the beginning of life: reproductive technologies, the moral status of the fetus (T-1)	1. Students should raise awareness of ethical issues related to the beginning of life, such as assisted reproductive technologies, abortion, and maternal and fetal rights, and understand the different viewpoints put forward
	Ethical issues related to the beginning of life: abortion, fetal-maternal right (T-1)	1. Students should raise awareness of ethical issues related to the beginning of life, such as assisted reproductive technologies, abortion, and maternal and fetal rights, and understand the different viewpoints put forward.
	Ethical issues related to the end of life: refusal of treatment, termination of treatment, proxy consent	1. Students should be able to identify ethical issues arising at the end of life, such as refusal to treat, termination of treatment, non-resuscitation orders and evaluate these issues holistically from the perspective of patients, healthcare professionals, patient relatives, and, if necessary, the healthcare system.

At the end of this lesson, the student will be able to:		
	KNOWLEDGE	
DEP.	**TOPIC**	**LEARNING OUTCOMES**
MEDICAL EDUCATION	Stress, breath and disease (T-2)	1. Explain how the stress response (SAM and HPA axes) affects cardiovascular and respiratory function; describe how breathing patterns (e.g., hyperventilation) relate to physical symptoms; identify common stress-related cardiovascular and respiratory conditions.

At the end of this lesson, the student will be able to:		
KNOWLEDGE, SKILLS		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL PHARMACOLOGY (CASE BASED)	Cardiogenic shock (P-2)	1. Describe the most appropriate emergency therapy for cardiogenic shock 2. Describe the action caused by low dose of dopamine 3. Explain the main pharmacokinetic reason for the administration of dopamine by IV infusion 4. Calculate the time needed to reach the steady-state plasma concentration of dopamine given by IV infusion 5. Calculate the patient's increase in stroke volume after dopamine administration 6. Calculate the change in cardiac oxygen consumption knowing the patient's systolic blood pressure and the heart rate 7. Describe the molecular mechanism of action dobutamine 8. Identify the hemodynamic parameter that mediates the increase in urine output after dopamine infusion in a patient with cardiogenic shock
	Myocardial Infarction (P-2)	1. Explain the main action that mediates the therapeutic effect of nitroglycerin in myocardial infraction 2. Identify the endogenous compound that mediates the pharmacological action of nitrates 3. Explain the main action that mediates the analgesic effect of morphine 4. Explain the molecular mechanism of action of alteplase 5. Describe a serious adverse effect that can occur after the administration of alteplase 6. Identify the endogenous compound that function as a molecular target of enoxaparin 7. Describe an advantage of enoxaparin over the standard unfractionated heparin
	Essential Hypertension (P-2)	1. List the first line antihypertensive drugs 2. Describe the main activity mechanisms of first line antihypertensive drugs 3. Explain the pharmacokinetics of these drugs 4. Comprehand the adverse effect of antihypertensive agents 5. Understand the clinical pharmacology of antihypertensive drugs
	Asthma (P-2)	1. Identify the molecular action mediating the therapeutic effect of albuterol in asthmatic patients 2. Identify the enzyme whose inhibition mediates the anti-inflammatory effect of fluticasone

		3. Explain why adverse effect of inhaled glucocorticoids are extremely rare 4. Explain the mechanism of action of montelukast 5. Explain the mechanism of action of clotrimazole

At the end of this lesson, the student will be able to:		
SKILLS		
DEP	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL SKILLS	Blood and body fluids culture collection (P-1)	1. Identify the specimen type for collection 2. Describe the steps of blood and body fluids of collection 3. List of the equipment necessary for sampling 4. Explain the details of collection procedures for any kind of sample type 5. Define the antisepsis procedures before sampling 6. List of the post-sampling (post analytic) procedures and waste disposals Describe the transportation of sample to the laboratory

At the end of this lesson, the student will be able to:		
PANEL		
DEP	**TOPIC**	**LEARNING OUTCOMES**
PANEL	Hypertension (T-2)	1. Explain the physiological and pathophysiological mechanisms involved in the development and regulation of hypertension. 2. Recognize the clinical features, major risk factors, and complications of hypertension. 3. Describe a systematic approach to the diagnosis and initial evaluation of patients with hypertension, including the assessment of secondary causes. 4. Explain the principles of lifestyle modification and pharmacological treatment of hypertension. 5. Integrate family medicine, cardiology, nephrology, and pharmacology perspectives in the evaluation and management of patients with hypertension.

MED 3103: INTRODUCTION TO GASTROINTESTINAL SYSTEMS DISORDERS				
Course Date	14.12.2026- 12.02.2027			
Exam Dates	Committee Exam: 11.02.2027			
Course Coordinators	Zehra Kipritçi			
Academic Unit	**Academic Staff**	**Theoretical hours**	**Practical Hours**	**Total**
Clinical Anatomy	Uğur Baran Kasırga, Assist. Prof.	9	-	9
Clinical Biochemistry	Özlem Unay Demirel, Assoc. Prof. Yeşim Neğiş, Assoc. Prof. Merve Karayel Başar, Assist. Prof İrem Kırış, Assist. Prof	10	-	10
Pharmacology	Şahika Güner, Assist. Prof	2	-	2
Clinical Microbiology	Gülden Çelik, Prof. Yasemin Koçer Tulgar, Assist. Prof Sibel Ergüven, Prof. Seyda İğnak Tarlığ, Assist. Prof.	11	1	12
Clinical Pathology	Yeşim Saliha Gürbüz, Prof	4	3	7
Clinical Pharmacology (Case Presentations)	Kevser Erol, Prof Şahika Güner, Assist. Prof.	8	-	8
Patophysiology	Numan Ermutlu, Prof. Faize Elif Bahadır, Assist. Prof	9	-	9
Internal Medicine	Cengiz Bölükbaş, Prof. Hamdi Levent Doğanay, Prof. Alpaslan Tanoğlu, Prof. Sema Türker, Assoc. Prof.	15	4	19
General Surgery	Deniz Balcı, Prof. Emre Sivrikoz, Prof. Mehmet İlker Özel, Assist. Prof Soykan Barlas, Assoc. Prof Yalçın Burak Kara, Assist. Prof	40	-	40
Radiology	Abdülbaki Ağaçkıran, Assist. Prof	3	-	3
Pediatrics	Yiğit Mustafa Ertunç, Assist. Prof Mehmet Akif Göktaş, Assist. Prof Ferda Yapıcı, Assist. Prof	7	2	9
Clinical Ethics and Philosophy of Medicine	Kadircan Keskinbora, Prof. Yasemin Koçer Tulgar, Assist. Prof	3	-	3
Medical Education	İnanç Sümbüloğlu, Assist. Prof	2	-	2

PBL sessions	Yasemin Çanıllıoğlu, Assoc Prof.		10	10
Panel	Endocrinology department Pediatrics department Pathology department	2		2
TOTAL		125	20	143
STUDY TIME		40		

COURSE AIM:

The aim of this course is:

- to provide the integration of basic sciences with the most common gastrointestinal system disorders mentioned in the Nation Core Educational Program, including peptic ulcer disease, gastroenteritis, hepatitis, inflammatory bowel disease, liver cirrhosis, cholelithiasis, pancreatitis, gastrointestinal bleeding, acute abdomen, hernias, and gastrointestinal malignancies.

LEARNING OUTCOMES:

At the end of this lesson, the student will be able to:		
	KNOWLEDGE	
DEP.	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL ANATOMY	Abdominal wall examination and surgical access: incisions, palpation and fascial planes (T-1)	1. Describe the layers of the abdominal wall and their surgical relevance. 2. Identify common surgical incisions and the fascial planes they traverse. 3. Identify anatomical landmarks used to locate common surgical incision sites. 4. Apply anatomical knowledge to select an incision appropriate for a given abdominal procedure. 5. Correlate abdominal wall anatomy with physical examination technique
	Groin hernias: inguinal, femoral and clinical examination (T-1)	1. Describe the anatomy of the inguinal and femoral canals. 2. Differentiate inguinal from femoral hernias based on anatomical landmarks. 3. Identify anatomical landmarks that distinguish direct from indirect inguinal hernia. 4. Apply anatomical reasoning to assess strangulation risk based on hernia type. 5. Explain the clinical examination technique for groin hernias.
	Midgut rotation, malrotation, volvulus and Meckel diverticulum (T-1)	1. Describe normal midgut rotation and its embryological basis. 2. Explain the anatomical consequences of malrotation and volvulus. 3. Identify anatomical and imaging features of malrotation with volvulus. 4. Apply embryological anatomy to explain the rule of twos for Meckel diverticulum. 5. Identify the anatomical origin and clinical relevance of Meckel diverticulum

	Peritoneum, omentum, peritonitis and adhesions (T-1)	1. Describe the anatomy of the peritoneum and omentum. 2. Explain the anatomical basis of peritonitis and adhesion formation. 3. Identify anatomical routes by which infection spreads within the peritoneal cavity. 4. Apply anatomical reasoning to interpret signs of localized versus generalized peritonitis. 5. Correlate peritoneal anatomy with patterns of intra-abdominal disease spread
	Diaphragmatic and hiatal hernias; reflux and thoracoabdominal anatomy (T-1)	1. Describe the anatomy of the diaphragmatic hiatus and thoracoabdominal junction. 2. Explain the anatomical basis of hiatal hernia and reflux. 3. Identify anatomical features that differentiate sliding from paraesophageal hiatal hernia. 4. Apply anatomical knowledge to explain the mechanism of reflux in hiatal hernia. 5. Correlate anatomical variants with their clinical presentation
	Colonoscopy, rectal examination and anorectal/pelvic floor anatomy (T-1)	1. Describe the anatomy of the anorectal region and pelvic floor. 2. Identify anatomical landmarks relevant to rectal examination and colonoscopy. 3. Identify anatomical landmarks palpable on digital rectal examination. 4. Apply anatomical knowledge to interpret endoscopic findings relative to anorectal anatomy. 5. Explain the anatomical basis of pelvic floor dysfunction
	Liver segments, portal triads, biopsy and segmentectomy (T-1)	1. Describe the segmental anatomy of the liver and the structures of the portal triad. 2. Identify anatomical landmarks for safe liver biopsy. 3. Identify liver segments on cross-sectional imaging using Couinaud's classification. 4. Apply anatomical knowledge to plan a segment-sparing hepatic resection. 5. Explain the anatomical basis of segmentectomy
	Portal hypertension and portosystemic anastomoses (T-1)	1. Describe the sites of portosystemic anastomoses. 2. Explain the anatomical basis of portal hypertension and its clinical manifestations. 3. Identify the anatomical sites of portosystemic anastomoses on examination and imaging. 4. Apply anatomical reasoning to predict which anastomotic site is responsible for a given clinical sign. 5. Correlate anastomotic sites with clinical findings such as varices and caput medusae
	Acute abdomen anatomy: pain localization, peritoneal irritation and referred pain (T-1)	1. Correlate abdominal pain localization with the underlying visceral anatomy. 2. Explain the anatomical basis of peritoneal irritation signs. 3. Apply anatomical landmarks to localize pain to the likely underlying organ. 4. Differentiate visceral, somatic, and referred abdominal pain based on innervation pathways. 5. Apply anatomical reasoning to the differential diagnosis of acute abdominal pain

At the end of this lesson, the student will be able to:		
	KNOWLEDGE	
DEP.	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL BIOCHEMISTRY	Bile Acid Metabolism (T-1)	1. Explain the physiological functions of bile acids. 2. Describe the synthesis, conjugation, and classification of bile acids and bile salts. 3. Explain the enterohepatic circulation and regulation of bile acid metabolism. 4. Describe the role of bile acids in cholestatic liver disease and the principles of bile acid–based therapies.
	Overview of Lipid Metabolism (T-2)	1. Describe the biosynthesis and oxidation of fatty acids. 2. Explain the role of carnitine in mitochondrial fatty acid oxidation. 3. Describe the biosynthesis of triacylglycerols, phospholipids, and sphingolipids. 4. Explain the regulation of fatty acid synthesis and oxidation. 5. Compare the major pathways of lipid biosynthesis and their physiological significance.
	Metabolism of Xenobiotics (T-2)	1. Define the concepts of xenobiotics, biotransformation, and detoxification. 2. Explain the mechanisms and physiological significance of Phase I and Phase II biotransformation reactions. 3. Explain the structure, function, and regulation of the cytochrome P450 enzyme system in xenobiotic metabolism. 4. Explain the factors affecting xenobiotic metabolism, including enzyme induction, inhibition, genetic polymorphisms, age, sex, and hormonal status. 5. Describe the role of xenobiotic metabolism in drug interactions, toxicity, and disease
	Metabolism of Ethanol (T-2)	1. Describe the biochemical pathways of ethanol metabolism and the enzymes involved. 2. Explain the effects of genetic polymorphisms of alcohol dehydrogenase (ADH) and aldehyde dehydrogenase (ALDH) on ethanol metabolism. 3. Explain the metabolic effects and energy yield of ethanol oxidation. 4. Explain the mechanisms and metabolic consequences of acute and chronic alcohol consumption, including acetaldehyde toxicity and alcohol-induced liver disease. 5. Describe the biochemical laboratory markers used in the diagnosis of chronic alcohol abuse
	Biochemistry of Jaundice (T-2)	1. Explain the biochemical pathway of heme degradation and bilirubin metabolism. 2. Explain the mechanisms of bilirubin transport, hepatic uptake, conjugation, and biliary excretion. 3. Differentiate the biochemical mechanisms underlying unconjugated and conjugated hyperbilirubinemia, including inherited and acquired disorders. 4. Interpret the biochemical laboratory findings used in the diagnosis and differential diagnosis of jaundice.
	Liver Function Tests (T-1)	1. Describe the metabolic functions of the liver relevant to laboratory evaluation. 2. Describe the biochemical tests used to assess liver function and hepatobiliary disorders. 3. Explain the clinical applications of liver function tests in the diagnosis and evaluation of liver diseases.

		4. Interpret liver function test patterns in common hepatobiliary disorders, including hepatocellular injury, cholestatic disease, hepatitis, and autoimmune liver diseases

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL PATHOLOGY	Peptic Ulcer / Diarrhea/Hepatitis (T-1)	1. Describe the causes of inflammatory and 2. noninflammatory acute diarrhea 3. Explain the pathogenesis of chronic diarrhea 4. Describe the differential diagnosis of ulcerative colitis and Crohn's disease 5. Get through to factors play an important pathogenic role in peptic ulcer disease 6. Describe the most important complications of peptic ulcer disease 7. Get through to indications of liver biopsy 8. Describe the key histologic features of acute hepatitis 9. Classify the causes of chronic hepatitis and describe the histologic changes in cirrhosis
	Appendicitis/Cholecy stitis Colon cancer and related disorders (T-1)	1. Describe the morphologic features of appendicitis and cholecystitis 2. Explain the pathologic basis of colon cancer additional with early and late stages of genetic changes 3. Compare the histomorphologic features of low and high grade dysplasia in adenomas of colon 4. Get through the subtypes of colon cancer 5. Describe the TNM staging of colon cancer
	Gallbladder/Pancreat ic cancers (T-1)	1. Describe the morphologic features of prostate cancer by means of Gleason grading 2. Explain the differential diagnoses of Gallbladder/Hepatic and Pancreatic carcinomas 3. Describe the grading and staging features of gallbladder and pancreatic carcinomas
	Necrotizing enterocolitis/Fetal hydrops (T-1)	1. Describe the etiopathogenesis and major predisposing factors of necrotizing enterocolitis and fetal hydrops. 2. Differentiate immune hydrops from nonimmune hydrops based on their underlying mechanisms and causes. 3. Recognize the characteristic gross and microscopic pathological findings of necrotizing enterocolitis and fetal hydrops. 4. Correlate the pathological features of necrotizing enterocolitis and fetal hydrops with their clinical presentation, complications, and outcomes.

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
PHARMACOLOGY	Clinical pharmacology of anti-acid agents (T-1)	1. Comprehend the pathophysiology of acid-related disorders (peptic ulcer disease, GERD, Zollinger-Ellison syndrome) 2. Define the classification of anti-acid agents used in the treatment of acid-related disorders 3. Understand the mechanism of action, indications, and adverse effects of proton pump inhibitors (PPIs) and H2-receptor antagonists in acid-related disorders 4. Describe the mechanism of action, indications, and adverse effects of antacids and mucosal protective agents (sucralfate, bismuth compounds), and the role of antimicrobial regimens in the eradication of *Helicobacter pylori* 5. Identify the drug interactions, contraindications, and drug-drug interactions
	Vitamins (T-1)	1. Comprehend the classification, physiological functions, and daily requirements of fat-soluble (A, D, E, K) and water-soluble (B-complex, C) vitamins 2. Understand the causes, clinical manifestations, and management of vitamin deficiency and toxicity syndromes 3. Understand the mechanism of action and clinical indications of vitamin D and vitamin K (coagulation, interaction with warfarin) 4. Describe the role of B-complex vitamins (B1, B6, B12, folic acid) in the prevention and treatment of specific clinical conditions (anemia, neuropathy) 5. Identify the medications (e.g., proton pump inhibitors, metformin, isoniazid, anticonvulsants, diuretics) and populations (pregnancy, elderly, malabsorption syndromes, alcoholism) at risk for vitamin deficiency or excess

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL MICROBIOLOGY	Bacterial Gastrointestinal System Infections (T-1)	1. List the main group of microorganisms responsible from gastrointestinal system infections. 2. Explain the pathogenesis of gastrointestinal system infections. 3. List the main methods in the laboratory diagnosis of gastrointestinal system infections. 4. List the main advantages and disadvantages of the methods and interpretation of the results in gastrointestinal system infections. 5. List the preventive measures and the routine recommended antimicrobial treatment in gastrointestinal system infections.
	Viral Gastrointestinal System Infections (T-1)	1. List the main group of microorganisms responsible from gastrointestinal system infections. 2. Explain the pathogenesis of gastrointestinal system infections. 3. List the main methods in the laboratory diagnosis of gastrointestinal system infections. 4. List the main advantages and disadvantages of the methods and interpretation of the results in gastrointestinal system infections. 5. List the preventive measures and the routine recommended antimicrobial treatment in gastrointestinal system infections.

	Hepatitis (T-2)	1. List the main group of microorganisms responsible from Hepatitis especially Hepatitis viruses. 2. Explain the pathogenesis of viral Hepatitis. 3. List the main methods in the laboratory diagnosis of viral Hepatitis. 4. List the main advantages and disadvantages of the methods in viral Hepatitis. 5. List the preventive measures and the routine recommended antimicrobial treatment in viral Hepatitis.
	Intra-abdominal Infections (T-1)	1. List the main group of microorganisms responsible from intra-abdominal infections and sepsis. 2. Explain the pathogenesis of intra-abdominal infections and sepsis. 3. List the main methods in the laboratory diagnosis in intra-abdominal infections and sepsis. 4. List the main advantages and disadvantages of the methods and interpretation of the results in intra-abdominal infections and sepsis. 5. List the preventive measures and the routine recommended antimicrobial treatment in intra-abdominal infections and sepsis.
	Common Parasitosis (T-2)	1. List the main group of microorganisms responsible from common parasitosis. 2. Explain the pathogenesis of common parasitosis. 3. List the main methods in the laboratory diagnosis of common parasitosis. 4. List the main advantages and disadvantages of the methods and interpretation of the results in common parasitosis. 5. List the preventive measures and the routine recommended antimicrobial treatment in common parasitosis.
	Travel associated Infections/ Malaria (T-1)	1. Describe the Travel associated infections. 2. Define the types of Travel associated infections. 3. List of these Travel associated infections according to geographical distributions. 4. Explain main approach to these Travel associated infections and list of the basic laboratory tests. 5. Define malaria as a travel associated infection. 6. Explain the pathogenesis of Malaria. 7. Describe the laboratory diagnostic algorithm for Malaria. 8. List the preventive measurement and antibiotherapy in Travel associated.
	Dimorphic Fungi (T-1)	1. Define dimorphic fungi. 2. Classify dimorphic fungi. 3. List the important properties of dimorphic fungi. 4. List the clinical manifestations of dimorphic fungi. 5. Describe the lab diagnosis of dimorphic fungi. 6. Describe prevention measures from dimorphic fungi.
	Helicobacter pylori in Ulcer and Gastric Cancer (T-1)	1. Define the differences between gastropathy, acute and chronic gastritis. 2. Define Helicobacter pylori gastritis, its clinical findings, pathogenesis and histopathology. 3. Describe the clinical and histomorphologic findings of peptic ulcer disease. 4. Describe the pathogenesis of Zollinger-Ellison syndrome. 5. Define inflammatory and hyperplastic polyps, fundic gland polyps, gastric adenomas, gastric adenocarcinoma, gastrointestinal stromal tumor, carcinoid tumors and lymphoma

	Human Microbiome (T-1)	1. Define microbiota, microbiome. 2. Define microbiome role in the metabolic and immunologic functions of healthy individuals. 3. List factors regulating the composition of the microbiome. 4. Describe how disruption of the microbiome can result in disease states. 5. Define probiotics.
	Clinical microbiology laboratory diagnosis of gastrointestinal systems infections: From sample to result (P-1)	1. Identify the appropriate stool or other gastrointestinal specimen for the suspected infection. 2. Select the relevant laboratory approach, including culture, microscopy, parasitological, or molecular testing. 3. Interpret stool microscopy, culture, and parasitological findings in a clinical context. 4. Assess the need for repeat sampling when results are inconclusive or specimen quality is suboptimal. 5. Recognize findings with potential public health relevance and report them appropriately.

At the end of this lesson, the student will be able to:		
	KNOWLEDGE	
DEP.	**TOPIC**	**LEARNING OUTCOMES**
PATOPHYSIOLOGY	Disorders of Motility (T-1)	1. Recall the basic physiological mechanisms regulating gastrointestinal motility, including smooth muscle activity, enteric and autonomic neural control, and sphincter function. 2. Differentiate major GI motility disorders according to the affected region, underlying physiological defect, and characteristic clinical manifestations. 3. Explain the pathophysiology of esophageal motility disorders, particularly achalasia and Gastroesophageal Reflux Disease (GERD). 4. Explain the mechanisms underlying gastric motility disorders, including gastroparesis, hypertrophic pyloric stenosis, and dumping syndrome. 5. Describe how vagal dysfunction, and gastric surgery can alter gastric motility and relate these mechanisms to nausea, vomiting, early satiety, gastric distension, and dumping symptoms. 6. Explain the neural basis of Hirschsprung disease, including the absence of enteric ganglion cells, and relate this defect to impaired colonic motility and severe constipation. 7. Explain the pathophysiological basis of ileus and fecal incontinence. 8. Describe the basic diagnostic tests used to evaluate gastrointestinal motility disorders, including manometry, gastric emptying studies, imaging techniques.
	Acid Peptic Disease (T-1)	1. Identifies the key secretory functions of the stomach, 2. Explains the neurohormonal regulation of gastric acid secretion, 3. Describes the typical clinical presentation of acid-peptic disease. 4. Recognizes acute complications of acid-peptic disease, 5. Differentiates between the pathogenesis of acid hyposecretion and acid. 6. Explains the mechanisms and depth of damage among gastric ulcers, acute erosive gastritis, and duodenal ulcers.

	Cholelithiasis (T-1)	1. Identifies the spectrum of clinical presentations in cholelithiasis 2. Recognizes the classic demographic profile and risk factors associated with gallstone disease 3. Associates specific stone types with underlying predisposing conditions and define biliary "sludge" and explain its role as a precursor in gallstone development 4. Explains the biochemical and mechanical factors that alter bile composition 5. Describes the roles of non-motility factors in stone formation 6. Lists the complications of gallbladder stones.
	Diarrhea (T-1)	1. Defines diarrhea and distinguish between acute (<4 weeks) and chronic (>4 weeks) diarrhea. 2. Explains the physiological mechanisms of diarrhea 3. Identifies key extraintestinal signs and symptoms that provide diagnostic clues to specific underlying causes of diarrhea and malabsorption.
	Diverticular Disease (T-1)	1. Explains the etiology and pathogenesis of acquired diverticulosis 2. Identifies the structural landmark where diverticula typically occur. 3. Differentiates between the main clinical complications of diverticulosis.
	Irritable Bowel Syndrome (IBS) (T-1)	1. Explain the pathophysiological mechanisms of irritable bowel syndrome, including altered gastrointestinal motility, visceral hypersensitivity, and disturbances of gut–brain interaction. 2. Describe the roles of enteric nervous system dysfunction, psychosocial factors, diet, and intestinal microbiota in the development of IBS symptoms. 3. Relate altered intestinal motility and visceral sensitivity to the major clinical manifestations of IBS, including abdominal pain, bloating, constipation, and diarrhea. 4. Differentiate IBS from inflammatory and structural gastrointestinal diseases, particularly inflammatory bowel disease (IBD), based on basic pathophysiological and clinical features. 5. Apply gastrointestinal physiology and pathophysiology to basic clinical scenarios involving IBS
	Types and Manifestations of Liver Disease (T-1)	1. Differentiates between hepatocyte dysfunction and portal-to-systemic shunting, 2. Explains functional zonation in the hepatic acinus. 3. Describes the hemodynamic consequences of portal hypertension. 4. Describes clinical evaluation and liver function testing and their limitations 5. Differentiates among hemolytic, hepatocellular, and obstructive causes of jaundice. 6. Explains how altered energy metabolism of the liver. 7. Describes the pathogenesis of drug toxicity 8. Describes the pathogenesis of hepatic encephalopathy 9. Summarizes the hemodynamic and neurohumoral factors that drive renal sodium and water retention in progressive liver disease

	Cirrhosis (T-1)	1. Identifies the major chronic causes of cirrhosis. 2. Explains the cellular mechanisms of hepatic fibrogenesis. 3. Describes the characteristic histologic criteria of cirrhosis 4. Defines portal hypertension and explains its hemodynamic mechanisms. 5. Evaluates the pathophysiologic theories of ascites formation. 6. Differentiates Type 1 and Type 2 Hepatorenal Syndrome (HRS). 7. Identifies the physical exam signs driven by hepatic cell failure. 8. Explains the complex pathophysiology of Hepatic Encephalopathy, including the roles of gut-derived toxins (ammonia), blood-brain barrier dysfunction, GABAergic tone, and common clinical precipitants 9. Describes hematologic and infectious complications of cirrhosis 10. Outlines the major risk factors associated with the development of Hepatocellular Carcinoma (HCC) in cirrhotic patients.
	Acute Pancreatitis and Pancreatic Insufficiency (T-1)	1. Identifies the common and uncommon causes of acute pancreatitis. 2. Explains the biochemical mechanisms driving intracellular trypsinogen activation and pancreatic acinar cell autodigestion. 3. Recognizes classic symptoms and physical exam findings of acute pancreatitis (e.g., deep searing abdominal/back pain, paralytic ileus, sentinel loop, colon cutoff sign, fever, Cullen/Grey Turner signs). 4. Describes diagnostic criteria of Acute Pancreatitis 5. Differentiates acute pancreatitis from other acute abdominal emergencies and distinguishes it from chronic pancreatitis. 6. Identifies key markers of adverse prognosis of Acute Pancreatitis 7. Differentiates between primary and secondary causes of exocrine pancreatic insufficiency. 8. Identifies common primary etiologies in pediatric and adult populations 9. Explains why fat malabsorption presents significantly earlier than carbohydrate or protein malabsorption. 10. Describes the dual role of reduced pancreatic bicarbonate secretion in fat digestion on exocrine pancreatic output. 11. Describes the clinical presentation and diagnostic criteria of steatorrhea. 12. Identifies the mechanisms behind associated GI symptoms. 13. Explainsl the pathophysiological mechanisms of metabolic, bone, and renal complications. 14. Describes screening methods for exocrine pancreatic insufficiency.

At the end of this lesson, the student will be able to:		
DEP	**LEARNING OUTCOMES**	
INTERNAL MEDICINE	History taking in Gastroenterology (T-1)	1. Comprehend how to communicate with a patient 2. Elicit the patient's chief complaint as well as a complete list of the patient's concerns. 3. Obtain a patient's history in a logical, organized, and thorough manner, covering the history of present illness; past medical history (including usual source of and access to health care, childhood and adult illnesses, injuries, surgical procedures, obstetrical history, psychiatric problems, hospitalizations, transfusions, medications, tobacco and alcohol use, and drug allergies); preventive health measures; social, family, and occupational history; and review of systems. 4. Describe a symptom, including location and radiation, intensity, quality, onset, duration, frequency, alleviating factors, aggravating factors and associated symptoms. 5. Identify the key findings of history taking and combine it with physical examination.
	Physical examination in Gastroenterology (T-1)	1. Assessment to give position the patient and self properly for each part of the physical examination. 2. Perform a physical examination for a patient in a logical, organized, respectful, and thorough manner, giving 3. attention to the patient's general appearance, vital signs, 4. and pertinent body regions. 5. Recognize the importance of methods of physical examination: inspection, palpation, percussion, and auscultation. 6. Adapt the scope and focus of the history and physical exam appropriately to the medical situation and the time available. 7. Identify life-threatening situations
	Approach to a patient with nausea and vomiting (T-2)	1. Describe the pathophysiologic mechanisms of nausea and vomiting. 2. Recognize the definition and differential diagnosis of nausea and vomiting 3. Identify common causes of nausea and vomiting. 4. Define the complications of severe vomiting
	Approach to a patient with hematemesis and melena, hematochezia (T-2)	1. Define hematemesis, melena and hematochezia. 2. Describe, and prioritize the common causes for and symptoms of upper and lower GI blood loss 3. Recommend laboratory and diagnostic tests to evaluate GI bleeding, 4. Develop an appropriate evaluation and treatment plan for patients with a GI bleeding
	Approach to a patient with diarrhea, constipation (T-2)	1. Define diarrhea and review the different terminologies in diarrhea 2. Explain the causes, clinical symptoms and the metabolic changes during diarrhea 3. Define the constipation 4. Recognize the differences between functional versus organic causes of constipation.

	Approach to a patient with abdominal pain (Acute, Chronic) (T-2)	1. Recognize the definition and differential diagnosis of acute abdominal pain 2. List symptoms and signs indicative of an acute abdomen 3. List the most frequent causes of acute abdominal pain? 4. Describe the key diagnostic criteria for common causes of abdominal pain, based on a history, physical exam and 5. laboratory testing
	Approach to a patient with hepatomegaly and ascite (T-1)	1. Identify the possible causes of hepatomegaly and splenomegaly 2. List the important diagnostic considerations in patients who have hepatomegaly 3. Describe what clinical findings of hepatomegaly
	Approach to a patient with jaundice, pruritic (T-2)	1. Describe hyperbilirubinemia and list the causes of hyperbilirubinemia 2. Define cholestatic and hepatocellular liver disease 3. Define the difference between intrahepatic and extrahepatic cholestasis 4. Outline an approach to the evaluation of the jaundiced patient. 5. List of the pruritus causes
	Cancer prevention, screening and early diagnosis in primary care	1. Explain modifiable and non-modifiable cancer risk factors and their roles in primary and secondary prevention. 2. Differentiate between population-based screening and early diagnosis in symptomatic individuals. 3. Describe evidence-based screening programs for breast, cervical, and colorectal cancers. 4. Apply appropriate referral pathways and explain the principles of timely diagnosis in suspected cancer cases.
	Abdominal examination (P-2)	1. Explain the purpose and principles of abdominal examination and recognize its role in evaluating patients with abdominal symptoms. 2. Prepare the patient appropriately for abdominal examination, including positioning, exposure, privacy, consent, and adequate lighting. 3. Perform a systematic abdominal examination in the correct sequence: Inspection, Auscultation, Percussion, Palpation 4. Perform abdominal inspection and identify relevant findings such as: Abdominal distension, Scars, Striae, Dilated veins, Visible peristalsis, Hernias, Masses, Skin changes 5. Auscultate the abdomen correctly and assess bowel sounds and relevant vascular bruits. 6. Perform abdominal percussion and identify: Tympany, Dullness, Liver span, Splenic percussion findings, Findings suggestive of ascites 7. Perform superficial and deep abdominal palpation systematically in all four quadrants. 8. Assess the liver, spleen, kidneys, and abdominal aorta using appropriate examination techniques. 9. Identify signs of peritoneal irritation, including guarding, rigidity, and rebound tenderness, and recognize their clinical significance. 10. Assess for common clinical findings, including hepatomegaly, splenomegaly, abdominal masses, ascites, and localized abdominal tenderness. 11. Perform focused special tests when clinically indicated, such as assessment for shifting dullness/fluid wave and maneuvers for suspected acute abdominal pathology.

		12. Recognize normal versus abnormal abdominal examination findings and relate important findings to possible clinical diagnoses. 13. Communicate findings clearly and document the abdominal examinationin an appropriate medical record. 14. Demonstrate a professional and patient-centered approach, maintaining patient comfort, dignity, privacy, and safety throughout the examination
	Ascite Punction	1. Define ascites and explain the common clinical causes, particularly cirrhosis, malignancy, heart failure, and infection. 2. Recognize the clinical indications for diagnostic paracentesis, especially new-onset ascites and suspected spontaneous bacterial peritonitis. 3. Identify contraindications and important precautions before performing paracentesis. 4. Obtain informed consent and explain the procedure, benefits, and possible complications to the patient in clear language. 5. Identify the necessary equipment for diagnostic and therapeutic paracentesis. 6. Demonstrate appropriate infection-control measures, including hand hygiene, sterile technique, skin antisepsis, and appropriate personal protective equipment. 7. Identify appropriate anatomical sites for abdominal paracentesis and understand the importance of avoiding abdominal vessels and underlying organs. 8. Demonstrate the sequence of abdominal paracentesis on a model/manikin under supervision, including patient positioning, preparation, local anesthesia, needle/catheter placement, and specimen collection. 9. Recognize potential complications, including bleeding, infection, bowel/bladder perforation, persistent fluid leakage, and hypotension. 10. Know which ascitic-fluid investigations should be requested, including cell count/differential, albumin, total protein, and culture when indicated. 11. Calculate and interpret the serum–ascites albumin gradient (SAAG) and relate the result to the underlying cause of ascites. 12. Document the procedure appropriately, including indication, site, amount/appearance of fluid, investigations requested, patient tolerance, and complications.
	Nasogastric tube insertion	1. Understand the indications for the insertion of a nasogastric (NG) tube 2. Understand the indications for enteral tube feeding 3. Describe the potential contraindications and complications of NG tube insertion 4. Identify the appropriate equipment required for NG tube insertion 5. Demonstrate the ability to insert a NG tube and confirm placement.

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP	**TOPIC**	**LEARNING OUTCOMES**
GENERAL SURGERY	Patient History taking in general surgery (T-2)	1. Elicit the patient's chief complaint, history of present illness, past medical history, social, family, occupational histories and complete a review of systems 2. Recognize pertinent positive and negative history findings 3. Establish a positive professional relationship
	Physical examination in surgery (T-2)	1. Perform general examination 2. Perform local examination (abdomen, breast, inguinoscrotal region, etc.) 3. Perform systemic examination
	Introduction to committee, medical terminology, surgical terms (T-2)	1. Define medical terminology 2. Describe the importance of medical terminology 3. Define the common general surgery terms
	Surgical infection and usage of antibiotics (T-1)	1. Define surgical site infection 2. Identify the risk factors associated with 3. Explain the principles of infection control/safe practices 4. Explain the role of microbiology laboratory in the diagnosis and management of infections 5. Explain the safe and appropriate usage of antibiotics
	Lower Gastrointestinal Bleeding (LGIB), and Rectal Bleeding / Hematochezia, Anorectal Pain (T-2)	1. List the causes and symptoms of LGIB 2. Review how to assess patients presenting with LGIB 3. Define hematochezia 4. List the causes and symptoms of hematochezia 5. Review how to assess patients presenting with hematochezia 6. List the anorectal pain causes
	Bleeding, hemostasis, blood transfusion (T-1)	1. Define hemostasis 2. Describe the mechanisms involved in hemostasis 3. Explain the principles of transfusion and list the
	Preoperative management (T-1)	1. Identify the components of a focused patient history and physical examination 2. Explain the correct assessment and optimization needed for patients with common co-morbidities 3. Discuss basic principles of risk assessment 4. Have an understanding of appropriate use of pre- operative lab tests
	Symptoms of GIS disease(T-2)	1. Define dyspepsia 2. List the causes of dyspepsia 3. Describe the symptoms of dyspepsia 4. Define dysphagia 5. List the causes of dysphagia
	Upper gastrointestinal bleeding (T-2)	1. Explain the pathophysiology of acute UGIB 2. List risk factors for UGIB 3. Describe symptoms 4. Review how to assess patients presenting with UGIB
	Preoperative Patient Care and Postoperative Complications (T-2)	1. Identify the components of a focused patient history and physical examination 2. Explain the correct assessment and optimization needed for patients with common co-morbidities 3. Discuss basic principles of risk assessment

		4. Have an understanding of appropriate use of pre- operative lab tests 5. Define the most common postoperative complications 6. Explain how to manage with these problems
	Metabolic and Endocrine Response to Injury (T-2)	1. Define classical concepts of homeostasis 2. Define mediators of the metabolic response to injury 3. Describe physiochemical and biochemical changes that 4. occur during injury and recovery
	Anatomy of the Inguinal Region and inguinal hernias (T-2)	1. Describe the anatomy of inguinal region and inguinal canal 2. Define the etiology and pathophysiology of inguinal hernias 3. Discuss locations and associated signs and symptoms 4. Explain complications 5. Explain diagnosis and examination methods
	Breast Examination (T-1)	1. Describe and demonstrate palpation of the breast, using a systematic approach that ensures complete examination, including the subareolar area, the nipple, four breast quadrants, and the tail extending toward the axilla. 2. Perform a complete examination of the breast and axilla, in an adult female or male, in a manner that maximizes patient comfort. 3. List usual biological changes of the aging process and how 4. they affect physical findings for the breast exam
	Approach to Breast Lump, Nipple Discharge (T-1)	1. Revisit the structure of the breast, relating hormonal changes to its functions 2. Outline the key features of examination and investigation of palpable breast lumps 3. Describe the history and exam features of pathologic and non-pathologic nipple discharge
	Breast Diseases and breast cancer (T-2)	1. Define the classification of breast diseases 2. List the most common symptoms
	Enteral and Parenteral Nutrition (T-1)	1. Evaluate the nutritional status of the patient 2. Determine the most appropriate form of nutrition support required 3. Estimate protein and caloric requirements of a patient based on the diseases state 4. Define enteral and parenteral nutrition 5. Explain enteral and parenteral nutrition methods 6. Discuss advantages and disadvantages of enteral and parenteral nutrition
	Burns (T-1)	1. Explain the rule of nines to estimate total body surface area of the burn 2. Describe partial and full thickness burn wounds Describe ambulatory management of burn patients
	Abdominal Pain, Discomfort, Distention, Mass (T-2)	1. Describe pathophysiologic mechanisms of abdominal pain and distention 2. Describe common causes of abdominal pain and distention 3. Identify signs and symptoms of a surgical abdomen 4. Explain principal diagnostic studies necessary to make differential diagnosis 5. Define the different types of abdominal mass in terms of site, etiology, and clinical characteristic

	Surgical Instruments and Materials (T-1)	1. Describe the types of surgical instruments 2. Discuss the materials used
	Acute Abdomen and abdominal pain (T-2)	1. Define acute abdomen and identify its common surgical causes. 2. Characterize abdominal pain according to its location, nature, onset, and radiation. 3. Recognize signs of peritoneal irritation, obstruction, perforation, and intra-abdominal bleeding. 4. Describe the initial clinical, laboratory, and imaging evaluation of a patient with acute abdominal pain
	Fluid and Electrolyte Disorders in Surgical Patients (T-2)	1. Describe the basic principles of fluid and electrolyte balance in surgical patients. 2. Recognize the clinical manifestations of fluid depletion and common electrolyte disorders. 3. Interpret basic laboratory findings related to fluid and electrolyte abnormalities. 4. Describe the principles of perioperative fluid and electrolyte management.
	Wound Healing and Wound Care (T-2)	1. Describe the main phases of normal wound healing. 2. Identify factors that impair wound healing. 3. Recognize common wound complications, including surgical site infection. 4. Describe the basic principles of wound assessment and wound care.
	Principles of Surgical Emergencies (T-2)	1. Define common surgical emergencies and recognize their major clinical features. 2. Perform an initial assessment of a patient with a surgical emergency using a structured approach. 3. Recognize conditions requiring urgent resuscitation and surgical consultation. 4. Describe the principles of initial stabilization and management of surgical emergencies
	Introduction to Surgical Shock (T-2)	1. Define shock and describe its basic pathophysiological mechanisms. 2. Classify the major types of shock and identify their common causes in surgical patients. 3. Recognize the main clinical manifestations of shock. 4. Describe the principles of initial assessment and resuscitation of a patient with shock

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
RADIOLOGY	Imaging in Abdominal Disorders I (T-1)	1. Explain the indications for the radiological modalities (US, Fluoroscopy, CT, Triphasic CT, MRI) in disorders of the abdomen 2. Make practices on the images of the common pathologies of the esophagus, stomach, duodenum and the gall bladder

	Imaging in Abdominal Disorders II (T-1)	1. Explain the general functional rules of the bowel 2. Differentiate the bowel segments on plain radiography 3. Recognize the findings of bowel obstruction, tumor and appendicitis on imaging modalities
	Imaging in Abdominal Disorders III (T-1)	1. Explain the common radiological findings in pancreatitis, tumors of the pancreas and liver 2. Explain the disorders of acute abdomen 3. Recognize hepatomegaly and its causes on US images

At the end of this lesson, the student will be able to:		
	KNOWLEDGE	
DEP.	**TOPIC**	**LEARNING OUTCOMES**
PEDIATRICS	Nutrition in childhood (T-2)	1. Be able to explain the effects of nutrition in childhood on growth and development. 2. Be able to compare the physiological roles of macronutrients (protein, carbohydrates, and fat). 3. Be able to explain the importance of essential micronutrients (iron, vitamin D, calcium, etc.) in children's health. 4. Be able to assess the causes, clinical findings, and consequences of malnutrition. 5. Be able to distinguish the main types of protein-energy malnutrition (kwashiorkor and marasmus). 6. Be able to plan age-appropriate nutritional recommendations. 7. Be able to discuss preventive nutritional approaches in childhood.
	Parasitosis (cyst hydatitis) (T-1)	1. Be able to classify parasites seen in childhood. 2. Be able to explain the routes of transmission of parasitic infections. 3. Be able to evaluate the clinical findings of parasitic infections. 4. Be able to plan the diagnostic approach for parasitic infections. 5. Be able to explain the epidemiology, clinical features, and treatment of Giardia infection. 6. Be able to discuss methods of prevention against parasitic infections. 7. Be able to explain the Echinococcus species and their life cycles. 8. Be able to explain the transmission routes of hydatid disease. 9. Be able to evaluate clinical findings based on organ involvement. 10. Be able to explain the imaging and serological methods used in diagnosis. 11. Be able to evaluate treatment options and their indications. 12. Be able to explain preventive medical practices.
	Breast Milk (T-1)	1. Describe the composition of breast milk and explain its nutritional, immunological, and developmental benefits for infants. 2. Explain the physiology of lactation, including the roles of prolactin, oxytocin, and the milk ejection reflex. 3. Recognize the short- and long-term benefits of breastfeeding for both infants and mothers. 4. Demonstrate the principles of correct positioning and effective latch during breastfeeding. 5. Identify common breastfeeding problems, including poor latch, nipple pain, blocked milk ducts, mastitis, and flat or inverted

		nipples, and outline their initial management. 6. Assess whether a breastfed infant is receiving adequate breast milk using appropriate clinical indicators, including weight gain, urine output, and stool frequency. 7. Describe the principles of expressing, storing, and handling expressed breast milk safely. 8. Provide evidence-based counseling and supportive communication to promote successful breastfeeding.
	Approach to hepatosplenomegaly in childhood (T-1)	1. To explain the fundamental mechanisms leading to hepatosplenomegaly (congestion, inflammation/infection, infiltration, hematopoietic hyperplasia, and storage diseases) at the cellular and tissue levels; to determine the normal borders o the liver and spleen through percussion and palpation; and to perform a comprehensive differential diagnosis and classificatio
	Approach to abdominal pain in childhood (T-1)	1. To understand the pathophysiological mechanism, clinical approach, and history-taking; to be able to perform differential diagnosis between acute and chronic conditions; and to apply diagnostic algorithms, identify warning signs, and manage emergency situations
	Approach to vomiting in childhood (T-1)	1. To understand the mechanism of onset in terms of neuroanatomy and physiology; to perform a comprehensive differential diagnosis; and to manage the condition using medical history, clinical clues, laboratory tests, and imaging studies
	Abdominal examination in childhood (P-2)	1. To perform the basic steps of an abdominal examination in sequence; to understand quadrant anatomy and projection; to identify findings in acute abdomen and special examination findings; and to assess ascites, fluid accumulation, and organomegaly

At the end of this lesson, the student will be able to:		
KNOWLEDGE, SKILLS		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
	Liver Cirrhosis (P-2)	1. Explain the most likely cause of hypokalemia in a patient with liver cirrhosis. 2. Identify the laboratory findings indicative of alcohol-related hepatocellular injury and laboratory tests that shows impaired hepatic synthetic function. 3. Explain why spironolactone is the first-choice drug for the treatment of ascites in cirrhosis, including its renal site of action. 4. Identify the renal transport system inhibited by furosemide. 5. Explain the molecular mechanism of action of meropenem on the bacterial cell wall. 6. Describe the pharmacology of propranolol in cirrhosis, including the complication it targets and its molecular mechanism of action. 7. Identify the main therapeutic target of lactulose in patients with cirrhosis

CLINICAL PHARMACOLOGY (CASED BASE)	Peptic Ulcer Disease (P-2)	1. Identify the enzyme that is inhibited by omeprazole 2. Explain the reason for the long duration of action of omeprazole 3. Explain the pharmacokinetic action that can account for the high concentration of omeprazole in the stomach lumen 4. Identify the site of action of erythromycin 5. Describe the property of H. pylori that makes it very sensitive to metronidazole 6. Explain the mechanism of action of bismuth salt in peptic ulcer disease
	Crohn`s disease (P-2)	1. Explain the molecular mechanism of action of Loperamide and its therapeutic effect in Crohn's disease. 2. Describe the pharmacological mechanisms of action of Mesalamine and Prednisone in the treatment of Crohn's disease. 3. Describe the pharmacology of methotrexate in Crohn's disease, including its therapeutic mechanism, target enzyme, and rapidly proliferating cells affected by the drug. 4. Describe the antibacterial mechanism of action of Metronidazole and explain the bacterial property that makes susceptible organisms sensitive to this drug. 5. Describe the pharmacology of Infliximab in Crohn's disease, including its molecular target and a potentially life-threatening adverse effect that may occur after administration. 6. Identify an alternative monoclonal antibody that can be used instead of Infliximab in Crohn's disease. 7. Explain the molecular mechanism of action of Azathioprine in the treatment of Crohn's disease. 8. Explain the molecular mechanism of action of Natalizumab in Crohn's disease
	Iron defficiency anemia (P-2)	1. Describe the NSAID-related mechanisms responsible for drug-induced gastric damage. 2. Explain the physiological mechanisms that compensate for anemia. 3. Identify the normal daily amount of iron absorbed from the gastrointestinal tract and explain the transport systems involved in intestinal iron absorption. 4. Identify the main target cells for iron transport. 5. Describe the pharmacological management of iron deficiency anemia, including the appropriate duration of oral iron therapy. 6. Describe the common adverse effects of oral iron preparations. 7. Identify the rare but potentially life-threatening adverse effect of intravenous iron preparations
At the end of this lesson, the student will be able to:		
	KNOWLEDGE	
DEP.	**TOPIC**	**LEARNING OUTCOMES**
Medical Education	Body-Mind-Behavior: The gut and brain axis (T-2)	1. Describe the basic anatomical and physiological basis of the gut-brain axis (vagus nerve, enteric nervous system, gut microbiota); explain how stress affects gut function and how gut symptoms can reflect psychological states; identify common gut-brain axis-related conditions (e.g., IBS).

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL ETHICS AND PHILOSOPHY OF MEDICINE	Ethical issues related to the end of life: suicide, physician-assisted suicide, euthanas (T-1)	1. Students should be able to identify ethical issues arising at the end of life, such as physician-assisted suicide, and euthanasia, and evaluate these issues holistically from the perspective of patients, healthcare professionals and patient relatives
	Justice in Medical Practice: Fair sharing of scarce resources (T-1)	1. Students should learn about different approaches to the provision of health services and the distribution of limited resources within the framework of the principle of justice.
	Patient-physician responsibilities, Medical negligence, Malpractice (T-1)	1. Defines the ethical and legal obligations of the medical profession.

At the end of this lesson, the student will be able to:		
PANEL		
DEP	**TOPIC**	**LEARNING OUTCOMES**
PANEL	Obesity (T-2)	1. Explain the physiological and pathophysiological mechanisms involved in obesity and energy balance. 2. Recognize the major risk factors and clinical features of obesity in children and adults. 3. Describe the basic pathological changes and metabolic consequences associated with obesity. 4. Identify the major complications and comorbidities associated with obesity. 5. Integrate endocrine, pediatric, and pathological perspectives in the evaluation and management of patients with obesity.

MED 3104: INTRODUCTION TO ENDOCRINE, RENAL AND UROGENITAL SYSTEMS DISORDERS	
Course Date	15.02.2027- 09.04.2027

Exam Dates	Theoretical Exam: 08.04.2027			
Course Coordinators	Zehra Kipritçi			
Academic Unit	**Academic Staff**	**Theoretical hours**	**Practical Hours**	**Total**
Clinical Anatomy	Uğur Baran Kasırga, Assist. Prof.	9	-	9
Pharmacology	Kevser Erol, Prof. Şahika Güner, Assist. Prof	2	-	2
Clinical Microbiology	Gülden Çelik, Prof. Rabia Can, Assoc. Prof.	6	1	7
Clinical Pathology	Yeşim Saliha Gürbüz, Prof Zehra Affan, Dr.	4	3	7
Clinical Pharmacology (Case Presentations)	Kevser Erol, Prof. Şahika Güner, Assist. Prof	8	-	8
Patophysiology	Numan Ermutlu, Prof. Faize Elif Bahadır, Assist. Prof Yasemin Ergen, Assist. Prof	24	-	24
Internal Medicine	Süleyman Köz, Prof. Sema Türker, Assoc. Prof. Serap Baydur Şahin, Prof.	33	-	33
Pediatrics	Yiğit Mustafa Ertunç, Assist. Prof Fatih Fakirullahoğlu, Assist. Prof Duygu Övünç Hacıhamdioğlu, Prof.	5		5
Obstetrics and Gynecology	Ömer Ulugergerli, Assist. Prof Dilan Ünsal Kaya, Assist. Prof Aynur Erşahin, Prof. Cihan Çetin, Prof. Eda Akalın, Assist. Prof Özge Kınlı Yıldız, Assist. Prof Tolga Taşçı, Prof. Nur Dokuzeylül Güngör, Assoc. Prof. Zübeyde Aytufan, Assist. Prof	35	-	35
Clinical Ethics and Philosophy of Medicine	Kadircan Keskinbora, Prof. Yasemin Koçer Tulgar, Assist. Prof	3	-	3
Panel	Dahiliye (Süleyman Köz, Prof) Pediatri (Duygu Övünç Hacıhamdioğlu, Prof) Üroloji (Tümay İpekçi, Prof) Pediatrics Department Endocrinology Department Physiology Department	4		4

Clinical Skills	Ömer Ulugergerli, Assist. Prof Özge Kınlı Yıldız, Assist. Prof Nur Dokuzeylül Güngör, Assoc. Prof	-	2	2
CLINICAL OBSERVATIONS			2	2
TOTAL		133	8	141
STUDY TIME		44		

COURSE AIM:

The aim of this course is;

- To integrate basic and clinical knowledge of endocrine, renal, urogenital, and reproductive system disorders, and to develop students' ability to understand their pathophysiology, recognize common clinical presentations, and approach patients using appropriate diagnostic and clinical assessment methods.

At the end of this lesson, the student will be able to:		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL ANATOMY	Testicular descent, undescended testis and ovarian relocation (T-1)	1. Describe the embryological pathway of testicular descent and ovarian relocation. 2. Identify the anatomical structures guiding testicular and ovarian descent. 3. Explain the anatomical basis of undescended testis. 4. Apply anatomical knowledge to anticipate complications of undescended testis. 5. Correlate anatomical anomalies with their clinical and surgical implications.
	Suprapubic cystostomy, cystoscopy and urethral catheter safety (T-1)	1. Describe the anatomy of the bladder and urethra relevant to catheterization. 2. Identify anatomical landmarks for safe suprapubic cystostomy. 3. Identify anatomical landmarks used to confirm safe suprapubic access. 4. Apply anatomical knowledge to avoid urethral injury during catheterization. 5. Explain anatomical considerations for safe cystoscopy
	Pelvic viscera examination: culdocentesis, laparoscopy and pouch of Douglas (T-1)	1. Describe the anatomy of the pouch of Douglas and pelvic viscera. 2. Identify anatomical landmarks used in culdocentesis and laparoscopy. 3. Identify anatomical landmarks used to safely perform culdocentesis. 4. Apply anatomical knowledge to interpret laparoscopic pelvic anatomy. 5. Explain the clinical relevance of pelvic recess anatomy.

	Renal transplantation anatomy: vessels, ureter and surgical complications (T-1)	1. Describe the vascular and ureteral anatomy relevant to renal transplantation. 2. Identify anatomical structures at risk of surgical complication. 3. Identify the anatomical vessels anastomosed during renal transplantation. 4. Apply anatomical knowledge to recognize signs of vascular or ureteral transplant complications. 5. Explain the anatomical basis of transplant-related vascular and ureteral complications
	Renal and ureteric calculi: pain pathway, obstruction and imaging anatomy (T-1)	1. Describe the course of the ureter and its sites of physiological narrowing. 2. Identify the three anatomical sites of physiological ureteric narrowing on imaging. 3. Correlate calculus location with the corresponding referred pain pathway. 4. Apply anatomical knowledge to predict referred pain location based on stone position. 5. Identify ureteric anatomy on imaging relevant to obstruction
	Accessory renal vessels and congenital anomalies of kidneys and ureters (T-1)	1. Describe common congenital anomalies of the kidney and ureter. 2. Identify common congenital renal anomalies on imaging, such as horseshoe kidney and duplex ureter. 3. Explain the clinical significance of accessory renal vessels. 4. Apply anatomical knowledge to anticipate surgical risk from accessory renal vessels. 5. Correlate anatomical anomalies with their clinical presentation
	Bony pelvis, pelvic floor and pelvic fractures: sexual differences and clinical consequences (T-1)	1. Describe sex-based differences in bony pelvis anatomy. 2. Identify anatomical landmarks used to classify pelvic fractures. 3. Explain the anatomical basis of pelvic fracture classification. 4. Apply anatomical reasoning to anticipate associated organ injury in pelvic trauma. 5. Correlate pelvic anatomy with obstetric and trauma-related clinical consequences
	Inguinal canal and superficial inguinal ring examination in urogenital practice (T-1)	1. Describe the anatomy of the inguinal canal and superficial inguinal ring. 2. Identify anatomical landmarks used to palpate the superficial inguinal ring. 3. Explain the relevance of inguinal canal anatomy to urogenital examination. 4. Apply anatomical knowledge to differentiate inguinal from scrotal pathology on examination. 5. Identify anatomical landmarks used in inguinal canal palpation
	Pelvic pain and referred pain: gynecological, urological and rectal patterns (T-1)	1. Correlate pelvic pain patterns with their underlying visceral anatomy. 2. Identify the anatomical dermatomes and visceral afferent pathways involved in pelvic pain referral. 3. Differentiate gynecological, urological, and rectal causes of pelvic pain on an anatomical basis. 4. Apply anatomical knowledge to distinguish acute surgical pelvic pain from chronic functional pelvic pain. 5. Apply anatomical reasoning to the differential diagnosis of pelvic pain

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL PATHOLOGY	Breast Cancer/Prostate Cancer (T-1)	1. Describe the morphologic features of breast cancer by means of subtypes of the tumor 2. Explain the immunohistochemical antibodies which are used for therapeutic approach in breast carcinoma 3. Describe the morphologic features of prostate cancer by means of Gleason grading
	Abnormal Uterine Bleeding and Related Disorders / Cervical-Ovarian Cancers (T-1)	1. Explain the lesions of cervix and endometrium causing abnormal uterine bleeding 2. Compare endometrial hyperplasia with endometrial carcinoma in view of histomorphology 3. Describe precursor lesions of cervical cancer 4. Get through the subtypes of ovarian cancer 5. Describe the differential diagnosis of primary and secondary ovarian cancer
	Diabetes/Obesity (T-1)	1. Get through to causes of polyuria by describing the mechanism and findings of the clinical conditions 2. Describe the metabolic changes in diabetes 3. Explain the clinically important complications of diabetes mellitus and pathologic changes 4. Describe the pathogenesis of leg gangrene 5. Describe the associated conditions with obesity seen in polycystic ovary syndrome 6. Explain the mechanisms of obesity in diabetes mellitus 7. Describe the obesity related endocrine disorder
	Goiter (T-1)	1. Get through to the clinical manifestations of Graves' Disease 2. Get through to clinical features of hypothyroidism 3. Describe the pathologic conditions causing thyroid enlargement

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
PHARMACOLOGY	Clinical pharmacology of the agents used for urinary infections (T-1)	1. Comprehend the classification of urinary tract infections and their common causative pathogens 2. Define the classification of antimicrobial agents used in the treatment of urinary tract infections 3. Understand the mechanism of action, spectrum of activity, and adverse effects of trimethoprim-sulfamethoxazole, nitrofurantoin, fluoroquinolones, and beta-lactam antibiotics in urinary tract infections 4. Explain the principles of empirical antibiotic selection based on local resistance patterns and patient-specific factors 5. Define the drug interactions, contraindications and drug-drug interactions

	Agents affecting uterine motility (T-1)	1. Describe the pharmacodynamics of oxytocic agents 2. Define the physiologic and pharmacologic characretistics of oxytocin 3. Evaluate the pharmacologic characteristics of ergot alkaloids, prostaglandins and hypertonic solutions 4. Describe the pharmacodynamics of tocolytic agents 5. Compare the pharmacologic characteristics of calcium channel blockers, COX inhibitors, oxytocin receptor antagonists, beta adrenergic receptor agonists and magnesium sulfate

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL MICROBIOLOGY	Urinary Tract Infections(T-1)	1. Recall the anatomical structure of urinary tract 2. List the main group of microorganisms responsible from urinary tract infections 3. Explain the pathogenesis of urinary tract infections 4. List the main methods in the laboratory diagnosis in urinary tract infections 5. Recall interpretation of the results of urinary tract infections 6. List the preventive measures and the routine recommended antimicrobial treatment in urinary tract infections
	Genitourinary Infections / STD(T-1)	1. List the main group of microorganisms responsible from genitourinary and sexually transmitted infections 2. Explain the pathogenesis of genitourinary and sexually transmitted infections 3. List the main methods in the laboratory diagnosis in genitourinary and sexually transmitted infections 4. List the main advantages and disadvantages of the methods and interpretation of the results in genitourinary and sexually transmitted infections 5. List the preventive measures and the routine recommended antimicrobial treatment in genitourinary and sexually transmitted infection
	Pregnancy and Infections(T-1)	1. List the main group of microorganisms responsible from infections that are common in pregnancy 2. Explain the pathogenesis of infections in pregnancy 3. List the main methods in the laboratory diagnosis of infections in pregnancy 4. List the main advantages and disadvantages of the methods and interpretation of the results in infections in pregnancy 5. List the preventive measures and the routine recommended antimicrobial treatment in infections in pregnancy

	HIV& AIDS(T-2)	1. List the virus responsible from HIV infection/AIDS 2. Explain the pathogenesis of HIV infection/AIDS 3. List the main methods in the laboratory diagnosis of HIV infection/AIDS 4. List the main advantages and disadvantages of the methods and interpretation of the results in HIV infection/AIDS 5. List the preventive measures in HIV infection/AIDS
	Infections in Immunocompromised patients(T-1)	1. List the main group of microorganisms responsible from infections in Immunocompromised patients 2. Explain the pathogenesis of infections in Immunocompromised patients 3. List the main methods in the laboratory diagnosis of infections in Immunocompromised patients 4. List the main advantages and disadvantages of the methods and interpretation of the results in infections in Immunocompromised patients 5. List the preventive measures and the routine recommended antimicrobial treatment in infections in Immunocompromised patients
	Clinical microbiology laboratory diagnosis of urogenital System infections: From sample to result (P-1)	1. Select the appropriate urine or genital specimen and collection method for the suspected infection. 2. Explain the pre-analytical issues related to transport, storage, and contamination. 3. Interpret culture, microscopy, NAAT, and serological results in urogenital infections. 4. Distinguish infection from contamination or colonization and determine when susceptibility testing is needed. 5. Produce a brief laboratory interpretation that supports clinical decision-making.

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
PATOPHYSİOLOGY	Acute Kidney Injury(T-1)	1. Categorizes kidney diseases by anatomical site of injury 2. Describes the clinical diagnostic criteria for Acute Kidney Injury (AKI). 3. Classifies AKI into prerenal, intrarenal, and postrenal etiologies, 4. Explains the multifactorial pathogenesis of sepsis-induced AKI. 5. Describes the tubular and vascular theories of Acute Tubular Necrosis (ATN). 6. Identifies factors and pharmacologic agents that ameliorate or exacerbate medullary hypoxia. 7. Differentiates prerenal azotemia from established acute tubular necrosis using key clinical diagnostic tools

	Chronic Kidney Disease(T-1)	1. Identifies the leading causes of chronic kidney disease. 2. Distinguishes the clinical indicators of chronic renal. 3. Defines the multifactorial pathogenesis of uremia. 4. Describes the mechanisms of sodium and volume dysregulation in CKD. 5. Explains the physiological mechanisms of hyperkalemia in CKD and the risks posed by medications like K+ -sparing diuretics, ACE inhibitors, or β-blockers. 6. Maps out the complex pathogenesis of CKD-mineral and bone disorder (CKD-MBD. 7. Explains how altered renal clearance affects drug and hormone metabolism. 8. Describes the cardiovascular and pulmonary consequences of CKD. 9. Explains the hematologic and immune abnormalities in uremia. 10. Recognize neuromuscular, dermatologic, gastrointestinal, and reproductive manifestations of uremia.
	Glomerulonephritis and Nephrotic Syndrome(T-1)	1. Defines glomerulonephritis (GN) and distinguishes among the key clinical presentation categories. 2. Describes the cellular and molecular mechanisms of immune-mediated glomerular damage. 3. Identifies the primary target of structural injury in nephrotic syndromes. 4. Explains the physiological cause of nephritic signs, 5. Explains the pathophysiology of nephrotic syndrome complications (edema & paradoxical hypovolemia, hyperlipidemia, hypercoagulability, and secondary complications**.**
	Metabolic and Respiratory Acidosis (T-2)	1. Differentiate between the pathophysiology of metabolic versus respiratory acidosis. 2. Calculate and interpret the Serum Anion Gap to categorize acidosis 3. Explain the respiratory compensatory response to metabolic acidosis. 4. Describe the acute and chronic renal compensatory mechanisms in respiratory acidosis
	Primary and Secondary Hyperparathyroidism(T-1)	1. Recall the physiological regulation of parathyroid hormone (PTH) secretion and calcium–phosphate homeostasis. 2. Explain the pathophysiological mechanisms of primary, secondary, and tertiary hyperparathyroidism. 3. Relate excessive PTH secretion to changes in serum calcium, phosphate, and vitamin D metabolism. 4. Explain the effects of hyperparathyroidism on bone, kidney, and gastrointestinal calcium handling. 5. Relate the pathophysiological changes in hyperparathyroidism to its major clinical manifestations and complications, including bone disease and nephrolithiasis.
	Familial Hypocalciuric Hypercalcemia and Hypercalcemia of Malignancy (T-1)	1. Explain the pathophysiological basis of familial hypocalciuric hypercalcemia (FHH) and the role of altered calcium-sensing receptor (CaSR) function. 2. Differentiate FHH from primary hyperparathyroidism based on PTH levels and urinary calcium excretion.

		3. Explain the major mechanisms of hypercalcemia of malignancy, including PTH-related peptide (PTHrP) secretion, osteolytic bone destruction, and increased calcitriol production. 4. Relate the mechanisms of malignancy-associated hypercalcemia to changes in serum calcium, phosphate, and PTH levels. 5. Interpret serum calcium, PTH, and urinary calcium findings in basic clinical scenarios involving FHH, primary hyperparathyroidism, and hypercalcemia of malignancy.
	Hypoparatiroidism and Pseudohypoparatiroidism (T-1)	1. Explain the pathophysiological mechanisms of hypoparathyroidism and their effects on calcium and phosphate homeostasis. 2. Explain the pathophysiological basis of pseudohypoparathyroidism, with emphasis on target-organ resistance to PTH. 3. Differentiate hypoparathyroidism from pseudohypoparathyroidism based on serum PTH, calcium, and phosphate levels. 4. Relate hypocalcemia resulting from impaired PTH action to its major neuromuscular and clinical manifestations, including paresthesia, muscle cramps, tetany, and seizures. 5. Interpret basic laboratory findings in patients with hypocalcemia to distinguish impaired PTH secretion from PTH resistance. 6. Apply calcium–phosphate and PTH physiology to basic clinical scenarios involving hypoparathyroidism and pseudohypoparathyroidism.
	Osteoporosis and Osteomalacia (T-1)	1. Recall the physiological mechanisms of bone remodeling and the regulation of calcium and phosphate homeostasis. 2. Explain the pathophysiological mechanisms underlying osteoporosis and osteomalacia. 3. Identify the major risk factors and causes associated with osteoporosis and osteomalacia. 4. Relate changes in bone metabolism to the major clinical manifestations and complications, including bone pain, fractures, and skeletal deformities. 5. Interpret basic laboratory findings and bone mineral density measurements in the evaluation of metabolic bone disease. 6. Apply knowledge of bone and mineral physiology to differentiate osteoporosis, osteomalacia, and disorders of PTH function in basic clinical scenarios
	Diabetes Mellitus (T-1)	1. Describes diagnostic criteria for diabetes mellitus. 2. Classifies diabetes mellitus into its main subtypes based on underlying etiologies. 3. Contrasts the etiology and autoimmune mechanisms of Type 1 DM with the pathophysiology of Type 2 DM. 4. Explains the dual metabolic defects in Type 2 DM and progressive β-cell dysfunction/failure. 5. Describes the hormonal balance shift, specifically the elevated glucagon-to-insulin ratio and its impact on fuel homeostasis in the body. 6. Differentiates between the acute clinical presentations of Type 1 and Type 2 DM. 7. Details the pathogenesis, laboratory findings, and treatment priorities for Diabetic Ketoacidosis (DKA) and Hyperosmolar

		Hyperglycemic State (hyperosmolar coma. 8. Explains the mechanisms, symptoms (autonomic vs. neuroglycopenic), and counter-regulatory responses associated with treatment-induced hypoglycemia. 9. Explains the role of glycemic control in preventing or slowing microvascular complications. 10. Describes the pathophysiology and clinical stages of microvascular diseases. 11. Analyzes the factors driving macrovascular complications, including dyslipidemia, hypertension, and the impact of insulin resistance/metabolic syndrome. 12. Recognizes the immune defects that predispose diabetic individuals to common and rare/opportunistic infections.
	Neuroendocrine Islet Cell Tumors of Pancreas (T-1)	1. Describes the classification and general characteristics of pancreatic neuroendocrine (islet cell) tumors. 2. Explains the pathophysiology of the major functional islet cell tumors and relates hormone overproduction to their clinical manifestations. 3. Recognize the typical clinical presentations, diagnostic features, and laboratory findings of insulinoma, glucagonoma, and somatostatinoma. 4. Differentiate insulin-mediated hypoglycemia from other causes of fasting hypoglycemia using appropriate biochemical investigations such as plasma glucose, insulin, C-peptide, and sulfonylurea testing
	Pituitary Adenoms (T-1)	1. Recall the physiological regulation of anterior and posterior pituitary hormone secretion and hypothalamic–pituitary feedback mechanisms. 2. Classify pituitary adenomas according to their hormonal activity and the predominant hormone secreted. 3. Explain the pathophysiological mechanisms and hormonal consequences of functional pituitary adenomas, including prolactin-, growth hormone-, and ACTH-secreting adenomas. 4. Relate pituitary hormone hypersecretion to characteristic clinical manifestations, including hyperprolactinemia, acromegaly, and Cushing disease. 5. Interpret basic pituitary hormone profiles and relevant dynamic endocrine tests in patients with suspected pituitary adenomas. 6. Apply hypothalamic–pituitary physiology and feedback mechanisms to differentiate major functional pituitary adenomas in basic clinical scenarios
	Hypopituitarism (T-1)	1. Explain the pathophysiological mechanisms of hypopituitarism and identify major hypothalamic and pituitary causes. 2. Describe the hormonal consequences of anterior pituitary hormone deficiencies, including deficiencies of ACTH, TSH, GH, LH, and FSH. 3. Relate individual pituitary hormone deficiencies to their major clinical manifestations, including adrenal insufficiency, secondary hypothyroidism, growth abnormalities, and reproductive dysfunction. 4. Differentiate primary target-organ endocrine failure from secondary endocrine dysfunction caused by pituitary hormone deficiency.

		5. Interpret basic pituitary and target-gland hormone profiles to identify the affected level of the hypothalamic–pituitary–target organ axis. 6. Apply hypothalamic–pituitary feedback physiology to basic clinical scenarios involving hypopituitarism.
	Diabetes Insipitus (T-1)	1. Differentiate between central and nephrogenic diabetes insipidus based on etiology and pathophysiology. 2. Explain the underlying mechanisms of polyuria and polydipsia resulting from arginine vasopressin (AVP) deficiency or resistance. 3. Interpret serum sodium, plasma osmolality, and urine osmolality findings in patients with diabetes insipidus. 4. Describe the physiological principles and expected results of the water deprivation test and desmopressin administration
	Syndrome of Inappropriate Vasopressin Secretion (SIADH) (T-1)	1. Explain the pathophysiology of continuous, non-physiological ADH release and its effect on renal water reabsorption. 2. Describe the mechanisms leading to dilutional hyponatremia and serum hypo-osmolality in SIADH. 3. Differentiate laboratory findings of SIADH from other causes of hyponatremia using urine osmolality and urine sodium levels.
	Hyperthyroidism (T-1)	1. Explain the pathophysiological mechanisms of hyperthyroidism and thyrotoxicosis and distinguish between increased thyroid hormone synthesis and release of preformed thyroid hormones. 2. Describe the major causes of hyperthyroidism, with emphasis on Graves disease, toxic multinodular goiter, toxic adenoma, and thyroiditis. 3. Relate excessive thyroid hormone action and increased metabolic activity to the major clinical manifestations of hyperthyroidism, including weight loss, heat intolerance, tremor, tachycardia, and increased gastrointestinal activity. 4. Explain the major systemic effects of excess thyroid hormones, particularly their cardiovascular, nervous, musculoskeletal, gastrointestinal, and reproductive effects. 5. Interpret serum TSH, free T4, and T3 levels in patients with suspected hyperthyroidism and relate these findings to hypothalamic–pituitary–thyroid negative feedback. 6. Apply thyroid physiology and feedback mechanisms to basic clinical scenarios involving hyperthyroidism and thyrotoxicosis.
	Hypothyroidism (T-1)	1. Explain the pathophysiological mechanisms of hypothyroidism based on alterations at different levels of the hypothalamic–pituitary–thyroid axis. 2. Differentiate primary and secondary hypothyroidism according to the site of dysfunction and expected changes in thyroid hormone and TSH levels. 3. Describe the major causes of primary hypothyroidism, with emphasis on Hashimoto thyroiditis, iodine deficiency, thyroiditis, and drug-induced hypothyroidism. 4. Relate reduced thyroid hormone action and decreased metabolic activity to the major clinical manifestations of hypothyroidism, including fatigue, weight gain, cold intolerance, constipation, bradycardia, and cognitive slowing. 5. Relate hypothyroidism to its major systemic effects, including cardiovascular, neurological, gastrointestinal, renal, and reproductive alterations. 6. Apply knowledge of the hypothalamic–pituitary–thyroid axis and

		negative feedback regulation to basic clinical scenarios involving hypothyroidism
	Cushing Syndrome (T-2) Adrenal Insufficiency (T-1)	1. Differentiates the major disorders of the adrenal cortex. 2. Explains the etiology and pathophysiology of Cushing syndrome. 3. Recognizes the clinical manifestations and systemic effects of glucocorticoid excess. 4. Describes the causes, pathophysiology, and clinical features of primary and secondary adrenal insufficiency. 5. Interprets the laboratory findings and diagnostic evaluation of adrenal cortical disorders.
	Hyperaldosteronism (T-1)	1. Differentiate between primary and secondary hyperaldosteronism based on etiology and renin-aldosterone axis activity. 2. Explain the cellular mechanisms of excess aldosterone on renal principal and intercalated cells leading to sodium retention, hypokalemia, and metabolic alkalosis. 3. Interpret laboratory parameters, including the plasma aldosterone-to-renin ratio, serum potassium, and arterial pH
	Hypoaldosteronism (T-1)	1. Categorize hypoaldosteronism into primary adrenal failure and secondary state 2. Explain the physiological impact of aldosterone deficiency on renal sodium reabsorption, potassium excretion, and hydrojen secretion. 3. Describe the pathophysiology of hyperkalemia, volume depletion, and hyperchloremic metabolic acidosis resulting from deficient aldosterone signaling. 4. Interpret clinical and laboratory findings, including low blood pressure, hyponatremia, hyperkalemia, and renin-aldosterone levels.
	Fetal and Neonatal Physiology (T-1)	1. Explain the major physiological factors regulating fetal growth and development, including genetic, placental, hormonal, nutritional, and metabolic influences. 2. Describe fetoplacental circulation and explain the mechanisms of placental transfer of oxygen, nutrients, and metabolic waste products. 3. Explain the organization of fetal circulation and the physiological roles of the ductus venosus, foramen ovale, and ductus arteriosus. 4. Describe fetal lung development and explain the role of surfactant in lung maturation and neonatal respiratory function. 5. Explain the major respiratory and cardiovascular adaptations occurring at birth, including lung expansion, changes in pulmonary and systemic vascular resistance, and functional closure of the fetal shunts. 6. Explain the major metabolic and homeostatic adaptations of the newborn to extrauterine life, including maintenance of glucose levels and body temperature.

At the end of this lesson, the student will be able to:		
	KNOWLEDGE	
DEP.	**TOPIC**	**LEARNING OUTCOMES**
INTERNAL MEDICINE	History Taking and Physical Examination in Nephrology (T-2)	1. Obtain a focused nephrological history, including past and current renal function, risk factors for kidney disease, and medication history. 2. Perform a focused nephrological physical examination, including assessment of volume status and blood pressure. 3. Determine whether the patient's presenting symptoms are suggestive of kidney disease
	Clinically Oriented Review of Kidney Structure and Functions; Basic Tests for Clinical Practice (T-2)	1. Describe the clinically relevant structure and functions of the kidneys. 2. Explain the physiological basis of common fluid, electrolyte, and acid–base disorders. 3. Interpret the basic tests used to assess kidney function
	Approach to glomerular diseases (T-1)	1. Differentiate glomerular from non-glomerular hematuria. 2. Differentiate the major types of proteinuria and their underlying mechanisms. 3. recognize patients requiring urgent evaluation. 4. Identify the major categories of glomerular diseases and provide common examples. 5. Select the appropriate initial investigations for patients presenting with hematuria and proteinuria.
	Approach to patients with acute and chronic tubulointerstitial nephritis (T-1)	1. Describe the pathogenesis and major causes of acute and chronic interstitial nephritis. 2. Identify the major reasons associated with acute and chronic interstitial nephritis. 3. Recognize the clinical and laboratory features suggestive of acute and chronic interstitial nephritis.
	Use of urine analysis in daily clinical practice (T-1)	1. Describe the principles of proper urine sample collection and handling 2. Interpret routine urinalysis and dipstick findings in daily clinical practice. 3. Interpret common urinary abnormalities to identify the likely underlying renal or systemic disorder
	Hereditary Kidney Diseases (T-1)	1. Classify hereditary kidney diseases according to the affected nephron segment. 2. Describe the genetic basis and pathogenesis of autosomal dominant polycystic kidney disease. 3. Describe the genetic basis and pathogenesis of Alport syndrome
	Introduction to hypertension: definition, pathogenesis, diagnosis (T-2)	1. Define and classify hypertension using current diagnostic criteria. 2. Explain the multifactorial pathogenesis of primary hypertension. 3. Perform the initial clinical evaluation of patients with hypertension, including history, physical examination, and basic laboratory investigations. 4. Recognize patients requiring evaluation for secondary hypertension or urgent management.
	Chronic kidney disease: diagnosis, pathophysiology and complications (T-2)	1. Describe the normal structure and functions of the kidneys and explain how their loss leads to chronic kidney disease. 2. Define, classify, and stage chronic kidney disease using current diagnostic criteria, GFR, and albuminuria categories. 3. Identify the major causes of chronic kidney disease and explain the common pathophysiological pathways leading to progressive nephron loss.

		4. Diagnose chronic kidney disease using clinical findings, laboratory investigations, and renal ultrasonography, and distinguish CKD diagnosis from etiological evaluation. 5. Explain the pathophysiology of uremia, role of uremic toxins 6. recognize the major complications of chronic kidney disease. 7. Describe the major strategies to prevent chronic kidney disease and slow its progression
	Approach to acute kidney injury (T-2)	1. Define and stage acute kidney injury using current diagnostic criteria. 2. Recognize common clinical causes and risk factors for acute kidney injury, including drug-induced AKI. 3. Interpret clinical, laboratory, urine, and imaging findings to identify the underlying cause of acute kidney injury. 4. Describe the principles of acute kidney injury management, including medication management and prevention of severe complications 5. Recognize AKI requiring urgent evaluation or disease-specific treatment
	Fluid and electrolyte disorders (T-3)	1. Assess body fluid volume status at the bedside. 2. Describe the principles of management of body fluid volume disorders. 3. Explain the pathophysiology and differentiate the major types of edema. 4. Explain the pathophysiology, classify the major disorders of sodium and water balance, and describe the principles of management. 5. Explain the pathophysiology and major causes of potassium disorders, and describe the principles of management. 6. Interpret urinary findings in patients with fluid and electrolyte disorders. 7. Interpret calcium, magnesium, and phosphate disorders based on their underlying pathophysiology.
	History taking in Endocrinology (T-1)	1. Describe basic principles of endocrinology 2. Define neuroendocrine system, anterior and posterior pituitary gland 3. Describe polyglandular disorders 4. Describe the structure and components of the medical history of a patient with an endocrine system disorder
	Physical examination in Endocrinology (T-2)	1. Perform a physical examination of a patient with an endocrine system disorder 2. Use physical examination findings in diagnosis of endocrinological disorders
	Disorders of adrenal gland (T-2)	1. Describe the symptoms, signs and laboratory results in a patient with Cushing's Syndrome 2. Describe the symptoms, signs and laboratory results in a patient with mineralocorticoid excess syndrome 3. Define the pathophysiology, symptoms, signs and diagnosis of glucocorticoid deficiency syndromes 4. Define the symptoms and signs of pheochromocytoma
	Signs and symptoms of diabetes mellitus (T-1)	1. Define the etiology and pathophysiology of type 1 diabetes mellitus 2. Define the etiology and pathophysiology of type 2 diabetes mellitus

		3. Define the risk factors for diabetes mellitus 4. Identify the symptoms and clinical findings of diabetes mellitus 5. Interpretation of the laboratory and diagnostic studies for diabetes mellitus
	Acute metabolic complications of diabetes mellitus (T-1)	1. Define the pathophysiology and clinical findings of diabetic ketoacidosis 2. Define the pathophysiology and clinical findings of hyperosmotic hyperglycemic non-ketotic state 3. Define the pathophysiology and clinical findings of hypoglycemia
	Chronic metabolic complications of diabetes mellitus (T-1)	1. Define the microvascular complications of diabetes mellitus; diabetic nephropathy, diabetic neuropathy, diabetic retinopathy. 2. Define the macrovascular complications of diabetes mellitus; coronary artery disease, cerebrovascular disease, peripheral artery disease
	Hypothyroidism (T-1) Hyperthyroidism (T-1)	1. Describe presenting symptoms and signs of hyperthyroidism and hypothyroidism 2. Describe the causes of hyperthyroidism and hypothyroidism 3. Describe laboratory tests needed to diagnose hyperthyroidism and hypothyroidism
	Goiter (T-1)	1. Definition of goiter 2. Describe the causes of goiter 3. Describe the clinical findings of goiter 4. Evaluate a patient with nodular goiter 5. Describe risk factors for malignancy in patients with nodular goiter 6. Evaluate the results of thyroid nodüle fine- needle aspiration
	Approach to calcium and vitamin D metabolism disorders (T-2)	1. Describe the calcium and vitamin D metabolism 2. Describe the approach to a patient with hypercalcemia 3. Describe the approach to a patient with hypocalcemia 4. Describe the approach to a patient with vitamin D deficiency
	Approach to being overweight and obesity (T-1)	1. Define the pathophysiology and classification of obesity 2. List the most common causes of weight gain 3. Define the metabolic syndrome 4. Evaluate a patient with obesity 5. 5. Define the general approaches in treatment of obesity
	Hirsutism and Gynecomastia (T-1)	1. Define hirsutism and grading of severity of hirsutism 2. Describe the causes of hirsutism 3. Describe the pathophysiology of gynecomastia 4. Describe the causes of gynecomastia
	Approach to Unintentional Weight Loss in Primary Care (T-1)	1. Define clinically significant unintentional weight loss and describe its epidemiological relevance in primary care settings. 2. Identify and classify major etiological categories, including malignant, infectious, endocrine, psychiatric, and gastrointestinal causes. 3. Recognize alarm features and red flags that necessitate urgent investigation or referral. 4. Develop an evidence-based initial diagnostic approach and an appropriate referral strategy in primary care practice.

At the end of this lesson, the student will be able to:		
	KNOWLEDGE	
DEP.	**TOPIC**	**LEARNING OUTCOMES**
PEDIATRICS	Hormonal regulation of bone metabolism and approach to calcium and vitamin D metabolism disorder (T-2)	1. Explain the physiological roles of hormones involved in the regulation of bone metabolism (PTH, vitamin D, calcitonin, FGF23, growth hormone, and thyroid hormones). 2. Explain the normal physiology of calcium, phosphorus, and vitamin D metabolism. 3. Identify the clinical manifestations of calcium and vitamin D metabolism disorders in childhood. 4. Classify the etiology of hypocalcemia and hypercalcemia and perform differential diagnosis. 5. Select the appropriate laboratory tests for disorders of calcium metabolism and interpret the results. 6. Explains the diagnostic approach to rickets and other metabolic bone diseases. 7. Explains current treatment and follow-up principles for disorders of calcium and vitamin D metabolism. 8. Explains the indications for vitamin D prophylaxis in children and its importance in preventive medicine
	Approach to overweight/obese child (T-1)	1. To be able to define childhood obesity. 2. To be able to classify obesity using BMI percentiles. 3. To be able to distinguish between primary and secondary causes of obesity. 4. Be able to evaluate clinical findings suggestive of endocrine-related obesity. 5. Be able to apply the obesity assessment algorithm in children. 6. Be able to plan lifestyle recommendations aimed at preventing obesity. 7. Be able to discuss the long-term complications of childhood obesity
	Tyroid function tests and hypothyroidism-hyperthyroidism (T-1)	1. Be able to explain the hypothalamic-pituitary-thyroid axis. 2. Be able to explain the synthesis and physiology of thyroid hormones. 3. Be able to define the concepts of hypothyroidism, hyperthyroidism, and goiter. 4. Be able to classify the causes of congenital hypothyroidism. 5. To explain the importance of the newborn screening program. 6. To interpret thyroid function tests. 7. To explain the criteria for initiating treatment in congenital hypothyroidism. 8. To distinguish clinical findings suggestive of hypothyroidism and hyperthyroidism in children.

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP	**TOPIC**	**LEARNING OUTCOMES**
OBSTETRICS AND GYNECOLOGY	Placental Anatomy and Physiology (T-1)	1. Describe the embryological development, structural components, and circulatory characteristics of the placenta. 2. Explain the mechanisms of gas, nutrient, and waste exchange between the mother and fetus. 3. Analyze the endocrine functions of the placenta and evaluate their significance during pregnancy.
	Fetal Development and Physiology (T-2)	1. Students will be able to describe the main stages of fetal development and organogenesis, explain key physiological adaptations such as placental function 2. and fetal circulation, identify normal growth patterns and recognize common deviations, and analyze the relationship between maternal and fetal physiology.
	Preconception and Prenatal Care (T-2)	1. Preconception Care: Preconception risk assessment, screening tests, immunisation, folic acid and lifestyle recommendations. 2. Prenatal Care: Objectives of pregnancy follow-up, assessments to be made during visits, routine screening tests and prevention of complications. 3. Professional Approach: To approach the pregnant woman and her family with a holistic, communication-oriented, preventive medicine perspective
	Obstetric Ultrasound: Dating Imaging Growth and Detection of Fetal Anomalies (T-1)	1. students should understand the use of ultrasound in obstetric practice
	Genetic Screening and Diagnosis (T-1)	1. students should be able to understand the screening tests for genetic diseases durlng pregnancy and diagnostic test indications on at-risk pregnancies
	Drugs and Environmental Agents in Pregnancy and Lactation (T-1)	1. To learn about drugs and environmental factors that can cause fetal anomalies or growth and development problems when the mother is exposed to them.
	Antepartum Fetal Evaluation (T-2)	1. Students will be able to describe the main methods used for fetal surveillance during pregnancy (NST, BPP, Doppler ultrasound). 2. They will explain the indications, limitations, and clinical significance of antepartum fetal testing. 3. They will recognize signs of fetal compromise and outline appropriate management strategies. 4. They will discuss current guidelines on monitoring strategies in high-risk pregnancies
	Normal Labor and Delivery (T-2)	1. To ensure learning of the cardinal movements and stages of vaginal birth
	Maternal Physiology (T-2)	1. By the end of this lecture, students will be able to describe the physiological changes in the maternal body during pregnancy, relate cardiovascular, respiratory, hematologic, renal, and endocrine adaptations to their clinical implications, distinguish normal physiological limits from pathological conditions, and apply this knowledge to clinical cases in order to strengthen their problem-solving skills
	Taking a Gynecological History and Examination (T-2)	1. Define the principles of effective communication and patient privacy in the context of gynecological history taking. 2. Identify and list the essential components of menstrual, obstetric, sexual, and gynecological history.

	3. Describe the steps required to obtain informed consent prior to a gynecological examination. 4. Demonstrate the correct sequence of gynecological examination, including abdominal, external genital, and speculum assessment. 5. Differentiate between normal and abnormal gynecological findings during examination. 6. 6. Apply cultural sensitivity, confidentiality, and professionalism when interacting with patients.
Gynecological Malignancy (T-4)	1. Define the major types of gynecologic cancers, including cervical, endometrial (uterine), ovarian, vulvar, and vaginal cancers. 2. Describe the epidemiology and risk factors associated with each type of gynecologic cancer. 3. Explain the pathophysiology and molecular mechanisms involved in the development of gynecologic malignancies. 4. Recognize the common clinical presentations and symptoms of gynecologic cancers. 5. Outline the recommended screening methods, particularly for cervical cancer, including the role of HPV and Pap smear testing. 6. Summarize the diagnostic approaches, including imaging, biopsy, and tumor markers. 7. Classify gynecologic cancers according to staging systems such as FIGO. 8. Discuss the principles of treatment including surgery, chemotherapy, radiotherapy, and targeted therapies. 9. Identify prognostic factors and expected outcomes for each type of gynecologic cancer. 10. Appreciate the importance of preventive strategies such as HPV vaccination and risk-reducing surgery in high-risk populations
Menstrual Cycle and Its Neuroendocrine Control (T-2)	1. Understand the phases of the menstrual cycle and their physiological characteristics 2. Describe the roles of the hypothalamus, pitutiary gland and ovaries in regulating the cycle 3. Explain the feedback mechanism of estrogen and progesterone on gonadotropin release 4. Identify the hormonal changes associated with ovulation and the literal phase regulation 5. Recognize common clinical disorders related to neuroendocrine control of the menstrual cycle 6. Integrate knowledge of hormonal regulation with clinical implications for fertility and reproductive health
Reproductive Stages of a Woman's Life (T-2)	1. To define the reproductive stages in the life of women (puberty, reproductive period, perimenopause, menopause, postmenopause). 2. To explain the physiological changes and clinical features seen in each stage. 3. To summarise the common health problems and care approaches in these periods. 4. To understand the importance of lifelong preventive medicine and counselling in women's health
Case Based Evaluation of Obstetrics & Gynecology Patient (T-2)	1. Students will perform a structured history and physical examination for obstetrics and gynecology patients. 2. They will develop differential diagnoses through case-based clinical scenarios.

		3.	They will construct evidence-based diagnostic and treatment plans aligned with current guidelines.
		4.	They will recognize the importance of patient safety, multidisciplinary teamwork, and clinical decision-making through interactive case discussions.
	Benign Diseases of Uterus (T-2)	1.	Identify the main features of benign uterine diseases (leiomyoma, adenomyosis, endometrial polyp, etc.).
		2.	Differentiate these diseases by explaining clinical symptoms, diagnostic methods, and differential diagnosis.
		3.	Summarize treatment options and apply basic principles of patient management.
	Benign Diseases of Ovaries (T-1)	1.	Recognize benign cystic and solid ovarian lesions (functional cysts, dermoid cysts, benign tumors, etc.).
		2.	Explain their typical clinical manifestations and diagnostic approaches.
		3.	Evaluate possible complications (torsion, rupture) and discuss fundamental treatment strategies.
	Benign Diseases of Vulva-Vagina (T-2)	1.	The aim of this lecture is to provide medical students with a clear understanding of the common benign diseases of the vulva and vagina.
		2.	Students will learn about their clinical features, diagnosis, and management, with emphasis on differentiating them from malignant conditions.
		3.	The session also intends to raise awareness of the impact of these conditions on women's health and quality of life
	Abnormal Vaginal Bleeding (T-2)	1.	Students will classify abnormal uterine bleeding according to different age groups and etiologies.
		2.	They will describe a stepwise diagnostic approach including history, physical examination, laboratory tests, and imaging.
		3.	They will apply the PALM-COEIN classification to identify possible causes of AUB.
		4.	They will outline current management strategies for both acute and chronic AUB, including medical and surgical options

At the end of this lesson, the student will be able to:		
KNOWLEDGE, SKILLS		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
	Chronic Kidney disease (P-2)	1. Explain the pathophysiological basis of metabolic acidosis and the resulting low serum pH in chronic kidney disease. 2. Explain the mechanisms underlying hyperkalemia and hypermagnesemia in chronic kidney disease. 3. Explain the rationale for intravenous calcium administration in hyperkalemia with ECG changes and describe the mechanisms by which insulin and albuterol lower serum potassium. 4. Explain the causes of hyperphosphatemia and hypocalcemia in chronic kidney disease. 5. Describe the pharmacological treatment of hypertension in chronic kidney disease, including the appropriate combination of antihypertensive drugs. 6. Identify the appropriate pharmacological treatment for anemia associated with chronic kidney disease. 7. Identify the appropriate pharmacological treatment for hyperphosphatemia in chronic kidney disease.

		8. Identify the endogenous compounds whose renal synthesis is inhibited by NSAIDs, leading to renal toxicity
CLINICAL PHARMACOLOGY (CASED BASE)	Hormonal contraception (P-2)	1. Describe emergency contraception 2. Describe the mechanism of contraceptive action of combination hormonal contraceptives 3. Describe the mechanism by which combination hormonal contraceptives act to show therapeutic effects in acne 4. Describe the characteristics of different types of synthetic progestins
	Perimenaupouse and osteoporosis (P-2)	1. List the estrogen and progestin compounds, routes of administration and different regimens used to treat menopausal hot flashes 2. Identify the disorder that can be prevented by adding a progestin to the estrogen in the menopausal replacement therapy 3. Describe the mechanism of action of bisphosphonates 4. Explain the appropriate duration of menopausal hormone therapy 5. Describe the adverse effects of menopausal HRT 6. Describe an appropriate drug preparation for managing vaginal atrophy associated with menopause 7. Describe the alternatives to HRT to treat vasomotor symptoms of menopause

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL ETHICS AND PHILOSOPHY OF MEDICINE	Defining and resolving ethical problems (T-1)	1. Offers solutions to the ethical dilemmas it encounters through a critical approach, taking into account the perspectives of patients, physicians, and other stakeholders.
	Clinical ethics, ethical decision-making processes (T-1)	1. Recognize ethical issues encountered in clinical practice and understand the stages of the "four-cell decision-making method," the principles and values maintained in each cell, and the questions and perspectives that guide thinking in such situations.
	Practical ethics case example-1 (T-1)	1. Recognize ethical issues encountered in clinical practice and understand the stages of the "four-cell decision-making method," the principles and values maintained in each cell, and the questions and perspectives that guide thinking in such situations.

At the end of this lesson, the student will be able to:		
PANEL		
DEP	**TOPIC**	**LEARNING OUTCOMES**
PANEL	Diabetes (T-2)	1. Describe the physiological regulation of glucose metabolism and the role of insulin in maintaining glucose homeostasis. 2. Explain the basic pathophysiological mechanisms of diabetes mellitus and differentiate its major types. 3. Recognize the common clinical manifestations and major complications of diabetes mellitus in children and adults.

		4. Describe the basic principles of the diagnosis, treatment, and monitoring of diabetes mellitus. 5. Integrate physiological, pediatric, and endocrine perspectives in the evaluation and management of patients with diabetes.
	Approach the patiens with proteinuria and hematuria (T-2)	1. Define proteinuria and hematuria and describe their common causes in children and adults. 2. Differentiate glomerular, renal, and urological causes of proteinuria and hematuria based on clinical and laboratory findings. 3. Describe a systematic approach to the history, physical examination, and initial laboratory evaluation of patients with proteinuria and hematuria. 4. Recognize clinical findings that require further investigation, specialist referral, or urgent management. 5. Integrate internal medicine, pediatric, and urological perspectives in the evaluation of patients with proteinuria and hematuria.

MED 3105: INTRODUCTION TO PERIPHERAL AND CENTRAL NERVOUS SYSTEM DISEASES				
Course Date	26.04.2027- 11.06.2027			
Exam Dates	Theoretical Exam: 10.06.2027			
Course Coordinators	Zehra Kipritçi			
Academic Unit	**Academic Staff**	**Theoretical hours**	**Practical Hours**	**Total**
Clinical Anatomy	Uğur Baran Kasırga, Assist. Prof.	15	-	15
Clinical Biochemistry	Özlem Unay Demirel, Assoc. Prof.	2	-	2
Pharmacology	Kevser Erol, Prof. Şahika Güner, Assist. Prof	2	-	2
Clinical Microbiology	Gülden Çelik, Prof. Rabia Can, Assoc. Prof.	4	1	5
Clinical Pathology	Özlem Yapıcıer, Prof.	3	3	6
Clinical Pharmacology (Case Presentations)	Kevser Erol, Prof. Şahika Güner, Assist. Prof	10	-	10
Patophysiology	Faize Elif Bahadır, Assist. Prof	3	-	3
Radiology	Abdülbaki Ağaçkıran, Assist. Prof	3	-	3

Pediatrics	Yiğit Mustafa Ertunç, Assist. Prof İsmail Kaytan, Assist. Prof	6	2	8
Neurology	Cansu Sarıkaya Aslı Demirtaş Tatlıdede Samiye Ulutaş	30	1	31
Neurosurgery	Emre Ünal Atakan Emengen Akın Akakın	11	-	11
Clinical Ethics and Philosophy of Medicine	Yasemin Koçer Tulgar, Assist. Prof	1	1	2
PBL sessions	Yasemin Canıllıoğlu	10	-	10
Panel	Nöroloji Patoloji Department of Rheumatology	2	-	2
Clinical Skills	Gözde Argunşah	3	-	3
CLINICAL OBSERVATIONS			2	2
TOTAL		105	10	115
STUDY TIME		97		

COURSE AIM:

To provide an integrated understanding of the structure, function, and disorders of the nervous system, with emphasis on neurological history taking, clinical examination, lesion localization, neuroimaging, neurodiagnostic methods, and the recognition and initial management of common neurological diseases.

LEARNING OUTCOMES:

At the end of this lesson, the student will be able to:		
DEP.	**TOPIC**	**LEARNING OUTCOMES**

CLINICAL ANATOMY	Spinal cord ischemia and vascular territories (T-1)	1. Describe the vascular supply of the spinal cord. 2. Identify the anatomical boundaries of the anterior and posterior spinal artery territories. 3. Correlate vascular territory involvement with patterns of spinal cord ischemia. 4. Apply anatomical knowledge to distinguish complete from incomplete spinal cord ischemic syndromes. 5. Explain the clinical presentation of spinal cord ischemic syndromes.
	Reflexes and lesion localization I: limb reflexes, UMN/LMN and root levels (T-1)	1. Describe the anatomical pathway of major limb reflexes. 2. Identify the segmental spinal level tested by each major limb reflex. 3. Differentiate upper motor neuron from lower motor neuron lesions on an anatomical basis. 4. Apply anatomical reasoning to localize a lesion based on the pattern of reflex change. 6. Correlate reflex findings with corresponding spinal root levels.
	Reflexes and lesion localization II: cranial, pupillary, corneal and autonomic reflexes (T-1)	1. Describe the anatomical pathways of cranial, pupillary, and corneal reflexes. 2. Identify the cranial nerve pathways involved in pupillary, corneal, and autonomic reflexes. 3. Correlate reflex abnormalities with the level of the neurological lesion. 4. Apply anatomical reasoning to localize a brainstem lesion from cranial reflex findings. 5. Explain the clinical use of these reflexes in lesion localization.
	Regional anesthesia I: upper limb blocks and brachial plexus anatomy (T-1)	1. Describe the anatomy of the brachial plexus and its terminal branches. 2. Identify anatomical landmarks for upper-limb regional nerve blocks. 3. Identify the anatomical landmarks used to perform each major upper-limb nerve block. 4. Apply anatomical knowledge to anticipate the sensory and motor distribution blocked by each technique. 5. Explain the anatomical basis of block-related complications.
	Regional anesthesia II: lower limb, trunk and ilioinguinal/ankle blocks (T-1)	1. Describe the anatomy of the lower-limb, trunk, and inguinal region nerves. 2. Identify anatomical landmarks for lower-limb and trunk regional blocks. 3. Identify the anatomical landmarks used to perform each major lower-limb and trunk nerve block. 4. Apply anatomical knowledge to anticipate the sensory and motor distribution blocked by each technique. 5. Explain the anatomical basis of block-related complications.
	Brachial plexus injuries and variations: birth palsy, trauma and thoracic outlet overlap (T-1)	1. Describe the anatomical basis of common brachial plexus injury patterns. 2. Identify the anatomical level of brachial plexus injury from the pattern of limb weakness. 3. Correlate injury level with clinical presentation, including Erb and Klumpke palsy. 4. Apply anatomical knowledge to distinguish preganglionic from postganglionic plexus injury. 5. Explain the anatomical overlap between brachial plexus injury and thoracic outlet syndrome

	Facial nerve and Bell palsy: LMN/UMN, facial canal and clinical signs (T-1)	1. Describe the course of the facial nerve through the facial canal. 2. Identify the anatomical branch points of the facial nerve relevant to localizing the lesion level. 3. Differentiate upper and lower motor neuron facial palsy on an anatomical basis. 4. Apply anatomical reasoning to distinguish Bell palsy from a central facial nerve lesion. 5. Explain the anatomical basis of Bell palsy and its clinical signs.
	Olfaction and visual pathways: anosmia, visual field defects and optic disc orientation (T-1)	1. Describe the anatomical pathways of olfaction and vision. 2. Correlate lesion location along the visual pathway with specific visual field defects. 3. Identify the anatomical site of a lesion from a specific visual field defect, such as bitemporal hemianopia. 4. Apply anatomical knowledge to interpret optic disc findings in the context of raised intracranial pressure. 5. Explain the anatomical basis of anosmia.
	Ocular motor palsies, pupillary pathways and corneal reflex (T-1)	1. Describe the anatomy of the ocular motor nerves and pupillary pathways. 2. Identify the anatomical course of the oculomotor, trochlear, and abducens nerves. 3. Correlate ocular motor nerve palsy with its clinical presentation. 4. Apply anatomical reasoning to distinguish a third-nerve palsy with pupillary involvement from one without. 5. Explain the anatomical basis of the corneal reflex.
	Ophthalmoscopy and neuro-ophthalmic anatomy (T-1)	1. Describe the anatomy of the optic disc and retinal vasculature. 2. Identify anatomical landmarks of the fundus visible on ophthalmoscopy. 3. Identify normal and abnormal ophthalmoscopic findings on an anatomical basis. 4. Apply anatomical knowledge to recognize papilledema and its neurological significance. 5. Correlate neuro-ophthalmic anatomy with systemic and neurological disease.
	Vestibulocochlear anatomy: hearing loss, vertigo and otoscopic correlation (T-1)	1. Describe the anatomy of the vestibulocochlear apparatus. 2. Identify the anatomical structures assessed by Weber and Rinne tests. 3. Differentiate conductive from sensorineural hearing loss on an anatomical basis. 4. Apply anatomical reasoning to localize the site of lesion causing vertigo. 5. Correlate vestibular anatomy with the clinical presentation of vertigo.
	Integrated referred pain map: head-neck, thorax, abdomen and pelvis (T-1)	1. Correlate referred pain patterns across body regions with their anatomical and embryological basis. 2. Identify the dermatomal and visceral innervation basis for referred pain in each body region covered. 3. Apply dermatomal and visceral innervation knowledge to localize the source of referred pain. 4. Apply an anatomical reasoning framework to solve unfamiliar referred-pain clinical scenarios. 5. Differentiate visceral referred pain from somatic pain on an anatomical basis.

	Headache and cranial nerve danger anatomy: cavernous sinus, raised ICP and red flags	1. Describe the anatomy of the cavernous sinus and its clinical significance. 2. Identify the cranial nerves and vascular structures traversing the cavernous sinus. 3. Explain the anatomical basis of raised intracranial pressure and its cranial nerve effects. 4. Apply anatomical reasoning to distinguish primary headache from a dangerous secondary cause. 5. Identify anatomical red-flag findings in headache presentations.
	Neuroanatomy at the bedside: rapid cranial nerve screening and localization algorithm	1. Describe a systematic anatomical approach to cranial nerve examination. 2. Apply a stepwise cranial nerve examination sequence based on anatomical exit points. 3. Apply cranial nerve anatomy to rapid bedside screening. 4. Correlate examination findings with anatomical lesion localization. 5. Synthesize cranial nerve findings to localize a lesion within seconds at the bedside.
	Clinical localization capstone: from symptom to anatomical lesion	1. Integrate anatomical knowledge to localize neurological lesions from clinical symptoms. 2. Apply a systematic reasoning framework linking symptoms to anatomical structures. 3. Apply the full course's anatomical framework to an unfamiliar clinical vignette. 4. Synthesize findings across multiple systems to formulate an anatomically grounded differential diagnosis. 5. Synthesize course content to solve clinical localization problems.

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL BIOCHEMISTRY	Hypothalamic, Hypophysial Hormones, Melatonin: Related Disorders (T-2)	1. Classify hypothalamic and hypophyseal hormones according to their origin, mechanism of action, target tissues, and physiological functions. 2. Explain the biochemical basis and clinical manifestations of major disorders of hypothalamic and pituitary hormones, including pituitary adenomas, acromegaly, gigantism, diabetes insipidus, and syndrome of inappropriate ADH secretion (SIADH). 3. Interpret the biochemical laboratory findings used in the differential diagnosis of disorders of water balance, including diabetes insipidus and SIADH. 4. Describe the biosynthesis, physiological functions, and biochemical effects of melatonin.

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL PATHOLOGY	Neurodegenerative / Demyelinated Diseases (T-1)	1. Get through the types of neurodegenerative diseases 2. Explain the pathogenesis of each one of the neurodegenerative diseases

	WHO Classification of Brain Tumors / Most Common Benign and Malignant CNS Tumors (T-1)	1. Describe the basic novelties of WHO classification system (2016) of brain tumors 2. Get through the most common benign and malignant tumors of central nervous system tumors (CNS) 3. Explain the pathogenesis and molecular changes of most commonly seen CNS tumors
	Tumors and Tumor-like Lesions of Infancy and Childhood (T-1)	1. Classify the major benign and malignant tumors encountered during infancy and childhood according to their tissue of origin. 2. Describe the clinicopathological features of the most common pediatric tumors, including neuroblastoma, Wilms tumor, retinoblastoma, and hepatoblastoma. 3. Explain the role of genetic alterations in the pathogenesis of common pediatric tumors. 4. Differentiate benign tumor-like lesions from malignant neoplasms using their pathological and clinical characteristics.

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
PHARMACOLOGY	Management of drug abuse (T-1)	1. Comprehend the definition, classification, and epidemiology of substance use disorders and drug abuse 2. Define the pharmacological basis of tolerance, dependence, withdrawal, and addiction 3. Understand the mechanism of action and clinical features of abuse associated with opioids, sedative-hypnotics, stimulants, and cannabinoids 4. Describe the clinical presentation and pharmacological management of withdrawal syndromes (opioid, alcohol, benzodiazepine withdrawal) 5. Explain the role of pharmacological agents (naloxone, methadone, buprenorphine, disulfiram, naltrexone) in the treatment and management of drug abuse
	Treatment of migraine (T-1)	1. Describe the clinical characteristics and patophysiology of migraine 2. Define the treatment of acute attack 3. Compare migraine specific and nonspecific drugs 4. Comprahend the preventive treatment

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP.	**TOPIC**	**LEARNING OUTCOMES**

CLINICAL MICROBIOLOGY	Central Nervous system infections (T-1)	1. Recall the anatomical structure of CNS 2. List the main group of microorganisms responsible from central nervous system infections of central nervous system infections 3. Explain the pathogenesis of central nervous system infections 4. List the main methods in the laboratory diagnosis of central nervous system infections 5. List the main advantages and disadvantages of the methods and interpretation of the results in central nervous system infections 6. 6. List the preventive measures and the routine recommended antimicrobial treatment in central nervous system infections
	Zoonotic Infections (T-1)	1. List the Zoonotic Infections 2. Classify the Zoonotic Infections into the groups 3. List their important properties of Zoonotic Infections 4. List the common clinical manifestations of Zoonotic Infections 5. Describe the lab diagnosis of each Zoonotic Infections 6. Define the antibacterial resistance problems in Zoonotic Infections 7. Describe prevention measures from Zoonotic Infections
	Vaccines and different group immunizations (T-1)	1. Define active and passive immunization 2. Classify vaccines 3. List the advantages and disadvantages of different vaccines 4. List the vaccine preventable diseases and their applications
	Notifiable infectious diseases and surveillance (T-2)	1. Define notifiable infectious diseases. 2. Explain why disease notification is important for public health. 3. Describe the basic steps of infectious disease surveillance. 4. List the responsibilities of physicians and laboratories in notification. 5. Interpret surveillance data to detect outbreaks. 6. Describe basic control measures after notification.
	Laboratory in infections in CNS (P-1)	1. Recognize the urgency of suspected central nervous system infections and select the appropriate specimen, especially CSF. 2. Describe correct collection, transport, and biosafety requirements for CSF and related specimens. 3. Interpret Gram stain, culture, and molecular findings in suspected CNS infections. 4. Identify situations requiring immediate reporting, repeat testing, or additional diagnostic work-up. 5. Relate laboratory findings to the clinical syndrome and provide a clear, concise report

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
PATOPHYSIOLOGY	Physiology of Aging (T-3)	1. Explain the major cellular and molecular mechanisms of aging and discuss the physiological basis of healthy aging. 2. Describe age-related physiological changes in major organ systems, including the cardiovascular, respiratory, gastrointestinal, urinary, musculoskeletal, hematological, and immune systems.

		3. Explain age-related changes in the brain and sensory systems and relate these changes to cognition, motor function, and sensory impairment. 4. Relate age-associated changes in body composition, muscle, bone, cartilage, and skin to functional decline, frailty, and increased risk of falls and injury. 5. Explain the role of immunosenescence and chronic low-grade inflammation (inflammaging) in aging and the development of age-related diseases. 6. Discuss the physiological consequences of aging on nutrition, gastrointestinal function, urinary continence, and prostate function.

At the end of this lesson, the student will be able to:		
DEP	**LEARNING OUTCOMES**	
RADIOLOGY	Imaging in Brain Trauma (T-1)	1. List the necessary imaging modality to depict the brain injury 2. Explain the different types of brain injuries and their imaging findings
	Imaging in Neck and Back Pain (T-1)	1. Describe the anatomical details on radiographic, CT and MRI images of the spine 2. Explain the different pathologies that cause pain and their radiological findings on CT and MRI 3. Differentiate types of disc hernia, nerve entrapment, spinal stenosis and trauma
	Imaging in Stroke/Imaging in Brain Tumors (T-1)	1. Explain the types of stroke, its chronological development and the radiological findings on CT and MRI. 2. Define the imaging findings of tumors and the application of contrast media 3. Define the imaging criteria for malignancy 4. Differentiate intra and extra axial tumors

At the end of this lesson, the student will be able to:		
	KNOWLEDGE	
DEP.	**TOPIC**	**LEARNING OUTCOMES**
PEDIATRICS	Approach to dysmorphic child (T-2)	1. To distinguish between the concepts of dysmorphism and syndrome. 2. To classify major and minor congenital anomalies. 3. To explain the steps of a systematic history-taking in the evaluation of a child with dysmorphism. 4. To be able to assess the diagnostic importance of family tree analysis. 5. To be able to explain the steps of a systematic physical examination in the evaluation of a child with dysmorphism. 6. To be able to explain the applications of cytogenetic and molecular diagnostic methods. 7. To be able to distinguish between the concepts of malformation, deformation, and disruption.
	Mental Motor development of a child (T-2)	1. Describe normal developmental milestones. 2. Assess mental and motor development according to age. 3. Recognize developmental delay and developmental red flags.

		4. Describe the importance of early diagnosis and intervention.
	Growth and development (in infancy & school age) (T-2)	1. Describe the principles of normal growth and development. 2. Assess growth using standard growth charts. 3. Recognize normal and abnormal growth patterns. 4. Describe the importance of growth monitoring in children.
	Neurological examination in pediatrics (P-2)	1. Describe the components of the pediatric neurological examination. 2. Recognize normal and abnormal neurological findings. 3. Identify common neurological signs in children. 4. Explain the role of neurological examination in clinical evaluation.

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP	**TOPIC**	**LEARNING OUTCOMES**
NEUROLOGY	Introduction to Neurological Sciences Committe;History taking in Neurology (T-1)	1. Identify physical signs to look for while examining a patient with a neurological disease 2. Identify the parts of the nervous system that gets affected 3. Describe the importance of taking the patient's history and make a multi-systemic connection between the diseases.
	Semiology: Motor system (T-2)	1. Understand the difference between central and peripheral nervous systems 2. Understand the difference between upper and lower motor neuron findings 3. Learn the motor pathways 4. Learn the roots of the reflexes
	Approach to a patient with muscle weakness (paresis, paralysis) (T-1)	1. List the terms of plegia and paresis 2. Localize the site of lesion according to neurological symptoms 3. Explain crossing of the pyramidal tract at the medulla, a lesion of one hemisphere causes hemiparesis of contralateral side of the body. 4. Explain the lesion is in spinal cord after the crossing of pyramidal tract, the hemiparesis is at ipsilateral side of the lesion 5. Describe Brown-Sequard Syndrome
	Semiology: Cerebellar system (T-1)	1. Describe the divisions of cerebellum 2. Identify the functions of cerebellum 3. Describe cerebellar circuits 4. List clinical signs of cerebellar dysfunction
	Ataxia (T-1)	1. List causes the ataxias 2. List types of ataxias (especially the acute ones) 3. Describe neurological symptoms of Wilson's Disease 4. List laboratory parameters to look for in an ataxic patient
	Signs and symptoms in Neurology (Nuchal Rigidity, meningeal	1. Localize symptoms and signs in the nervous system.

	irritation) (T-1)	2. Gain organized knowledge in the subject area of Nuchal Rigidity 3. Be able to correctly interpret clinical findings in patient with suspected meningitis 4. Know and apply the relevant evidence and/ or guidelines 5. Be aware of common errors in the diagnosis and management of suspected meningitis
	Sign and symptoms in Neurology (vertigo,balance, nausea vomitting, Syncope; Altered mental Status) (T-2)	1. List the common presentations of vertigo 2. Describe the head-thrust test 3. Describe the treatment maneuver for BPPV 4. List the disorders causing vertigo 5. Explain the pathological basis of syncope 6. List the reasons of altered mental status
	Introduction to Neurological Examination (T-1)	1. Takes and interprets a neurological history and establishes multisystem relationships of neurological diseases. 2. Performs a comprehensive neurological examination and demonstrates clinical competence in cranial nerve, sensory, motor, and reflex examinations. 3. Distinguishes upper and lower motor neuron findings and localizes neurological lesions. 4. Differentiates speech and language disorders and applies basic assessment methods.
	Semiology: Cortex, higher cortical functions (T-2)	1. Describe the main cortical and the association areas in the brain 2. Name the cortices of the brain 3. Describe the main functions of lobes in the brain 4. Learn the symptomatology on dysfunction of each brain lobe 5. Learn the main cortical signs and symptoms
	Memory Loss and Forgetfulness (T-2)	1. Learn the components of the limbic system and its relation to memory 2. Describe the main concepts in mini mental state examination 3. Learn the causes of an amnestic syndrome 4. Define the differences between dementia and delirium 5. Describe symptoms of Alzheimer disease
	Speech disorders, Speech and Language Assessment (T-1)	1. Classify speech disorders 2. List the main differences between dysarthria, dysphonia, aphasia 3. Explain main components of speech and language assessment.
	Extrapyramidal system (T-2)	1. Describe components of the extrapyramidal system 2. Identify the function of the extrapyramidal system 3. Describe functional circuitry of the basal ganglia
	Movement Disorders (T-2)1	1. Learn how movement occurs 2. Define the role of basal ganglia in movement 3. Describe the names and features of the main movement disorders
	Tremor (T-1)	1. Describe the features of tremor 2. Define the names different types of tremor 3. Learn the characteristic features of different types of tremors
	Sleep and Sleep Disorders (T-1)	1. Describe the general architecture and stages of sleep 2. Define sleep habits and requirements 3. List classification of sleep disorders 4. Define insomnia, obstructive sleep apnea, narcolepsy, REM sleep

		disorder and restless leg syndrome
	Cranial nerves (T-2)	1. Describe the anatomy and origin of cranial nerves 2. Describe functions and diseases of cranial nerves
	Sign and symptoms in Neurology(Pupil disorders, Diplopia, visual loss) (T-2)	1. Describe the anatomy of the visual pathway 2. List the lesions of the visual pathway 3. Explain Pupillary reflexes and their abnormalities 4. Explain anisocoria
	Semiology : sensory system (T-2)	1. Describe the anatomy of the sensory system 2. List functions of the sensory system 3. Explain the examination of the sensory system 4. Describe the sensory system's disturbance 5. Definition of CNS infections 6. Identify the neurological symptoms of CNS infections 7. Identify the signs of meningeal irritation
	Electromyogram (EMG), Electroencephalogram (EEG) (T-2)	1. Describe the fundamentals of EEG and EMG 2. Identify the abnormal responses on EEG and EMG 3. List clinical application of EEG and EMG 4. Identify artifacts on the EEG
	Approach to a patient with numbness, paresthesia (T-2)	1. Describe the conceptual framework for patient history and physical examination for numbness, paresthesia 2. Analyze the strengths and limitations of examination in the evaluation of these disorders. 3. Describe the anatomy and physiology of peripheral nerve and muscle and the pathophysiologic changes that occur with these disorder 4. Describe the standard approaches for the common conditions (radiculopathies, carpal tunnel syndrome, and ulnar neuropathies) as well as the less frequent disorders (polyneuropathy and generalized NM diseases). 5. Diagnose patients presenting with numbness, tingling, pain, or weakness.
	Introduction to Neurological Examination- Clinical Practice 1,2,3,4 (P-1)	1. Takes and interprets a neurological history and establishes multisystem relationships of neurological diseases. 2. Performs a comprehensive neurological examination and demonstrates clinical competence in cranial nerve, sensory, motor, and reflex examinations. 3. Distinguishes upper and lower motor neuron findings and localizes neurological lesions. 4. Differentiates speech and language disorders and applies basic assessment methods.

At the end of this lesson, the student will be able to:		
KNOWLEDGE		
DEP	**TOPIC**	**LEARNING OUTCOMES**

NEUROSURGERY	Sign and symptoms of increased intracranial pressure and differential diagnosis. (T-1)	1. Understand the pathophysiology of elevated intracranial pressure, cerebral perfusion and the influence of blood pressure, blood gases, fluid and electrolyte balance. 2. Recognize the clinical manifestations of acute brain herniation including the Cushing reflex, midbrain effects and vital signs. 3. Understand the impact of focal mass lesions, structural shifts and their consequences.
	Cerebral circulation and metabolism, Cerebrospinal fluid (T-1)	1. Describe the role and circulation of cerebrospinal fluid in the nervous system 2. Describe the vessels that supply the CNS with blood 3. Name the components of the ventricular system and the regions of the brain in which each is located 4. Explain the production of cerebrospinal fluid and its flow through the ventricles 5. Explain how a disruption in circulation would result in neurological disorders
	Head Injury (T-1)	1. Differentiate the symptomatology of migraine, cluster, and tension headache and sinusitis headache. 2. Know the major causes of intracranial hemorrhage: vasculopathy in the aged (hypertension and amyloidosis), aneurysm, vascular malformation, tumor and coagulopathy. 3. Recognize the symptoms and signs of subarachnoid, cerebral and cerebellar hemorrhage. 4. Apply diagnostic tools in evaluation of acute headache (CT and MRI, role of lumbar puncture). 5. Understand the natural history and broad treatment strategies (surgery, radiosurgery, interventional radiology as well as treatment of vasospasm) of intracranial aneurysms and vascular malformations.
	Focused History and physical examination in neurotrauma, Glasgow Coma Scale-Coma (T-1)	1. Understand and assign the Glasgow Coma Score. 2. Recognize the presentation of brain herniation syndromes in the setting of trauma. 3. Initiate management of elevated intracranial pressure in head trauma. 4. Recognize and initiate management of concussion, brain contusion and diffuse axonal injury. 5. Recognize and initiate management of acute subdural and epidural hematoma, including surgical indications. 6. Recognize and initiate management of penetrating trauma including gunshot wounds. 7. Recognize and understand the principles of management of open, closed and basilar skull fractures, including cerebrospinal fluid leaks, and chronic subdural hematoma 8. (in children and adults).
	Cranial nerves-function and anatomy (T-2)	1. Learn how to clinically perform the cranial nerve examination. 2. Learn the underlying neuroanatomy of each cranial nerve. 3. Learn the underlying neuroanatomical pathways responsible for each cranial nerve. 4. Understand how the reflexes and responses use the central nervous system for integration of the pathways.
	Anatomy of the spine and spinal cord (T-1)	1. Describe the features of the spinal cord 2. Describe the vertebral column, the protective structure of the

			spinal cord
		3.	Describe the grey matter and spinal roots of the spinal cord
		4.	Describe the function and composition of spinal cord white matter
	Introduction to spinal disease (T-1)	1.	Initiate acute management of spinal cord injury including immobilization, steroids and systemic measures.
		2.	Understand the definition and subsequent management principles of the unstable spine.
		3.	Understand management principles in spinal cord injury including indications for decompressive surgery and treatment of the medical complications associated with
		4.	cord injury (skin, bladder, bowel movement, respiratory).
	Autonomous Nervous system (T-1)	1.	Differentiate between the central, autonomic, and peripheral nervous systems and the common disorders associated with each
		2.	Explain and categorize seizure activity, and report common therapeutic interventions
		3.	Distinguish different types of infections and tumors of the central nervous system
		4.	Compare traumatic conditions of the brain and spinal cord
		5.	Describe and contrast the pathogenesis and clinical features of thrombotic and hemorrhagic stroke
	Neural homeostasis and the limbic system (T-1)	1.	Describe the role of the limbic system in neural homeostasis, emotion, memory, and behavior.
		2.	Explain the basic interactions between the limbic system, hypothalamus, and autonomic nervous system.
		3.	Recognize the clinical consequences of dysfunction of the limbic system and related neural pathways.
		4.	Relate abnormalities of neural homeostasis and the limbic system to common neurological and behavioral disorders**.**
	Intracranial pressure, cerebral edema (T-1)	1.	Understand the pathophysiology of elevated intracranial pressure, cerebral perfusion and the influence of blood pressure, blood gases, fluid and electrolyte balance.
		2.	Recognize the clinical manifestations of acute brain herniation including the Cushing reflex, midbrain effects and vital signs.
		3.	Understand the impact of focal mass lesions, structural shifts and their consequences.

At the end of this lesson, the student will be able to:		
	KNOWLEDGE	
DEP.	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL ETHICS AND	Practical ethics case example-2 (T-1)	1. Students should be able to recognize ethical issues encountered in clinical practice and understand the stages of the "four-cell decision-making method," the principles and values maintained in each cell, and the questions and perspectives that guide thinking in such situations.

At the end of this lesson, the student will be able to:		
KNOWLEDGE, SKILLS		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL PHARMACOLOGY (CASED BASE)	Drug abuse (P-2)	1. Explain the pharmacological effects of marijuana/cannabis, including its mechanism of action, acute affects, adverse effects, dependence potential, and overdose toxicity. 2. Describe the therapeutic index of cannabinoids and their safety profile. 3. Describe the pharmacology of cocaine, including its molecular mechanism responsible for its rewarding effects and the clinical manifestations of cocaine overdose. 4. Describe the pharmacological actions of MDMA, including the neurotransmitter that primarily mediates its effects. 5. Describe the pharmacology of phencyclidine (PCP), including the neurotransmitter system primarily involved and the hallmark clinical sign of PCP intoxication. 6. Describe the pharmacology of LSD, including the brain receptors primarily activated by the drug. 7. Describe the pharmacology of heroin and other opioids, including the brain nucleus mediating opioid-induced miosis and the primary mechanism of opioid-induced respiratory depression. 8. Describe the mechanism of action of naloxone and its role in the management of opioid toxicity
	Epilepsy (P-2)	1. Describe the pharmacology of phenytoin, including its primary ion-channel target, dose-dependent pharmacokinetics, and adverse effects related to cerebellar–vestibular dysfunction. 2. Describe the pharmacology of carbamazepine, including its anticonvulsant mechanism and common adverse effects that may lead to discontinuation of treatment. 3. Describe the anticonvulsant mechanism of valproic acid and identify the organ affected by its rare but potentially life-threatening adverse effect. 4. Describe the molecular mechanism of action of topiramate in epilepsy. 5. Identify the molecular target of levetiracetam and explain its role

		in seizure control. 6. Describe the pharmacology of lamotrigine, including its ion-channel targets and potentially life-threatening adverse effect. 7. Identify the antiseizure drug that can induce its own metabolism and explain the pharmacological significance of this effect. 8. Identify the anticonvulsant that blocks presynaptic voltage-gated N-type Ca^2-channels. 9. Define status epilepticus and identify the drug commonly used to terminate an ongoing epileptic seizure.
	Migraine (P-2)	1. Explain the pathophysiological mechanisms involved in the development of migraine pain. 2. Identify the factor that increases the risk of migraine complications in patients taking oral contraceptives. 3. Describe the molecular mechanism of the analgesic action of aspirin and ketoprofen. 4. Identify the receptors activated by ergotamine and explain their role in the treatment of migraine. 5. Explain the receptor blockade responsible for the antiemetic effect of metoclopramide. 6. Identify the endogenous compounds involved in the analgesic action of the acetaminophen–codeine combination. 7. Describe the receptor-mediated mechanism of the antimigraine action of sumatriptan. 8. Identify the FDA-approved drugs used for migraine prophylaxis and describe the neurotransmitter system involved in the prophylactic action of valproate. 9. 9. Describe the major teratogenic effect of valproate associated with its use during pregnancy
	Scizophrenia (P-2)	1. Identify the major target symptoms of schizophrenia, including positive and negative symptoms. 2. Describe the neurotransmitter systems and dopaminergic pathways involved in the pathophysiology of schizophrenia. 3. Describe the adverse-effect profile of haloperidol, including its motor adverse effects and the brain structure involved in their development. 4. Explain the mechanism of antipsychotic-induced gynecomastia. 5. Describe the receptor pharmacology of aripiprazole, including its effects on CNS dopamine receptors. 6. 6. Identify the antipsychotic drug used in treatment-resistant schizophrenia and describe its clinical use.
	Parkinson’s Disease (P-2)	1. Describe the pharmacology of rasagiline, including its mechanism of action and the enzyme it inhibits. 2. Describe the pharmacology of pramipexole, including its molecular mechanism of action and common adverse effects. 3. Describe the pharmacology of benztropine in Parkinson’s disease, including its mechanism of action and the Parkinsonian signs primarily improved by this drug. 4. Describe the pharmacological actions of levodopa and explain the rationale for combining it with carbidopa, including the adverse effects that may be increased by this combination. 5. Describe the pharmacology of entacapone, including its molecular target and role in levodopa therapy, and explain the pharmacological basis of wearing-off and on-off phenomena in Parkinson’s disease. 6. Describe the mechanism of action of amantadine in Parkinson’s disease.

		7. Describe the pharmacology of apomorphine, including the brain receptors mediating its therapeutic effects and the drug commonly used to counteract its most frequent adverse effect.

At the end of this lesson, the student will be able to:		
SKILLS		
DEP	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL SKILLS	Examination of breast	1. Gain knowledge and understanding of the practice of self- breast examination 2. Identify the indications of breast self-examination 3. Describe the preparation and techniques in regards to breast self-examination
	Adult Advanced Life Support	1. Recognize the causes and clinical manifestations of the deteriorating patient/person at risk of suffering a life threating cardiopulmonary event 2. Deliver standardized CPR in adults 3. Manage a cardiac arrest by working with a multidisciplinary team in an emergency situation

At the end of this lesson, the student will be able to:		
PANEL		
DEP	**TOPIC**	**LEARNING OUTCOMES**
PANEL	Neurodegenerative Diseases (T-2)	1. Define neurodegenerative diseases and describe their basic pathophysiological mechanisms. 2. Recognize the common clinical features and major diagnostic findings of selected neurodegenerative diseases. 3. Explain the pathological mechanisms underlying neuronal degeneration and relate them to clinical manifestations. 4. Differentiate neurodegenerative diseases from selected inflammatory, autoimmune, and other neurological disorders with similar clinical presentations. 5. Describe the multidisciplinary approach to the diagnosis, management, and follow-up of patients with neurodegenerative diseases.