



**Jordan University of Science and Technology**  
**Faculty of Applied Medical Sciences**  
**Radiologic Technology Department**

RA722 Advanced Radiologic Technology

First Semester 2024-2025

**Course Catalog**

2 Credit Hours. This course provides a professional overview of the program, including elementary radiation protection and medical terminology. Designed to establish a foundation and set parameters of professional practice for health care professionals at different radiology departments and to acquire a convenient knowledge about most recent techniques used in medical imaging. a review of the allied imaging modalities of CT, MRI, ultrasound, cardiovascular, and nuclear medicine including relevant sectional image appearances and anatomy, job searching strategies, and test taking strategies. A review will be conducted of radiographic image production, radiologic equipment operation and maintenance, radiation protection, radiographic procedure performance and related anatomy; and patient care delivery.

**Teaching Method:** On Campus

**Text Book**

Title	Medical Imaging Technology 1st Edition -
Author(s)	Victor Mikla,
Edition	1st Edition
Short Name	1
Other Information	

**Course References**

Short name	Book name	Author(s)	Edition	Other Information
AI	Artificial Intelligence in Medical Imaging : Opportunities, Applications and Risks	Erik R. Ranschaert , Edited by Sergey Morozov , Edited by Paul R. Algra	1st Edition	

**Class Schedule & Room**

**Tentative List of Topics Covered**

Weeks	Topic	References
-------	-------	------------

Week 1	Advanced Computed Tomography, Modern CT scan-their types and advancements	From 1, From AI
Week 2	Image Receptors,Image formation	From 1, From AI
Week 3	Dual energy x-ray	From 1, From AI
Weeks 4, 5, 6	Computed Tomography -Principle, data acquisition concepts, image reconstruction, instrumentations, image manipulation Historical developments - Various generations, spiral/helical, single slice/multislice CT, Electron beam CT, mobile CT, Advances in volume scanning, continuous, subsecond scanning. Real time CT fluoroscopy, interventional guidance tool, 3D CT, CT angiography.	From 1, From AI
Week 7	Virtual reality imaging, including image quality and quality control in CT Scanners.	From 1, From AI
Weeks 8, 9	application of artificial intelligence (AI) within healthcare and radiology	From 1, From AI
Weeks 10, 11	insight into the technological background of AI and the impacts of new and emerging technologies on medical imaging	From 1, From AI
Weeks 12, 13	deep learning technology, the technological evolution of AI in computing science and medical image computing is described, with explanation of basic principles and the types and subtypes of AI	From 1, From AI
Weeks 14, 15	impact of AI on radiology and the implications for radiologists	From 1, From AI
Week 16	applications	From 1, From AI

<b>Mapping of Course Outcomes to Program Outcomes</b>	<b>Course Outcome Weight (Out of 100%)</b>	<b>Assessment method</b>
The student will be able to discuss career opportunities and advancement for the radiographer.	10%	
An in-depth understanding of best practice and how experts address these problems	20%	
Identified gaps in their own skills or knowledge which can then be addressed	10%	
Had an instructive and engaging educational experience	10%	
Practice professional development activities to improve radiographic skills.	20%	
Demonstrate adherence to Radiologic Technology Program policies and procedures.	10%	
Analyze data collected for quality control tests as related to equipment performance.	10%	

Integrate knowledge of radiographic procedures, imaging, and radiation protection to quality assurance and quality control in the radiology department.	10%	
---	-----	--

Relationship to Program Student Outcomes (Out of 100%)												
--	--	--	--	--	--	--	--	--	--	--	--	--

PLO B1	PLO B2	PLO B3	PLO B4	PLO B5	PLO B6	PLO B7	PLO M1	PLO M2	PLO M3	PLO M4	PLO M5	PLO M6

Evaluation	
------------	--

Assessment Tool	Weight
Assignment	20%
Presentation	20%
Quizzes	10%
Final Exam	50%

Date Printed: 2024-10-24