

المركز الوطني لضمان جودة واعتماد  
المؤسسات التعليمية والتدريبية



المتطلبات الأكاديمية للمقرر الدراسي

**Derna University-Faculty of medicine**

**Bachelor of medicine and surgery**

**Course title:** Radiology

**Course code:** RA1405

**Academic year:** 5<sup>th</sup>. Year. 2024-2025.

توصيف المقرر التعليمي | تحديث 2023

## 1. General information:

Course Title	Radiology
Course coordinator	Dr. Rehab Bodahab
Department	Radiology
Language	English
Teaching Hours	<ul style="list-style-type: none"><li>• 100</li><li>• Lectures:</li><li>• Practical:</li><li>• Tutorials:</li></ul>
Academic Year	4 <sup>th</sup> . Year 2024-2025
Date and Signature	2024-2025

### 1.1: Number of hours per week:

- Lectures: 2
- Practical: 2
- Tutorials: 2

## 2. Overall Course Aim:

1. To provide knowledge on the diagnostic role of imaging in common diseases affecting various systems including emergencies conditions.
2. To provide knowledge on all currently available imaging procedures, and their advantages, contraindications, risks and how they may be best used in the management of the patient
3. Acquire the essential skills that will enable them to use various imaging modalities in a safe manner
4. To train students to interpret plain radiographs as well as cross sectional imaging studies, such as CT, MRI and Ultrasound.
5. Acquire leadership skills, teamwork skills, self-directed, and lifelong learning skills by applying evidence-based practice

### **3. intending learning outcomes (ILOs)**

#### **A. Knowledge and understanding:**

By the end of the course, students should be able to:

A1	Discuss hazards and safety measures in radiology clinical practice
A2	Recognize normal anatomical structures and abnormal pathologies for different body organs by using various imaging modalities
A3	List imaging modalities used to diagnose different body systems pathologies
A4	Recognize major findings related to MRI, CT, and X-ray in life-threatening conditions
A5	Identify the concepts of evidence based medicine, and team dynamics as well as the role of communication with other medical departments.

#### **B- Intellectual skills:**

By the end of the course, students should be able to:

B1	Compare and contrast the benefits and limitations of different radiologic modalities
B2	Integrate basic anatomical & pathological knowledge with clinical data for medical and surgical problems
B3	Select a suitable imaging modality relevant to patient complains
B4	Interpret major findings related to MRI, CT, and X-ray in common diseases and life-threatening conditions
B5	Analyze their roles and responsibilities inside their teams and the importance of communication with the other teams.

### **C. Professional and practical skills:**

By the end of the course, students should be able to:

C1	Determine the disadvantages of excessive unreasonable use of different radiologic modalities
C2	Obtain a comprehensive and focused history
C3	Request suitable imaging modality relevant to patient complains
C4	Demonstrate the major radiological findings in life threatening situations
C5	Conduct self and lifelong learning strategies throughout the course

### **D. General and transferable skills:**

By the end of the course, students should be able to:

D1	Communicate effectively with patients, and their relatives, colleagues and senior doctors.
D2	Manage their time effectively
D3	Demonstrate ethical consideration in dealing with patients

#### 4. Course Contents:

تدريب	معمل	محاضرة	No. of hours	Topic
-	-	2	4	<b>Radiological Physics</b>
-	-	1	4	<ul style="list-style-type: none"> <li>➤ Introduction.</li> <li>➤ Physics of x-ray and fluoroscopy.</li> <li>➤ Physics of CT</li> </ul>
-	-	1	1	<ul style="list-style-type: none"> <li>➤ Contrast media.</li> <li>➤ Physics of ultrasonography.</li> <li>➤ Physics of MRI.</li> </ul> <p>Radiation hazards and protection. Best practice when requesting imaging investigations</p>
11	-	7	12	<b>Chest (respiratory system, cardiac and Mediastinum)</b>
-	-	1	1	Radiological anatomy of the chest
2	-	1	2	<ul style="list-style-type: none"> <li>➤ Radiological anatomy of the chest.</li> <li>➤ Lung opacities: consolidation, cavitary lung diseases.</li> <li>➤ Lung collapse and atelectasis.</li> <li>➤ Sarcoidosis.</li> <li>➤ Pulmonary nodules.</li> </ul>
2	-	1	2	<ul style="list-style-type: none"> <li>➤ Interstitial lung diseases.</li> <li>➤ Airway diseases</li> <li>➤ Pulmonary emphysema</li> </ul>

1	-	1	1	<ul style="list-style-type: none"> <li>➤ Pleural diseases</li> <li>➤ Diseases of mediastinum</li> </ul>
1	-	-	1	Chest trauma

2		2	2	<ul style="list-style-type: none"> <li>➤ - Imaging modalities.</li> <li>➤ Congenital heart disease.</li> <li>➤ Cardiomegaly.</li> <li>➤ Myocarditis.</li> <li>➤ Intra-cardiac masses.</li> <li>➤ Diseases of pericardium.</li> <li>➤ Cardiac CT, MRI and perfusion.</li> </ul>
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<b>6</b>	<b>-</b>	<b>3</b>	<b>6</b>	<b>Central nervous system</b>
2	-	1	2	<ul style="list-style-type: none"> <li>➤ CNS radiological anatomy.</li> <li>➤ Brain tumors.</li> <li>➤ Congenital anomalies.</li> <li>➤ Imaging of cerebrovascular disease (infarct and bleeding).</li> <li>➤ Neurodegenerative diseases.</li> <li>➤ CNS infection.</li> <li>➤ Spinal cord diseases.</li> </ul>
2		1	2	<ul style="list-style-type: none"> <li>➤ Brain tumors</li> <li>➤ CNS infection</li> <li>➤ Neurodegenerative diseases.</li> </ul>
2		1	2	<ul style="list-style-type: none"> <li>➤ Spinal cord diseases.</li> <li>➤ Spinal cord compression</li> <li>➤ Cauda equina syndrome</li> <li>➤ CT scan of Head and spine trauma</li> </ul>

<b>10</b>	<b>-</b>	<b>6</b>	<b>12</b>	<b>GIT and Hepatobiliary system</b>
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2	-	1	2	<ul style="list-style-type: none"> <li>➤ GIT radiological anatomy and how to read abdominal X-ray.</li> <li>➤ Upper GIT imaging and disorders.</li> </ul>
2	-	1	2	<ul style="list-style-type: none"> <li>➤ Small intestine imaging and disorders Large Bowel imaging and disorders.</li> <li>➤ Acute abdomen imaging.</li> </ul>

2	-	1	2	<ul style="list-style-type: none"> <li>➤ Diseases of the liver and hepatobiliary system.</li> <li>➤ Diseases of pancreas and spleen.</li> <li>➤ Abdominal trauma</li> </ul>
1		1	1	

<b>4</b>	-	<b>3</b>	<b>6</b>	<b>Musculoskeletal system</b>
1	-	1	2	<ul style="list-style-type: none"> <li>➤ Diseases of the Bone</li> <li>➤ Diseases of the joints</li> <li>➤ Fractures and dislocation</li> <li>➤ Imaging of spine</li> </ul>
2	-	1	2	<ul style="list-style-type: none"> <li>➤ Benign Bone tumours</li> <li>➤ Malignant Bone tumours</li> </ul>

1	-	1	1	Metabolic bone disease and miscellaneous bone disease
<b>6</b>	<b>-</b>	<b>2</b>	<b>4</b>	<b>Genitourinary system</b>
2	-	1	2	<ul style="list-style-type: none"> <li>➤ Normal IVP and ultrasound.</li> <li>➤ Congenital anomalies of GU system.</li> <li>➤ Renal calculi and hydronephrosis.</li> <li>➤ Infection of urinary tract.</li> <li>➤ Renal masses.</li> <li>➤ Renal trauma.</li> <li>➤ Adrenal masses.</li> </ul>
2	-	1	2	<ul style="list-style-type: none"> <li>➤ ,Infection of urinary tract.</li> <li>➤ Renal masses</li> <li>➤ Renal trauma</li> <li>➤ Testicular torsion, acute epididido-orchitis</li> </ul>

<b>2</b>	<b>-</b>	<b>2</b>	<b>4</b>	<b>Female imaging (Gynecological, obstetric &amp; breast)</b>
1	-	1	2	<p>Congenital anomalies and Uterine masses</p> <p>Gynecology emergency (ectopic pregnancy, rupture and hemorrhagic ovarian cyst, ovarian torsion, pelvic inflammatory disease, tubo-ovarian abscess)</p> <p>Ovarian masses</p>
1	-	1	2	Breast -BIRADS, mammography Benign & malignant breast masses
<b>2</b>	<b>-</b>	<b>1</b>	<b>2</b>	<b>Pediatric Radiology</b>
2	-	1	2	<ul style="list-style-type: none"> <li>➤ GIT anomalies and diseases.</li> <li>➤ Hyaline membrane disease and other causes of respiratory distress syndrome.</li> <li>➤ Diaphragmatic hernia and foreign body aspiration</li> </ul>



<b>2</b>	-	<b>1</b>	<b>4</b>	<b>Neck Imaging</b>
1	-	1	2	<ul style="list-style-type: none"> <li>➤ Diseases of nose and sinuses</li> <li>➤ Fractures of facial bones.</li> <li>➤ Disease of ear.</li> <li>➤ Orbit imaging.</li> <li>➤ Thyroid disease.</li> </ul> Diseases of the neck.
1	-	1	1	Parathyroid gland Parathyroid adenoma Laryngeal tumor Nasopharyngeal carcinoma Neck abscess
<b>1</b>	-	<b>1</b>	<b>1</b>	<b>Nuclear medicine</b>
1	-	1	1	Bone scan and Lung scan
<b>1</b>	-	<b>1</b>	<b>1</b>	<b>Radiotherapy</b>
1	-	1	1	Types, uses and importance.
1		1	2	<b>Diagnostic radiology</b>
				<ul style="list-style-type: none"> <li>➤ Imaging of bone tumors.</li> <li>➤ Imaging of vascular diseases.</li> <li>➤ Imaging of chest radiographs.</li> <li>➤ Imaging of abdominal radiographs.</li> <li>➤ Imaging of Pt. with Jaundice and Liver cirrhosis.</li> <li>➤ Imaging of acute abdomen.</li> <li>➤ Imaging of intestinal obstruction.</li> <li>➤ MSK anatomy.</li> <li>➤ Opacities in the lung.</li> </ul>
<b>45</b>	-	<b>29</b>	<b>56</b>	<b>Total: 101</b>

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## **5. Teaching and Learning Methods:**

1. Lectures.
2. Practical classes.
3. Case based learning.

### **Teaching Plan:**

#### **1. Lectures:**

The lectures halls are located on the second and third floor of the medical education Building. Two-hours-lectures are held once weekly (Saturday: 11:00-13:00). Lectures are given all through the year.

#### **2. Practical classes:**

Group of 67 students will be divided into 3 smaller groups. Each group has four practical classes week throughout the academic year during which demonstration of radiological images and discussion of cases will occurs.

## 6. Evaluation Method:

Assessment method	Date	Marks	% of Total	ILOs Assessed
Final Exam( it includes: True and False Questions, Multiple choice questions and short notes)	Third week of September	70	70%	for assessment of Knowledge, understanding and intellectual skills (A1-A5, B1-B5)
Practical exam and oral	Third week of September	20	20%	for assessment of practical skills and intellectual skills (C1-C5, B1-B5)
Oral		10	10%	for assessment of Knowledge, understanding outcomes, intellectual skills and general skills (A1-A5, B1-B5, D1-D3)
Total		100	100%	
	100%			المجموع

N.B. Dates are liable to change, so check with administration.

## **7. References:**

References	<ul style="list-style-type: none"> <li>➤ Getting started in clinical radiology from image to diagnosis: George W. Eastman, Christoph Wald, Jane Crossin.</li> <li>➤ <a href="http://www.learningradiology.com">www.learningradiology.com</a></li> <li>➤ <a href="http://www.radiologymasterclass.co.uk">www.radiologymasterclass.co.uk</a></li> <li>➤ <a href="https://radiopaedia.org">https://radiopaedia.org</a></li> <li>➤ <a href="https://radiologyassistant.nl">https://radiologyassistant.nl</a></li> </ul>
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## **8. Required facilities:**

Required Facilities	Notes
Equipped Classes with educational facilities (Smart Board, Data show, Audio System, Computer, white board).	
Lecture halls equipped with educational facilities	
Radiology departments	
Textbooks, Journals, internet	

**Course Coordinator:** Dr. Rehab Bodahab

**Signature:**.....

**Programme Coordinator:** Dr. Haitham ALhusni.

**Signature:**.....

**Head of department:** Dr. Rehab Bodahab

**Signature:**.....

## Quality Assurance and Performance Evaluation Office

Topic	Knowledge and Understanding A					Intellectual Skills B					Practical and Professional Skills C					General and transferable Skills D		
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3
<b>Weeks</b>																		
1	X															X		
2	X																	
3		X	X	X	X	X	X	X	X	X		X				X	X	X
4			X	X	X	X	X	X	X							X	X	X
5			X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
6			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
7	X															X		
8		X	X	X														
9			X	X	X	X	X	X	X	X		X				X	X	X
10			X	X	X	X	X	X	X							X	X	X
11		X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
12		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
13	X															X		
14		X	X	X														
15		X	X	X	X	X	X	X	X	X	X	X		X		X	X	X
16		X	X	X	X	X	X	X	X							X	X	X
17		X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
18		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X