MEDICINE III

Block: MCI-525

STUDY GUIDE

Prepared by

Departments of Clinical and Chemical Pathology
Departments of Diagnostic and Interventional Radiology

Under supervision of

Medical Education Centre
Faculty of Medicine
Sohag University

2022 - 2023

Contact Information of Staff Responsible for the Block

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Staff Participated from each Departments
All Staff Members of Clinical and Chemical Pathology Department
All Staff Members of Diagnostic and Interventional Radiology Department

Contents

Basic Information about the Block

Program on which the course is given:	Bachelor of Medicine and Surgery (M.B.B.Ch.).
Elements (major or minor) of the program:	Undergraduate
Departments offering the course	Clinical and Chemical Pathology Department Diagnostic and Interventional Radiology Department
Academic Year/Level	5th Year
Prerequiestes	Achieving 75% of points of blocks in the first 5 semesters
Date of specification approval	2022 – 2023
Title	Medicine III
Code	MCI-525
Credit points	6.5
Lectures	14 hours (7 hours each)
Practicals/clinical teaching	28 hours (14 hours each)
Case based group discussions	14 hours (7 hours each)
Student self-learning activities	Portfolio Tasks (10%; 6 marks): — Attendance (3 marks) — Formative assessment (1.5 marks) — Case presentation (1.5 marks)

Block Map

The total hours of the final written exam	2 hours
Total marks	130
Days/weeks	4 weeks
Credit points	6.5
Code	MCI-525
Responsible department	Clinical and Chemical Pathology Department Diagnostic and Interventional Radiology Department
Block/module	Medicine III (MED-525): Clinical investigations (laboratory, infection control and radiology).
level/semester	5th Year

National Academic Reference Standards (NARS) Competencies Covered by The Block

NARS areas	NARS key competencies
1. The graduate as a healthcare provider	1.1. Take and record a structured, patient centered history.
	1.6. Select the appropriate investigations and interpret their results taking into consideration cost/ effectiveness factors.
	1.10. Integrate the results of history, physical and laboratory test findings into a meaningful diagnostic formulation.
	1.11. Perform diagnostic and intervention procedures in a skillful and safe manner, adapting to unanticipated findings or changing clinical circumstances.
	1.13. Establish patient-centered management plans in partnership with the patient, his/her family and other health professionals as appropriate, using Evidence Based Medicine in management decisions.
2. The graduate as a health promoter	2.9. Adopt suitable measures for infection control.
3. The graduate as a professional	3.1. Exhibit appropriate professional behaviors and relationships in all aspects of practice, demonstrating honesty, integrity, commitment, compassion, and respect.
	3.5. Ensure confidentiality and privacy of patients' information.
	3.6. Recognize basics of medico-legal aspects of practice, malpractice and avoid common medical errors.
	3.7. Recognize and manage conflicts of interest.
	3.8. Refer patients to appropriate health facility at the appropriate stage.
	3.9. Identify and report any unprofessional and unethical behaviors or physical or mental conditions related to himself, colleagues or any other person that might jeopardize patients' safety.
4. The graduate as a scholar and scientist.	4.1 Describe the normal structure of the body and its major organ systems and explain their functions.
	4.5 Identify various causes (genetic, developmental, metabolic, toxic, microbiologic, autoimmune, neoplastic, degenerative, and traumatic) of illness/disease and explain the ways in which they operate on the body (pathogenesis).
	4.6 Describe altered structure and function of the body and its major organ systems that are seen in various diseases and conditions.
	4.8 Demonstrate basic sciences specific practical skills and procedures relevant to future practice, recognizing their scientific basis, and interpret common diagnostic modalities, including: imaging, electrocardiograms, laboratory assays, pathologic studies, and functional assessment tests.

5. The graduate as a member of the health team and a part of the health care system.	5.1 Recognize the important role played by other healthcare professions in patients' management.
	5.2 Respect colleagues and other health care professionals and work cooperatively with them, negotiating overlapping and shared responsibilities and engaging in shared decision-making for effective patient management.
	5.3 Implement strategies to promote understanding, manage differences, and resolve conflicts in a manner that supports collaborative work.
	5.5 Communicate effectively using a written health record, electronic medical record, or other digital technology.
	5.6 Evaluate his/her work and that of others using constructive feedback.
	5.7 Recognize own personal and professional limits and seek help from colleagues and supervisors when necessary.
	5.9 Use health informatics to improve the quality of patient care.
	5.10 Document clinical encounters in an accurate, complete, timely, and accessible manner, in compliance with regulatory and legal requirements.
6. The graduate as a lifelong learner and researcher	6.1 Regularly reflect on and assess his/her performance using various performance indicators and information sources.
	6.2 Develop, implement, monitor, and revise a personal learning plan to enhance professional practice
	6.4 Engage in inter-professional activities and collaborative learning to continuously improve personal practice and contribute to collective improvements in practice.
	6.7 Demonstrate an understanding of the scientific principles of research including its ethical aspects and scholarly inquiry and Contribute to the work of a research study
	6.8 Critically appraise research studies and scientific papers in terms of integrity, reliability, and applicability.
	6.10 Summarize and present to professional and lay audiences the findings of relevant research and scholarly inquiry.

Professional Information

Block Aims

1. This block aims to provide students with knowledge that enable him/her to select the appropriate investigations (laboratory and imaging studies) that help in disease diagnosis or follow up.
2. By the end of the blocks, the students will be able to interpret the results of investigations (laboratory and imaging studies) taking into consideration history, physical and clinical data of the patient.
3. By the end of the blocks, the students will know the suitable measures for infection control.

Learning Outcomes of the Block

— Each competency will be broken down into learning outcomes that may be one or more of:
  K (Knowledge and understanding/cognition)
  S (Skills either practical or clinical)
  A (Attitudes and behavioral)

— Domains are either: (Know), (know how), or (Show how)

NARS Key competencies	Learning outcomes for each key competency		Domain	Teaching method	Assessment
1.1. Take and record a structured, patient centered history	S1	Obtain a detailed comprehensive history as a Data Collector in a simulated or real clinical encounter	Show how	Practical and group discussion	Portfolio OSPE
	S2	Document and report clinical information truthfully as data reporter			
	S3	Perform a focused history based on all relevant information (including obtaining data from secondary sources)			
	S4	Document and present the clinical encounter (case) concisely in an oral presentation, as a written document, and entered into an electronic medical record.			
1.6 Select the appropriate investigations and interpret their results taking into consideration cost/ effectiveness factors.	K1 S5	Select common investigations relevant to the findings on history and physical examination	Know how Show how	Lectures Practical	Quiz Formative written Final written Portfolio OSCE ACC
	K2	Describe the purpose of common diagnostic tests, including blood tests, tests of other body fluids, and basic imaging studies	Know	Lectures	Quiz Formative written Final written
	S6	Interpret in a simulated case, the results of the laboratory diagnostic tests and imaging studies	Show how	Practical and Group discussion	Practical Portfolio
1.10 Integrate the results of history, physical and laboratory test findings into a meaningful diagnostic formulation	K3 S7	Formulate a broad differential diagnosis for each problem, based on the clinical encounter and investigations done	Know how Show how	Lectures Group discussion	Quiz Formative written Final written Portfolio
	K4 S8	Propose a most likely or working diagnosis for each problem based on the clinical encounter and investigations done	Know how Show how	Lectures Group discussion	
1.11 Perform diagnostic and intervention procedures in a skillful and safe manner, adapting to unanticipated findings or changing clinical circumstances.	K5	Describe the indications for the following essential medical procedures (from NARS) , (diagnostic and intervention), how they are performed, common risks, and follow-up care	Know	Lecture	Formative written Final written

NARS Key competencies	Learning outcomes for each key competency		Domain	Teaching method	Assessment
2.9 Adopt suitable measures for infection control	K6 S9	Apply principles of patient safety related to infection prevention and control practices	Know how Show how	Lecture Group Discussion	Quiz Formative written Final written Practical Portfolio
	K7 S10	Demonstrate the procedures involved in universal body substance precautions, including handwashing, and donning and doffing of gowns, gloves, masks, and eye protection	Know how Show how	Lecture Practical	Quiz Formative written Final written Portfolio OSPE
	K8 S11	Apply principles of infection control when dealing with a patient who may have a communicable disease	Know how Show how	Lecture Practical	Quiz Formative written Final written Portfolio OSPE
3.5. Ensure confidentiality and privacy of patients' information.	K9 A1	Identify the requirements to maintain confidentiality of personal information in the context of technology enabled communication.	Know	Lecture	Formative written Final written
	K10 A2	Avoid disclosing confidential patient information in online communications			
	K11 A3	Explain the potential abuses of technology-enabled communication and their relationship to professionalism			
	K12 A4	Follow relevant policies regarding the appropriate use of electronic medical records			
3.6. Recognize basics of medico-legal aspects of practice, malpractice and avoid common medical errors.	K13 A5	Apply basics of medicolegal practices in common clinical situations	Know	Lecture	Quiz Formative written Final written
3.8. Refer patients to appropriate health facility at the appropriate stage	K14	Describe the nature of clinical expertise and of its limits	Know	Lecture	Quiz Formative written Final written
	K15 S12	Recognize the range of possible transitions a patient may encounter (e.g., hospital to home, hospital to long term care facility, emergency department to ward)	Know Show how	Lecture Practical	Quiz Formative written Final written Portfolio OSPE

NARS Key competencies	Learning outcomes for each key competency		Domain	Teaching method	Assessment
4.1 Describe the normal structure of the body and its major organ systems and explain their functions.	K16	Mention the main principles of gross anatomy of the body	Know	Lecture	Quiz Formative written Final written
	K17	Describe main gross anatomical features of the different body systems			
	K18	Correlate main gross anatomical features of system with the clinical situations			
	S13	Identify the following different parts and organs of the human body related to the other body system	Show how	Practical	Portfolio OSPE
	S14	Determining blood group and performing cross matching and computability tests	Know	Lecture	Quiz Formative written Final written
	K19	Explain the principles of normal immune function.			
4.5 Identify various causes (genetic, developmental, metabolic, toxic, microbiologic, autoimmune, neoplastic, degenerative, and traumatic) of illness/disease and explain the ways in which they operate on the body (pathogenesis).	K20	Identify principles of infection	Know	Lecture	Quiz Formative written Final written
	K21	Identify principle of altered immune functions			
	K22	Identify common infection agents in the body system			
	S15	Preparing urine and stool specimen for microscopic examination	Show how	Practical	Portfolio OSPE
	S16	Performing Biochemical and microscopic urine and stool analysis.			
	S17	Identifying bacteria and fungi under the microscope			
	S18	Differentiating the following bacterial growth in culture			
4.6 Describe altered structure and function of the body and its major organ systems that are seen in various diseases and conditions.	K23	State the definitions and criteria of the main/general pathological conditions including: (e.g. inflammation, ..)	Know	Lecture	Quiz Formative written Final written
	K24	Give the main macroscopic and microscopic features of the main/general pathological conditions including: (e.g. Inflammation, ..)			
	K25	Identify the main macroscopic and microscopic features of each of the following clinical diseases/conditions in different body system			

NARS Key competencies	Learning outcomes for each key competency		Domain	Teaching method	Assessment
4.8 Demonstrate basic sciences specific practical skills and procedures relevant to future practice, recognizing their scientific basis, and interpret common diagnostic modalities, including: imaging, electrocardiograms, laboratory assays, pathologic studies, and functional assessment tests.	K26 S19	Interpret the following diagnostic imaging modalities.	Know how Show how	Lecture Practical	Quiz Formative written Final written Portfolio OSPE
	K27 S20	Interpret the following laboratory assays.			
5.2 Respect colleagues and other health care professionals and work cooperatively with them, negotiating overlapping and shared responsibilities and engaging in shared decision-making for effective patient management.	K28 A6	Demonstrate respect and cooperation with all health care providers in a primary or family health care center	Know how	Lecture Practical	Quiz Formative written Portfolio
	K29 A7	Demonstrate respect and cooperation with all health care providers in the following clinical settings			
5.3 Implement strategies to promote understanding, manage differences, and resolve conflicts in a manner that supports collaborative work.	K30	Identify clinical scenarios that are likely to lead to conflict	Know how	Lecture Group Discussion	Quiz Formative written Portfolio OSPE
	K31	Describe the root causes of conflict in interprofessional teams			
	K32 A8	Recognize one’s own approach to conflict			
	K33	Describe approaches to conflict resolution			
	K34 A9	Demonstrate the capacity to resolve conflicts that occur with colleagues related to issues such as prioritization of duties			

NARS Key competencies	Learning outcomes for each key competency		Domain	Teaching method	Assessment
5.5 Communicate effectively using a written health record, electronic medical record, or other digital technology.	S21 A10	Communicate effectively with patients	Know how Show how	Group discussion Practical	Portfolio OSCE
	A11	Communicate with colleagues			
	S11 A12	Communicate in breaking bad news			
	A13	Communicate with relatives			
	A14	Communicate with disabled people			
	A15	Communicate in seeking informed consent			
	S23 A16	Communicate in writing (including medical records)			
	S24 A17	Communicate in dealing with aggression			
	A18	Communicate with colleagues			
	S25 A19	Communicate in writing (including medical records			

Structure of The Block

1. Clinical and Chemical Pathology

Lectures (Number per week)	Practical (Number per day)	Portfolio Tasks (Number)	Case-based Discussions (Number)	Formative Assessment (Number)	Revisions and Exams	Total
1	1	2	2			
1	1	2	2	1		
1	1	2	2			
1	1	2	2	1		
1	1	2	2			
1	1	2	2	1		
1	1	2	2	1		

As regard lecture, practical and case-based discussion, Number = contact hours

2. Diagnostic and Interventional Radiology

Lectures (Number per week)	Practical (Number per day)	Portfolio Tasks (Number)	Case-based Discussions (Number)	Formative Assessment (Number)	Revisions and Exams	Total
1	1	2	2			
1	1	2	2	1		
1	1	2	2			
1	1	2	2	1		
1	1	2	2			
1	1	2	2	1		
1	1	2	2	1		

Learning Methods

1. Lectures for knowledge outcomes.
2. Practical (labs/Bedside/skill lab) sessions to gain clinical/practical skills.
3. Task-based log (may use incision academy/clinical key cases) recorded in the portfolio.
4. Group discussions (Case–based).

Methods of Student Assessment

1. **Formative:**
   This is used to monitor student's learning to provide ongoing feedback that can be used by instructors to improve their teaching and by students to improve their learning. It's given once weekly, and the answers are presented and discussed immediately with you after the assessment.
2. **Summative:**
   It is used to evaluate student's achievements at the end of an instructional unit. The grades tell whether the student achieved the learning goal or not.

The student's performance will be assessed according to the following:

1. Clinical and Chemical Pathology

Assessment task	Type of assessment	Proportion	
		%	Marks
Mid-term exam	MCQs (single answer)	10%	13
Portfolio (75% of its mark is a requirement to enter final exam)	Includes the following: — Attendance — Formative assessment — Case presentation	5%	(Total 6 marks) 3 1.5 1.5
Final written exam	MCQs (single answer)	20%	26
Practical /clinical	OSCE MCQ (best answer)	15%	20

2. Diagnostic and Interventional Radiology

Assessment task	Type of assessment	Proportion	
		%	Marks
Mid-term exam	MCQs (single answer)	10%	13
Portfolio (75% of its mark is a requirement to enter final exam)	Includes the following: — Attendance — Formative assessment — Case presentation	5%	(Total 6 marks) 3 1.5 1.5
Final written exam	MCQs (single answer)	20%	26
Practical /clinical	OSCE MCQ (best answer)	15%	20

Total	100%	130

Block Evaluation

— Students' results
— Students' feedback
— Tutors' feedback

Block Content

1. Lecture Topics and Their Learning Outcomes (K)

A. Clinical and Chemical Pathology (Lectures)

No.	Learning outcomes	Lectures Titles and The Specified Reference(s)	Week	Contact Hours
1	K1, K2, K3, K4, K9, K10, K11, K12, K13, K23, K24, K25, K27, K28, K29	**Laboratory Diagnosis of Red Blood Cells Disorders** **Laboratory Diagnosis White Blood Cells Disorders** Medical Student's Clinical Pathology Book Pages 1:31 Lectures Handouts	1st	1
2	K1, K2, K3, K4, K9, K10, K11, K12, K13, K23, K24, K25, K27, K28, K29	**Laboratory Diagnosis of Hepatobiliary Disorders** **Laboratory Diagnosis of Endocrine Disorders** **Use of Enzymes in Clinical Diagnosis** Medical Student's Clinical Pathology Book Pages 77:122 Lectures Handouts	2nd	1
3	K1, K2, K3, K4, K9, K10, K11, K12, K13, K19, K21, K27, K28, K29	**Laboratory Diagnosis of Immunological Disorders** Medical Student's Clinical Pathology Book Pages 53:76 Lectures Handouts	3rd	1
4	K1, K2, K3, K4, K6, K7, K8, K9, K10, K11, K12, K13, K27, K28, K29	**Infection Control and Safety Measures** Medical Student's Clinical Pathology Book Pages 77:122 Lectures Handouts	4th	1
5	K1, K2, K3, K4, K9, K10, K11, K12, K13, K23, K24, K25, K27, K28, K29	**Laboratory Diagnosis of Hemostatic Disorders** **Transfusion Medicine** Medical Student's Clinical Pathology Book Pages 32:52 Lectures Handouts	5th	1
6	K1, K2, K3, K4, K9, K10, K11, K12, K13, K23, K24, K25, K27, K28, K29	**Laboratory Diagnosis of Renal Disorders, Lipid Disorders and Diabetes Miletus** Medical Student's Clinical Pathology Book Pages 77:122 Lectures Handouts	6th	1
7	K1, K2, K3, K4, K9, K10, K11, K12, K13, K20, K22, K27, K28, K29	**Microbiological diagnosis of Infectious diseases** Medical Student's Clinical Pathology Book Pages 77:122 Lectures Handouts	7th	1
			Total	7

B. Diagnostic and Interventional Radiology (Lectures)

No.	Learning outcomes	Lectures Titles and The Specified Reference(s)	Week	Contact Hours
1	K1, K2, K3, K4, K5, K9, K10, K11, K12, K13, K14, K15, K26, K28, K29	**Introduction to Imaging Modalities:** Basics of Doppler Imaging Basics of Ultrasonography Lecture Notes Radiology book for Undergraduate- Radiology department-Sohag University, pages: 3-33.	1st	1
2	K3, K4, K5, K16, K17, K18, K23, K24, K25, K26, K30, K31, K32, K33, K34	**Basics of Gynecological Imaging** Lecture Notes Radiology book for Undergraduate- Radiology department-Sohag University, pages: 135-152 . **Basics of Breast Imaging** Radiology book for Undergraduate- Radiology department-Sohag University, pages: 123-134.	2nd	1
3	K3, K4, K5, K16, K17, K18, K23, K24, K25, K26, K30, K31, K32, K33, K34	**Neuroimaging** Lecture Notes Radiology book for Undergraduate- Radiology department-Sohag University, pages: 77-91.	3rd	1
4	K3, K4, K5, K16, K17, K18, K23, K24, K25, K26, K30, K31, K32, K33, K34	**Gastrointestinal imaging** Lecture Notes Radiology book for Undergraduate- Radiology department-Sohag University, pages: 92-107. **Urinary Tract Imaging** Lecture Notes Radiology book for Undergraduate- Radiology department-Sohag University, pages: 108-122.	4th	1
5	K3, K4, K5, K16, K17, K18, K23, K24, K25, K26, K30, K31, K32, K33, K34	**Cardiovascular and Chest Imaging** Lecture Notes Radiology book for Undergraduate- Radiology department-Sohag University, pages: 34-76.	5th	1
6	K3, K4, K5, K16, K17, K18, K23, K24, K25, K26, K30, K31, K32, K33, K34	**MSK Imaging** Lecture Notes Radiology book for Undergraduate- Radiology department-Sohag University, pages: 153-177. **Basics of Spine Imaging** Lecture Notes Radiology book for Undergraduate- Radiology department-Sohag University, pages: 178-187.	6th	1
7	K3, K4, K5, K16, K17, K18, K23, K24, K25, K26, K30, K31, K32, K33, K34	**Head and Neck Imaging** Lecture Notes Radiology book for Undergraduate- Radiology department-Sohag University, pages: 188-204. **Interventional Radiology** Lecture Notes Radiology book for Undergraduate- Radiology department-Sohag University, pages: 205-217.	7th	1
			Total	7

2. Skills and tasks and Their Learning Outcomes

A. Clinical and Chemical Pathology (Practical)

No.	Learning outcomes	Practical/Bedside/skill lab sessions and titles	Day	Contact Hours
1	S1, S2, S3, S4, S5, S6, S7, S8, S20 A1, A2, A3, A4, A5, A6, A7	**Lab Diagnosis of RBCs & WBCs Disorders** Correlation of cell morphology with different disorders Interpretation of Laboratory reports Recommendation of further testing to reach diagnosis	1st	2
2	S1, S2, S3, S4, S5, S6, S7, S8, S20 A1, A2, A3, A4, A5, A6, A7	**Lab Diagnosis of Hemostatic Disorders** Interpretation of related laboratory reports Recommendation of further testing to reach diagnosis	2nd	2
3	S1, S2, S3, S4, S5, S6, S7, S8, S20 A1, A2, A3, A4, A5, A6, A7	**Blood Bank Techniques** Selecting Blood donors Testing of Donor's Blood	3rd	2
4	S1, S2, S3, S4, S5, S6, S7, S8, S20 A1, A2, A3, A4, A5, A6, A7	**Lab Diagnosis of immune Disorders** Interpretation of related laboratory reports Recommendation of further testing to reach diagnosis	4th	2
5	S1, S2, S3, S4, S5, S6, S7, S8, S20 A1, A2, A3, A4, A5, A6, A7	**Lab Diagnosis of Immune Disorders** Interpretation of related laboratory reports Recommendation of further testing to reach diagnosis	5th	2
6	S1, S2, S3, S4, S5, S6, S7, S8, S20 A1, A2, A3, A4, A5, A6, A7	**Lab Diagnosis of hepatobiliary Disorders** Interpretation of related laboratory reports Recommendation of further testing to reach diagnosis	6th	2
7	S1, S2, S3, S4, S5, S6, S7, S8, S20 A1, A2, A3, A4, A5, A6, A7	**Lab Diagnosis of Renal Disorders** **Lab Diagnosis of Endocrine Disorders** **Lab Diagnosis of Lipid Disorders** Interpretation of related laboratory reports Recommendation of further testing to reach diagnosis	7th	2
8	S1, S2, S3, S4, S5, S6, S7, S8, S20 A1, A2, A3, A4, A5, A6, A7	**Use of enzymes in laboratory diagnosis** **Lab Diagnosis of Electrolyte imbalance** **Lab Diagnosis of Acid-base imbalance** Interpretation of Laboratory reports Recommendation of further testing to reach diagnosis	8th	2
9	S1, S2, S3, S4, S5, S6, S7, S8, S20 A1, A2, A3, A4, A5, A6, A7	**Lab Diagnosis of Microbiological diseases** Interpretation of Laboratory reports Recommendation of further testing to reach diagnosis	9th	2
10	S1, S2, S3, S4, S5, S6, S7, S8, S20 A1, A2, A3, A4, A5, A6, A7	**Antimicrobial stewardship** **Infection control and Safety measures**	10th	2
			Total	20

B. Diagnostic and Interventional Radiology (Practical Topics)

No.	Learning outcomes	Practical/Bedside/skill lab sessions and titles	Day	Contact Hours
1	S1, S2, S3, S4, S5, S7, S8, S12, S19, S21, S22, S23, S24, S25 A1, A2, A3, A4, A5, A6, A7, A10, A11, A12, A13, A14, A15, A16, A17, A18, A19	Differentiate between different imaging modalities.	1st	1.5
2	S6, S7, S8, S13, S19, S21, S22, S23, S24, S25 A8, A9, A10, A11, A12, A13, A14, A15, A16, A17, A18, A19	Basics of ultrasound and color Doppler sonography. Urinary Tract Imaging (US, X-ray, CT and MRI)	2nd	1.5
3	S6, S7, S8, S13, S19, S21, S22, S23, S24, S25 A8, A9, A10, A11, A12, A13, A14, A15, A16, A17, A18, A19	Normal and abnormal CT & MRI of the brain	3rd	1.5
4	S6, S7, S8, S13, S19, S21, S22, S23, S24, S25 A8, A9, A10, A11, A12, A13, A14, A15, A16, A17, A18, A19	Normal and abnormal GIT plain x-ray. Identify normal GIT barium studies. Abnormal GIT barium studies.	4th	1.5
5	S6, S7, S8, S13, S19, S21, S22, S23, S24, S25 A8, A9, A10, A11, A12, A13, A14, A15, A16, A17, A18, A19	Normal and abnormal chest X-rays and cardiomegaly	5th	1.5
6	S6, S7, S8, S13, S19, S21, S22, S23, S24, S25 A8, A9, A10, A11, A12, A13, A14, A15, A16, A17, A18, A19	Normal and abnormal HSG. Normal and abnormal mammography, abnormal breast ultrasound.	6th	1.5
7	S6, S7, S8, S13, S19, S21, S22, S23, S24, S25 A8, A9, A10, A11, A12, A13, A14, A15, A16, A17, A18, A19	CT Orbit, PNS, Petrous and Neck Plain X-ray-CT and MRI of the Spine (Normal, degenerative, Trauma)	7th	1.5
8	S6, S7, S8, S13, S19, S21, S22, S23, S24, S25 A8, A9, A10, A11, A12, A13, A14, A15, A16, A17, A18, A19	Plain X-ray, CT & MRI of the bone and joints (Normal, fractures and osteomyelitis). Learning about Interventional radiology different modalities as conventional angiography either diagnostic or therapeutic, and their indications. Tissue Tru-Cut needle biopsy, its indications, and contraindications.	8th	1.5
9	S6, S7, S8, S13, S19, S21, S22, S23, S24, S25 A8, A9, A10, A11, A12, A13, A14, A15, A16, A17, A18, A19	Revision; includes different X-ray, CT, and MRI of different pathologies in different systems.	9th	1.5
10	S6, S7, S8, S13, S19, S21, S22, S23, S24, S25 A8, A9, A10, A11, A12, A13, A14, A15, A16, A17, A18, A19	Case based presentations	10th	1.5
			Total	15

3. Self-Directed Learning and Group Discussion (Clinical case scenarios and MCQs)

A. Clinical and Chemical Pathology

No.	Learning outcomes	Practical/Bedside/skill lab sessions and titles	Day	Contact Hours
1	K1, K2, K3, K4, K9, K10, K11, K12, K13, K23, K24, K25, K27, K28, K29	**Clinical Hematology – RBCs Disorders** Case scenarios: Iron Deficiency Anemia, Thalassemia Major, Thalassemia Trait, Megaloblastic Anemia, Sickle Cell Anemia, G6PD deficiency, Hereditary Spherocytosis, Autoimmune Hemolytic anemia	1st	1
2	K1, K2, K3, K4, K9, K10, K11, K12, K13, K23, K24, K25, K27, K28, K29	**Clinical Hematology – Hemostatic Disorders** Case scenarios: Hemophilia, vWD, ITP, Glanzmann's disease, Bernard-Soulier syndrome, DIC	2nd	1
3	K1, K2, K3, K4, K9, K10, K11, K12, K13, K23, K24, K25, K27, K28, K29	**Clinical Hematology – WBCs Disorders** Case scenarios: Lymphocytosis, Neutrophilia, Eosinophilia, AML, ALL, CML, CLL, MM and PRV	3rd	1
4	K1, K2, K3, K4, K9, K10, K11, K12, K13, K19, K21, K27, K28, K29	**Clinical Immunology** Case scenarios: Hepatitis B, IMN, AIDS, Food allergy	4th	1
5	K1, K2, K3, K4, K9, K10, K11, K12, K13, K19, K21, K27, K28, K29	**Clinical Immunology** Case scenarios: RA, SLE, Celiac disease, AIH, APS	5th	1
6	K1, K2, K3, K4, K9, K10, K11, K12, K13, K23, K24, K25, K27, K28, K29	**Clinical Chemistry** Case scenarios: Liver cirrhosis, obstructive jaundice, Hemolytic jaundice, Hepatitis A, Polyclonal Gammopathy.	6th	1
7	K1, K2, K3, K4, K9, K10, K11, K12, K13, K23, K24, K25, K27, K28, K29	**Clinical Chemistry** Case scenarios: Nephrotic syndrome, glomerulonephritis, Acute renal failure, Acute kidney injury, End-stage renal failure, Diabetes insipidus, hyperlipidemia, Respiratory acidosis, Metabolic alkalosis, Metabolic acidosis.	7th	1
8	K1, K2, K3, K4, K9, K10, K11, K12, K13, K23, K24, K25, K27, K28, K29	**Clinical Chemistry** Case scenarios: Diabetic Ketoacidosis, Gestational diabetes, Myocardial infarction, Acute pancreatitis, Graves disease, Hashimoto disease, Hyperparathyroidism.	8th	1
9	K1, K2, K3, K4, K9, K10, K11, K12, K13, K20, K22, K27, K28, K29	**Clinical Microbiology** Bacterial Meningitis, Viral meningitis, urinary tract infections, bilharziasis, Giardiasis, Food poisoning	9th	1
10	K1, K2, K3, K4, K9, K10, K11, K12, K13, K20, K22, K27, K28, K29	**Clinical Microbiology** PUO, Typhoid fever, Brucellosis, Rheumatic Fever, Tuberculosis.	10th	1
			Total	10

B. Diagnostic and Interventional Radiology

No.	Learning outcomes	Practical/Bedside/skill lab sessions and titles	Day	Contact Hours
1	K1, K2, K3, K4, K5, K9, K10, K11, K12, K13, K14, K15, K26, K28, K29	How to choose the best modality for each case.	1st	1.5
2	K3, K4, K5, K16, K17, K18, K23, K24, K25, K26, K30, K31, K32, K33, K34	KUB plain X-ray & IVU (Stones and hydronephrosis) CTU (Stones and masses) Ascending cystourethrogram (stricture).	2nd	1.5
3	K3, K4, K5, K16, K17, K18, K23, K24, K25, K26, K30, K31, K32, K33, K34	Cerebrovascular Stroke (infarction, hemorrhage) Extradural, subdural and subarachnoid hemorrhage. Intracranial Infections, masses and calcifications	3rd	1.5
4	K3, K4, K5, K16, K17, K18, K23, K24, K25, K26, K30, K31, K32, K33, K34	Plain X-rays for: — Intestinal Obstruction — Pneumoperitoneum — GIT FB ingestion Barium studies cases — Inflammatory bowel diseases — Achalasia — CHPS — GIT cancer	4th	1.5
5	K3, K4, K5, K16, K17, K18, K23, K24, K25, K26, K30, K31, K32, K33, K34	Pneumonia Pleural effusion Pneumothorax Lung mass Metastases Cardiomegaly	5th	1.5
6	K3, K4, K5, K16, K17, K18, K23, K24, K25, K26, K30, K31, K32, K33, K34	HSG — Uterine myoma — Ashermann Syndrome — Bicornuate uterus — Hydrosalpnix — Tubal block Mammography: — Fibroadenoma — Breast cancer — benign and malignant calcification. Breast Ultrasound: — Benign and malignant masses — Breast abscess.	6th	1.5
7	K3, K4, K5, K16, K17, K18, K23, K24, K25, K26, K30, K31, K32, K33, K34	CT Orbit, PNS, Petrous and Neck: Head Trauma, Adenoid, Maxillary sinusitis, and neck mass. Plain X-ray-CT & MRI of the Spine (Normal, degenerative, Trauma)	7th	1.5
8	K1, K2, K3, K4, K6, K7, K8, K9, K10, K11, K12, K13, K27, K28, K29	Normal bone and joints X-rays Bone fractures X-rays fractures and osteomyelitis. Interventional Radiology equipment and requirements.	8th	1.5
9	K1, K2, K3, K4, K6, K7, K8, K9, K10, K11, K12, K13, K27, K28, K29	Revision; includes different X-ray, CT, and MRI of different pathologies in different systems.	9th	1.5
10	K3, K4, K5, K16, K17, K18, K23, K24, K25, K26, K30, K31, K32, K33, K34	Case presentations	10th	1.5
			Total	15

4. Portfolio

A. Clinical and Chemical Pathology (Portfolio)

Week	Task to be recorded in the portfolio	Formative assessment
1st	• Interpretation of lab reports (Clinical Hematology), • if needed, order further investigation to reach diagnosis.	Attend and pass the formative exam at the end of the week.
2nd	• Interpretation of lab reports (Clinical Hematology), • if needed, order further investigation to reach diagnosis. • Apply criteria of blood donor selection and Blood Bank techniques.	Attend and pass the formative exam at the end of the week.
3rd	• Interpretation of lab reports (Clinical Immunology), • if needed, order further investigation to reach diagnosis.	Attend and pass the formative exam at the end of the week.
4th	• Interpretation of lab reports (Clinical Chemistry), • if needed, order further investigation to reach diagnosis.	Attend and pass the formative exam at the end of the week.
5th	• Interpretation of lab reports (Clinical Chemistry), • if needed, order further investigation to reach diagnosis.	Attend and pass the formative exam at the end of the week.
6th	• Interpretation of lab reports (Clinical Microbiology), • if needed, order further investigation to reach diagnosis.	Attend and pass the formative exam at the end of the week.
7th	• Antimicrobial therapy • Infection control and safety measures	Attend and pass the formative exam at the end of the week.

B. Diagnostic and Interventional Radiology (Portfolio)

Week	Task to be recorded in the portfolio	Formative assessment
1st	• Indications and contraindications for different imaging modalities. • Basics of ultrasonography and color Doppler sonography.	Attend and pass the formative exam at the end of the week.
2nd	• Identify normal and abnormal HSG. • Identify normal and abnormal mammography and breast US.	Attend and pass the formative exam at the end of the week.
3rd	• Diagnose CT brain infarction. • Diagnose CT brain cerebral hemorrhage. • Differentiate between CT brain extra and subdural hematomas.	Attend and pass the formative exam at the end of the week.
4th	• Identify GIT ingested FB • Diagnose intestinal obstruction in plain abdominal x-ray. • Diagnose inflammatory bowel disease in barium enema. • Differentiate between achalasia and cancer esophagus in barium swallow. • Identify cancer colon in barium enema. • Identify renal, ureteric and UB stones in x-rays and MSCT KUB.	Attend and pass the formative exam at the end of the week.
5th	• Identify normal chest X-rays. • Diagnose different chest pathologies in different chest X-rays. • Diagnose Cardiomegaly	Attend and pass the formative exam at the end of the week.
6th	• Identify normal joints x-rays. • Detect bone fractures. • Identify osteomyelitis in X-ray. • Identify spine trauma and degenerative diseases.	Attend and pass the formative exam at the end of the week.
7th	• Diagnose different head and neck pathologies in different CT. • Learning about interventional radiology different modalities as conventional angiography either diagnostic or therapeutic, and their indications. Tissue Tru-Cut needle biopsy and its indications, and contraindications.	Attend and pass the formative exam at the end of the week.

5. Written Blueprint of The Block

	No.	List of Lectures Topics	Contact Hours	Weigh% of Total block (Percentage)	End-Block Exam (Marks)	Final-Written Exam (Marks)	Total Marks
Clinical Pathology	1	Lab diagnosis of RBCs and WBCs disorders	1	8%	4	2	6
	2	Lab diagnosis of Hemostatic disorders and transfusion medicine	1	7%	—	5	5
	3	Lab diagnosis of immunological Disorders	1	10%	3	5	8
	4	Hepatobiliary and endocrine disease, DM, enzymes in clinical diagnosis	1	7.5%	4	2	6
	5	Lipid disorders, renal diseases, electrolytes, and acid-base imbalance	1	7.5%	—	6	6
	6	Microbiological diagnosis of Infectious diseases	1	7%	2	3	5
	7	Infection control and safety measures	1	3%	—	3	3
Radiology	8	Introduction to Imaging Modalities, Ultrasonography, Doppler US	1	15.4%	3	3	6
	9	Gynecological and breast Imaging	1	12.8%	3	2	5
	10	Neuroimaging	1	15.4%	3	3	6
	11	Gastrointestinal and Urinary Tract Imaging	1	18%	4	3	7
	12	Chest and cardiovascular imaging	1	12.8%	—	5	5
	13	MSK and Spine Imaging	1	12.8%	—	5	5
	14	Head and Neck Imaging and Interventional Radiology	1	12.8%	—	5	5
		Total	**14**	**100%**	**26**	**52**	**78**

6. Practical Blueprint of The Block

	No.	List of Practical/Clinical Topics	Contact Hours	Weigh% of Total block (Percentage)	Final-Practical Exam (Marks)
Clinical Pathology	1	Lab diagnosis of RBCs disorders	3	5%	2
	2	Lab diagnosis of WBCs disorders	3	5%	2
	3	Lab diagnosis of hemostatic disorders, blood transfusion	3	5%	2
	4	Immunological diagnosis of infectious diseases	3	5%	2
	5	Lab diagnosis of autoimmune diseases	3	5%	2
	6	Lab diagnosis of hepatobiliary disorders	3	5%	2
	7	Lab diagnosis of lipid, renal and endocrine disorders	3	5%	2
	8	Use of enzymes in clinical diagnosis, electrolytes and acid-base imbalance	3	5%	2
	9	Microbiological diagnosis of Infectious diseases	3	7%	3
	10	Antimicrobial stewardship, Infection control and safety measures	3	3%	1
Radiology	11	Differentiate between different imaging modalities	3	2.5%	1
	12	Basics of Ultrasonography and Doppler US and Urinary Tract Imaging	3	5.0%	2
	13	CT and MRI of the brain	4	7.5%	3
	14	Normal and abnormal GIT plain x-ray and GIT barium studies	4	7.5%	3
	15	Normal and abnormal chest and Cardiac X-rays	4	7.5%	3
	16	Normal and abnormal HSG, mammography and breast ultrasound	4	7.5%	3
	17	CT Orbit, PNS, Petrous and Neck and plain X-Ray, CT, and MRI of Spine.	4	5.0%	2
	18	Bone and joints imaging (Normal, fractures and osteomyelitis) Interventional radiology different modalities as conventional angiography. Tissue Tru-Cut needle biopsy indications, and contraindications.	4	7.5%	3
		Total	**60**	**100%**	**40**

Lecture Outlines

A. Clinical and Chemical Pathology

Clinical Pathology **– Lecture 1** (Hematology)	
Title:	Laboratory Diagnosis of **Red** and **White Blood Cells Disorders**
Source:	Medical Students Clinical Pathology Book 2023, Page: 3 – 31 Lecture Handouts
Content:	Erythropoiesis Normal RBC Parameters for Adults Common Abnormalities of RBCs Classification and Laboratory Investigations of Different t\Types of Anemia Erythrocyte Sedimentation Rate Normal Total and differential Leucocytic Count Benign (Reactive) and Malignant Leucocytes Disorders Polycythemia Rubra Vera Hypersplenism Bone Marrow Examination
Specific ILOs:	By the end of the lecture the student will be able to: — Classify, list, lab diagnose different types of anemia — Enumerate the causes of Benign (Reactive) Leucocytes Disorders — Diagnose Leukemia, Plasma cells Myeloma and Polycythemia vera

Clinical Pathology **– Lecture 2** (Clinical Chemistry)	
Title:	Laboratory Diagnosis of hepatocellular Disorders, Diabetes Mellitus, and Thyroid Diseases and The Use of Enzymes in Clinical Diagnosis
Source:	Medical Students Clinical Pathology Book 2023, Page: 77 – 118 Lecture Handouts
Content:	Liver function tests (bilirubin, liver enzymes, albumin, total proteins, and prothrombin time) Diabetes Mellitus (DM): Plasma Glucose Levels, Classification of DM, Laboratory Diagnosis and monitoring of DM, Metabolic complications of DM and Gestational diabetes Thyroid Gland: Thyroid function tests and Thyroid disorders Diagnostic enzymes: Cardiac enzymes and proteins and Pancreatic enzymes
Specific ILOs:	By the end of the lecture the student will be able to: — Recognize the liver function tests and their significance — Select and interpret the appropriate tests for diagnosis and follow-up of liver diseases. — Identify the reference intervals of plasma glucose in healthy subjects. — List various types of DM and other categories of glucose intolerance. — Enumerate the diagnostic criteria of DM and categories of glucose intolerance. — Select the appropriate test to monitor glycemic control. — List the various diabetic metabolic complications. — Enumerate the indications, normal criteria, and abnormalities of the oral glucose tolerance test (OGTT), the diagnostic criteria and causes of these abnormalities. — Recognize who should be screened for gestational DM, when and how to do the screening, and how to perform definitive test and interpret its results. — Enumerate the cardiac markers used in the diagnosis of myocardial infarction, their significance, and the timing of rise, peak and decline of each one of them. — Enumerate the pancreatic enzymes used in clinical diagnosis and their significance. — Recognize the regulatory feedback system controlling thyroid hormone production. — Enumerate the different causes of thyroid dysfunction — List the different thyroid function tests and their clinical significance — Interpret the different thyroid function tests and correlate them with the different thyroid dysfunctions — Recognize non-thyroidal illness states and their influence on the thyroid hormones. — List other laboratory tests that may be used to diagnose thyroid dysfunction.

Clinical Pathology **– Lecture 3** (Immunology)	
Title:	Laboratory Diagnosis of **Immunological Disorders**
Source:	Medical Students Clinical Pathology Book 2023, Page: 53 – 76 Lecture Handouts
Content:	Serological diagnosis of infectious Diseases Hypersensitivity Reactions Immunological diagnosis of Autoimmune Diseases: Rheumatoid Arthritis, Systemic Lupus Erythematosus, Antiphospholipid syndrome, Type 1 Diabetes Mellitus, Celiac Disease, and Autoimmune Hepatitis. Transplantation Immunology
Specific ILOs:	By the end of the lecture the student will be able to: — Interpretation of serological markers of different infectious diseases — Listing types of hypersensitivity reactions and their specifications — Ordering correct immunological tests for diagnosing autoimmune diseases — Enumeration laboratory tests required before transplantation. — Understanding different complications of transplantation

Clinical Pathology **– Lecture 4** (Microbiology)	
Title:	Infection Control and Safety Measures in Healthcare Facilities
Source:	Medical Students Clinical Pathology Book 2023, Page: 147 – 155 Lecture Handouts
Content:	Healthcare Associated Infections (HAIs) Hand Hygiene Precautions to Prevent Transmission of Infectious Agents Waste Disposal Management Blood and Infectious Fluid Exposures
Specific ILOs:	By the end of the lecture the student will be able to: — Understand definition of Hospital associated infections and their types — Apply surveillance system to identify HAIs percentage — Understand procedures to prevent and control infections

Clinical Pathology **– Lecture 5** (Hematology)	
Title:	Laboratory Diagnosis of **Hemostasis Disorders** and **Transfusion Medicine**
Source:	Medical Students Clinical Pathology Book 2023, Page: 32 – 52 Lecture Handouts
Content:	Laboratory Diagnosis of Hemostatic Functions a. Screening (First Line) Hemostatic Tests b. Specific (Second Line) Hemostatic Tests Causes, Pathogenesis and Laboratory Diagnosis of Bleeding Disorders Types and Causes of Thrombophilia Blood Cell Transfusion-Related Antigens Criteria of Blood Donor Selection Testing of Donor's Blood Rationale Use of Blood Components Adverse Effects of Blood Transfusion Massive Transfusion
Specific ILOs:	By the end of the lecture the student will be able to: — Interpretation of first- and second-line hemostatic tests — Identifying and diagnose different types of hemostatic disorders — Knowing how to select blood donors — Enumeration the donor blood tests needed before blood administration — Knowing the complications of blood transfusion

Clinical Pathology **– Lecture 6** (Clinical Chemistry)	
Title:	Laboratory Diagnosis of Lipid Disorders, Renal Diseases, Calcium and Phosphate Disorders, Acid-Base and Electrolytes Disturbances
Source:	Medical Students Clinical Pathology Book 2023, Page: 77 – 118 Lecture Handouts
Content:	Lipid Disorders — Lipoproteins — Hyperlipidemias Renal Diseases — Renal Function Tests — Complete Urine Analysis — Biochemical Findings in Some Renal Disorders Acid-Base and Electrolyte Disturbances — Respiratory and Metabolic Disturbances — Sodium and Potassium Disturbances Calcium and Phosphate Disturbances — Parathyroid Disorders
Specific ILOs:	By the end of the lecture the student will be able to: — Know the major lipid classes and list types of lipoproteins — Recognize the general function of lipoproteins — Recognize the clinical significance of lipid profile assessment. — Recognize different causes of hyperlipidemia — Recognize how to prepare the patient for serum lipid profile testing. — Identify the reference interval of serum lipoprotein profile in adults. — Recognize and interpret urinalysis and renal function tests. — Recognize and differentiate the causes of proteinuria and polyuria. — Recognize the reference intervals of pH, HCO_3, and pCO_2 in arterial blood sample. — Understand respiratory and metabolic disturbance and know the causes of acidosis and alkalosis and discriminate between respiratory and metabolic causes. — Recognize the reference intervals of sodium and potassium. — Understand the causes of sodium and potassium disturbances. — List the causes of calcium and phosphorus disturbances. — Recognize the laboratory findings in 1ry, 2ry and 3ry hyperparathyroidism. — Identify the laboratory findings in primary and pseudohypoparathyroidism.

Clinical Pathology **– Lecture 7** (Microbiology)	
Title:	Microbiological Diagnosis of Infectious Diseases and Antibiotics
Source:	Medical Students Clinical Pathology Book 2023, Page: 124 – 146 Lecture Handouts
Content:	Meningitis (Causative pathogens, CSF characteristics, and lab diagnosis of meningitis) Blood stream infections (Causative organisms and blood culture interpretation) Urinary tract infections (Causative organisms and urine culture interpretation) Respiratory infections including tuberculosis (Causative organisms and lab diagnosis) GIT infections (Causative organisms and laboratory diagnosis) Pyrexia of Unknown Origin (Causative organisms, lab diagnosis, results interpretation) Wound and anerobic infections Lower Genital Tract Infections Sexually Transmitted Diseases and Congenital infections Antimicrobial therapy (Classification, mechanism of action, clinical use, Antimicrobial Resistance, use of antibiotics in pregnancy and antimicrobial stewardship)
Specific ILOs:	By the end of the lecture the student will be able to: — List the types of infection and how to diagnose each type and interpret the results. — Recognize Classification of Antimicrobial therapy — Enumerate the mechanisms of actions of Antimicrobials — Enumerate the causes of Antimicrobial Resistance — Choose the safe antibiotics for pregnant women — Recognize how to achieve antimicrobial stewardship.

B. Diagnostic and Interventional Radiology

Diagnostic Radiology **– Lecture 1**	
Title:	Introduction to Different Imaging Modalities, Basics of Ultrasonography and Basics of Doppler Imaging
Source:	Lecture Notes Radiology book for Undergraduates (Radiology department – Sohag University), pages 3-33.
Content:	Types of imaging modalities Indications and contraindications of different modalities and how to differentiate How to choose the best modality for each patient Basics of Ultrasonography Basics of Doppler Imaging
Specific ILOs:	By the end of the lecture the student will be able to: — Differentiate between CT & MRI images, know their indications and contraindications — Describe the best modality of each case

Diagnostic Radiology **– Lecture 2**	
Title:	Basics of Breast Imaging and Basics of Gynecological Imaging
Source:	Lecture Notes Radiology book for Undergraduates (Radiology department – Sohag University) — Basics of Breast Imaging: pages 123-134 — Basics of Gynecological Imaging: pages 135-152
Content:	Breast anatomy Conventional Mammography, CESM and DBT Breast US, MRI and Nuclear medicine. BIRADS assessment categories HSG Uterine Myomas Ovarian Lesions Obstetric Imaging
Specific ILOs:	By the end of the lecture the student will be able to : — Identify normal and abnormal Mammography — Know Indications for each imaging modality in the breast — Identify normal and abnormal HSG

Diagnostic Radiology **– Lecture 3**	
Title:	Neuroimaging
Source:	Lecture Notes Radiology book for Undergraduate (Radiology department, Sohag University), pages 77-91
Content:	CT versus MRI in brain urgent and routine cases CT findings in infarction, intra-axial hemorrhage CT findings in extra-axial hematoma (Extradural and Subdural). CT findings in brain abscess CT findings of brain tumors Imaging of Head trauma
Specific ILOs:	By the end of the lecture the student will be able to : — Understand the best modality for CNS pathologies. — Identify CT findings for infarction and hemorrhage — Differentiate extradural from subdural hematoma

Diagnostic Radiology **– Lecture 4**	
Title:	Gastrointestinal imaging & Urinary Tract Imaging
Source:	Lecture Notes Radiology book for Undergraduates (Radiology department – Sohag University) — Plain X-Ray and Barium examination of the GIT: pages 92-107 — Basics of Urinary Tract Imaging: pages 108-122
Content:	Normal supine and erect x-ray findings. FB ingestion. GB stones. Intestinal obstruction. Types of contrast enhanced abdominal studies. Barium Swallow (normal and abnormal findings). Barium Meal (normal and abnormal findings). Barium Follow-through (normal and abnormal findings). Barium Enema (normal and abnormal findings). Normal KUB X-ray. Urinary tract stones (X-ray & CT). Contrast KUB studies (IVU). CTU, MRU. Ascending cystourethrogram.
Specific ILOs:	By the end of the lecture the student will be able to : — Identify normal abdominal x-ray. — Differentiate the important pathologies and emergencies in plain abdominal imaging. — Identify normal abdominal barium studies and differentiate between them. — Differentiate the most important pathologies in contrast enhanced abdominal imaging. — Detect renal, ureteric and UB stones in plain KUB. — Understand the indications for MSCT KUB, contrast enhanced studies & MRI.

Diagnostic Radiology **– Lecture 5**	
Title:	Chest and Cardiovascular Imaging
Source:	Lecture Notes Radiology book for Undergraduates (Radiology department – Sohag University) — Basics of Chest Imaging: pages 34-53 — Basics of Cardiac Imaging: pages 54-76
Content:	Normal chest x-ray outlines. Lung lesions: abscess, pneumonia, mass, and metastases. Pleural lesions: effusion, pneumothorax. Cardiomegaly
Specific ILOs:	By the end of the lecture the student will be able to: — Identify normal chest x-ray. — Differentiate the most important pathologies and emergencies in thoracic imaging.

Diagnostic Radiology **– Lecture 6**	
Title:	MSK and Spine Imaging
Source:	Lecture Notes Radiology book for Undergraduates (Radiology department – Sohag University) — Basics of MSK Imaging, pages: 153-177. — Basics of Spine Imaging, pages: 178-187.
Content:	Normal bone anatomy Imaging modalities of MSK system Congenital and developmental bone diseases Bone Infection Metabolic bone diseases, Bone tumors Arthritis Bone trauma Normal Spine anatomy Degenerative lesions of the spine Spine Fractures
Specific ILOs:	By the end of the lecture the student will be able to : — Identify plain X-ray, CT and MRI of bone and joints (normal, fractures, osteomyelitis) — Identify plain X-ray, CT and MRI of the spine (normal, fractures, and degenerative).

Diagnostic Radiology **– Lecture 7**	
Title:	Basics of head and neck imaging Interventional radiology
Source:	Lecture Notes Radiology book for Undergraduates (Radiology department, Sohag University) — Basics of head and neck imaging, pages 188-204 — Interventional radiology, pages 205-217
Content:	CT orbit, PNS, Petrous and Skull base CT Neck (Suprahyoid and Infrahyoid) DD of head and neck masses Interventional radiology modalities
Specific ILOs:	By the end of the lecture the student will be able to : — Identify CT neck, Orbit, PNS, Petrous and skull base. — Understand different modalities of interventional radiology as conventional angiography either diagnostic or therapeutic, and their indications . — Understand Tissue Tru-Cut needle biopsy indications and contraindications.

Outlines of topic for Self-directed Learning and Case-based discussions

A. Clinical Pathology Cases

(Report Interpretation)

Hematology and transfusion Medicine

RBCs disorders
- Iron Deficiency Anemia
- Anemia of Chronic disease
- Thalassemia Trait
- Thalassemia Major
- Sideroblastic Anemia
- Megaloblastic Anemia
- Macrocytic Non-megaloblastic Anemia
- Aplastic Anemia
- Autoimmune Hemolytic Anemia
- Hemolytic Disease of the Fetus and Newborn
- Hereditary Spherocytosis
- Sickle cell disease
- Secondary Polycythaemia
- Polycythaemia Rubra vera

WBCs Disorders
- Acute Leukaemia
- Chronic Leukaemia
- Multiple Myeloma

Platelet and Coagulation disorders
- Immune Thrombocytopenic Purpura (ITP)
- Hemophilia A
- Hemophilia B
- Von Willebrand Disease (vWD)
- Disseminated Intra Vascular Coagulation

Transfusion Medicine
- Blood grouping
- Transfusion reactions

Clinical Immunology
- Hepatitis A infection
- Hepatitis B infection
- Hepatitis C infection
- Infectious mononucleosis
- AIDS
- Allergic reactions
- Rheumatoid arthritis
- Systemic Lupus Erythematosus
- Antiphospholipid syndrome
- Type 1 DM
- Celiac disease
- Autoimmune Hepatitis

Clinical Chemistry

- Obstructive Jaundice
- Hepatocellular Jaundice
- Hemolytic Jaundice
- Liver Cirrhosis
- Diabetic Ketoacidosis
- Oral Glucose tolerance test
- Gestational Diabetes
- Hyperlipidemia
- Glomerulonephritis
- Nephrotic syndrome
- Acute Tubular Necrosis
- Chronic Renal Failure
- Metabolic Acidosis
- Metabolic Alkalosis
- Respiratory Acidosis
- Respiratory Alkalosis
- Myocardial infarction
- Acute pancreatitis
- Hyperparathyroidism
- Hypoparathyroidism
- Hyperparathyroidism
- Hypoparathyroidism
- Non-thyroidal illness

Clinical Microbiology

- Urinary tract infection
- Giardiasis
- Amebiasis
- Typhoid Fever
- Brucellosis
- Meningitis

B. Diagnostic Radiology Cases

Erect Abdominal x-ray:
- Intestinal obstruction
- FB ingestion
- Pneumoperitoneum

Barium studies:

Barium swallow
- Achalasia
- Corrosive stricture
- Cancer oesophagus

Barium meal:
- Gastric cancer
- CHPS

Barium follow through:
- Crohn's Disease

Barium enema:
- cancer colon
- ulcerative colitis

KUB X-ray:
- Renal stone
- Ureteric stone
- UB stone
- IVU
- CTU

CT brain:
- Infarction
- Cerebral hemorrhage
- Subdural hemorrhage
- Extradural hemorrhage
- Brain tumor
- Brain abscess
- Intracranial calcification

Chest X-rays of different pathologies:
- Pneumonia
- Lung collapse
- Lung abscess
- Pneumothorax
- Pleural effusion
- Hydropneumothorax
- Lung mass
- Lung metastases
- Cardiomegaly

Mammography:
- Fibroadenoma
- Breast cancer
- Benign and malignant calcifications.

HSG:
- Uterine myoma
- Aschermann Syndrome
- Bicornuate uterus
- Hydrosalpnix
- Tubal block

X-ray neck:
- Adenoid

CT paranasal sinuses:
- Maxillary sinusitis

Bone x-rays:
- Bone fractures
- Osteomyelitis
- Rickets
- Bone tumor

X-ray and CT Spine:
- Degenerative diseases
- Fractures