

Course Specification

(2025)

1. Basic Information

Course Title (according to the bylaw)	Contrast media			
Course Code (according to the bylaw)	TRMI 304			
Department/s participating in delivery of the course	Technology of Radiology and Medical Imaging			
Number of credit hours/points of the course (according to the bylaw)	Theoretical	Practical	Other (specify)	Total
	1	2	-	2
Course Type	Compulsory			
Academic level at which the course is taught	Level 3 – 1 st Semester			
Academic Program	Technology of Radiology and Medical Imaging			
Institute	High Technology Institute of Applied Health Sciences			
Academy	Nile Delta for sciences			
Name of Course Coordinator	Dr. Amira Atef, doctor lecturer of Biology Radiation Science			

	Institute of High Technology Institute of Applied Health Science
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)

This course includes all information about types of contrast media , how it works, which is used in spiecific radiological techniques students will also know to how to use contrast media safely and effectively under supervision of the radiologist

3. Course Learning Outcomes CLOs

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

Program Outcomes (ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Cod e	Text	Code	Text
POs1 .1.1	Demonstrate an understanding of fundamental knowledge of basic and applied health sciences. Understand	CLOs1	Recorded what Routes of contrast administration.

Program Outcomes (ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Cod e	Text	Code	Text
POs1 .1.3	and deal with the interdisciplinary sciences.	CLOs2	Describes how contrast media work .
	Understand the - comprehensive knowledge of nuclear physics, plain radiographic techniques, ultrasound, CT, MRI, contrast media, bone densitometry, radiation techniques, pediatric imaging, dental radiology, interventional and cardiovascular techniques	CLOs3	Tell about the concepts of Definition of contrast media
	POs1 .1.4 Interpret anatomical structure, pathological findings and imaging data utilizing radiological information systems		

Program Outcomes (ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Cod e	Text	Code	Text
POs1 .2.1 POs1 .2.2	. Use computers and software in medical imaging effectively Apply statistical skills and evidence based practice in imaging data manipulation and analysis	CLOs4	Use computers and software to analyze .problems
		CLOs5 CLOs6 CLOs7 CLOs8	Realize some basic concepts of - . human rights .Realize the concept of quality- Troubleshoot technical errors and - .artifacts Utilize suitable information and - communication technology to collect, convey, and enhance the performance .and reconstruction of medical images
POs1 .3.1	Contribute to continuous quality management and improvement.		
		CLOs9 CLOs10 CLOs11	Work safely in the lab environment and possess the basic competencies necessary for a range of practical .techniques Operate and manage effectively the - different medical imaging equipment

Program Outcomes (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
	Participate in internal and external medical imaging audits and accreditation processes		

Program Outcomes (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
POs2 .2.2	Practice in an ethical- and professional manner consistent with relevant legislation and regulatory requirements in medical .imaging		
POs3 ..1.2	Collaborate with other - health practitioners (physician, patient, families...)		
POs3 .1.4			

Program Outcomes (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
	Adhere to strict biosafety regulations and standards		

Program Outcomes (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
	Collect, transport, preserve and store radioactive material according to standard .operating procedures		

4. Teaching and Learning Methods

Interactive Lectures
Discussion and brain storming
Case study /problem solving
Assignment, reports

Course Schedule

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 of contrast	2	1	1	1-	-
2	- Definition of contrast media/ Administration of Contrast Media/Route of administration.	2	1	1	1	-
3	Difference between CT and CTA/Classification of contrast agents	2	1	1		-
4	- positive contrast agents/ water insoluble Barium sulfate contrast media/ barium based contrast used for GIT examination/Cases on Barium enema	2	1	1	1	-
5	-Barium meal/Cases used barium contrast meal/Barium	2	1	1	1	-

	swallow/ Cases on					
	barium swallow/Barium follow through/Barium examination of GIT/ Values of barium in diagnosis					
6	Mid-term					
7	Water soluble Iodine- based contrast agents/Classification of Contrast Materials Based on Osmolality/Water soluble Iodine- based	2	1	1	1	-
8	contrast agents/Pharmacokine tics of iodinated contrast	2	1	1	1	-
9	Osmolality/High isomolar ionic contrast media /Low isomolar non –ionic contrast media/C-iso- isomolar	2	1	1	1	-
10	MRI contrast media/Gadolinium-- Based Contrast Agent	2	1	1	1	-

11	Adverse side effects/METHODS OF CATEGORIZING CONTRAST REACTIONS	2	1	1	1	-
12	NONANAPHYLACTOID REACTIONS/ VASOVAGAL REACTIONS	2	1	1	1	-
13	-SELECTION AND PREPARATION STRATEGIES BEFORE CONTRAST MEDIUM ADMINISTRATION/ Risk Factors for Adverse Reactions to Intravenous Contrast Media Primary Considerations	2	1	1	1	-
14	Revision	2	1	1	1	-
15	Practical exam					
16	Final exam					

5. Methods of students' assessment

No .	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course
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				Marks
1	Exam 1written (Semester work)	-	-	-
2	Mid-term	6	10	10%
3	Final Written Exam	15	50	50%
	Final Practical/Clinical/... Exam	14	30	30%
	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.) *	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	Paul E. Christian, Kristen M. Waterstram-Rich. Nuclear medicine and PET/CT technology and techniques ,seventh ..edition.2012
	Other References	American college of Radiology.ACR committee on drugs and contrast media.2023 https://www.arc.org
	Electronic Sources (Links must be added)	:Knowledge bank https://www.ekb.eg/ar

	Learning Platforms (Links must be added)	bislms.mans.edu.eg https://bislms.mans.edu.eg/moodle2025/course/index.php?categoryid=87
	Other (to be mentioned)	-
Supportive facilities & equipment for teaching and learning *	Devices/Instruments	Computer- boards and projectors
	Supplies	-
	Electronic Programs	Ibn al-Haytham program
	Skill Labs/ Simulators	-
	Virtual Labs	-
	Other (to be mentioned)	-

*** 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**

Dr/Amira Atef

**Name and Signature
Program Coordinator**

Dr/Amira Atef

