

Course Specification (2025)

1. Basic Information

Course Title (according to the bylaw)	Image Management			
Course Code (according to the bylaw)	TRMI 212			
Department/s participating in delivery of the course	Technology of Radiology & Medical Imaging			
Number of credit hours (according to the bylaw)	Theoretical	Practical	Other (specify)	Total
	3	2	-	2
Course Type	Compulsory			
Academic level at which the course is taught	Third year (1 st semester)			
Academic Program	Technology of Radiology and Medical Imaging			
Institute	High Technology Institute of Applied Health Science			
Academy	Nile Delta for Sciences			
Name of Course Coordinator				
Course Specification Approval Date	Department Council No. 2, date: (21 – 09 – 2024)			
Course Specification Approval (Attach the decision/minutes of the department /committee/council)				

2. Course Overview (Brief summary of scientific content)

.. Provide students with foundational and applied knowledge of image acquisition, processing, and evaluation in both analog and digital radiography. It emphasizes the principles affecting image quality, the transition to digital systems, and the role of image management technologies such as PACS in modern radiologic practice. Through theoretical and practical components, the course prepares students to assess, optimize, and troubleshoot radiographic images to ensure diagnostic quality and patient.. safety

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		: Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
Pos1.2 .4	Operate Picture Archiving and Communication Systems (PACS) effectively.		
Pos2.1 .1	Exhibit appropriate professional behaviors and relationships in all	CLO s1	Describe the principles and components of screen/film radiographic systems.

Pos1.3.2	<p>aspects of medical imaging practice.</p> <p>Apply quality control measures to ensure test accuracy and reliability.</p> <p>.</p>	<p>CLOs2</p> <p>CLOs3</p>	<p>Understand the physical factors influencing radiographic image quality, such as density and contrast</p> <p>Explain the tradeoff between image quality and patient dose and how to overcome scattered radiation</p>
<p>Pos2.1.3</p> <p>Pos2.1.4</p>	<p>Practice in an ethical and professional manner consistent with relevant legislation and regulatory requirements in medical imaging.</p> <p>Collaborate with other health practitioners (physician, patient, families,...)</p>	<p>CLOs4</p> <p>CLOs5</p> <p>CLOs6</p>	<p>Analyze the relationship between exposure parameters and resulting image quality</p> <p>Identify and classify radiographic artifacts based on their appearance and origin.</p> <p>Evaluate the causes and implications of magnification and distortion in radiographs.</p>

Pos2.2.3	Operate equipment safely and troubleshoot medical imaging devices.	CLOs7	Apply appropriate techniques for optimizing image quality in clinical radiographic practice.
Pos2.3.1	Collect, analyze and interpret medical imaging data using scientific methods.	CLOs8	Operate and evaluate digital imaging systems and related software.
Pos2.3.2	Design, conduct research projects and manage multiple tasks.		
		CLOs9	Conduct basic troubleshooting of image quality issues and propose corrective actions.
Pos3.1.1	Perform, maintain and evaluate routine and advanced diagnostic imaging procedures (x-ray, ultrasound and nuclear medicine).		Communicate effectively in written and oral form about technical aspects of image management.

		CLO s10	
pos3.1. 3	Apply radiation dose optimization and image quality control techniques	CLO s11	Apply critical thinking and problem-solving skills to image evaluation scenarios.
Pos4.2 .1	Communicate effectively and develop collaborative		

4. Teaching and Learning Methods

- 1. Interactive Lectures**
- 2. Discussion and brain storming**
- 3. Asynchronous learning**
- 4. Self-Directed Learning (SDL):**
Research and presentation ,Assignment , reports
- 5. Practical Learning**
- 6. Asynchronous learning**
- 7. Extra lectures**
- 8. Guidind during office hours**

Course Schedule

5. Methods of students' assessment

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Theoretical teaching (lectures/discussion groups/)	Training (Practical/ Clinical/)	Self-learning (Tasks/ Assignments/ Projects/ ...)	Other (to be determined)
1	Introduction to Image Management in Radiology	2	2	-	1	-
2	Screen/Film Radiography: Components and Processing	2	2	-	1	-
3	Film Speed: Definition, Measurement, and Clinical Impact	2	2	-	1	-
4	Radiographic Density: Influencing Factors and Optimization	2	2	-	1	-
5	Radiographic Contrast: Types, Influences, and Clinical Relevance	2	2	-	1	-
6	Mid term					
7	Magnification and Distortion: Causes and Minimization Techniques	2	2	-	1	-
8	Image Sharpness, Spatial Resolution, and Definition	2	2	-	1	-

9	Computerized and Digital Radiography	2	2	-	1	-
10	PACS: Components, Workflow, Integration with RIS	2	2	-	1	-
11	Common Radiographic Artifacts: Causes and Preventive Measures	2	2	-	1	-
12	Magnification and Distortion: Causes and Minimization Techniques	2	2	-	1	-
13	Image Sharpness, Spatial Resolution, and Definition	2	2	-	1	-
14	Revision	2	2	-	1	-
15	Practical Guide					
16	Final Written Exam					

Methods of students' assessment

No .	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 written (Semester work)	-	-	-
2	Exam 2 (Semester work)	6	15	15%
3	Final Written Exam	15	75	75%
	Final Practical/Clinical/... Exam	--	--	--
	Final Oral Exam	-	-	-

Assignments / Project /Portfolio/ Logbook	6	10	10%
Field training	-	-	-
Other (Mention)	-	-	-

*** The methods mentioned are examples, the organization may add and/or delete**

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	Main Reference	Authors, <i>The Book Title</i> . Publisher, Edition, Year.
	Other references	Bushong, S.C., Radiologic Science for Technologists: Physics, Biology, and Protection
		Carlton & Adler, Principles of Radiographic Imaging
		Online PACS simulations and DICOM viewers
	Electronic Resources (Add the link)	Radiopaedia.org Knowledge bank: https://www.ekb.eg/ar
	Educational Platform (add the link)	https://bislms.mans.edu.eg/
Educational support equipment for teaching and learning *	Other (List)	
	Devices	كمبيوتر – بروجيكتور – سماعات
	Supplies	-
	Software	برنامج ابن الهيثم
	Skills Labs/Simulators	
	Virtual Labs	
	Other (List)	

*** The list mentioned is an example, the institution may add and/or delete depending on the nature of the course**

**Name and Signature
Course Coordinator**

**Name and Signature
Program Coordinator**