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

RA731 Digital Imaging Technology
First Semester 2024-2025

Course Catalog
2 Credit Hours. This master-level course offers an in-depth study of the physics, technologies, and practical uses of digital imaging in radiologic technology. Students will acquire profound expertise in the capture, processing, and interpretation of digital images, equipping them for leadership positions in radiology departments and cutting-edge research in medical imaging.
Teaching Method: Blended

Text Book	
Title	Digital Radiography and PACS - libgen.li
Author(s)	Christi Carter MSRS RT(R), Beth Veale BSRS MEd RT(R)(QM)
Edition	3rd Edition
Short Name	1
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
2	Digital Radiography in Practice	Quinn B. Carroll (z-lib.org)	1st Edition	
3	Digital Radiography Physical Principles and Quality Control by	Euclid Seeram	2nd Edition	
4	Fundamentals of digital imaging	H. J. Trussell, M. J. Vrhel	1st Edition	

Class Schedule & Room

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Week 1	Advanced Principles of Digital Radiography	From **1**, From **2**, From **3**, From **4**
Week 2	Emerging Technologies in Digital Imaging	From **1**, From **2**, From **3**, From **4**
Week 3	Advanced Concepts in Computed Radiography 1	From **1**, From **2**, From **3**, From **4**
Week 4	Advanced Concepts in Computed Radiography 2	From **1**, From **2**, From **3**, From **4**
Week 5	Advanced Image Acquisition Techniques	From **1**, From **2**, From **3**, From **4**
Week 6	Advanced Image Processing and Enhancement	From **1**, From **2**, From **3**, From **4**
Week 7	Advanced Image Display and Archival	From **1**, From **2**, From **3**, From **4**
Week 8	Image Quality Assessment and Optimization	From **1**, From **2**, From **3**, From **4**
Week 9	Nature of digital image	From **1**, From **2**, From **3**, From **4**
Week 10	Advanced Topics in Digital Radiography	From **1**, From **2**, From **3**, From **4**

Week 11	Advanced Topics in Digital Radiography 2	From **1**, From **2**, From **3**, From **4**
Week 12	Case Studies in Digital Radiography	From **1**, From **2**, From **3**, From **4**
Week 13	PACS	From **1**, From **2**, From **3**, From **4**
Week 14	Image Processing Techniques	From **1**, From **2**, From **3**, From **4**
Week 15	Advanced Imaging Software and Tools	From **1**, From **2**, From **3**, From **4**
Week 16	Case study presentation	From **1**, From **2**, From **3**, From **4**

Mapping of Course Outcomes to Program Outcomes	**Course Outcome Weight (Out of 100%)**	**Assessment method**
Demonstrate advanced understanding of the physical principles underlying digital radiography and their applications in clinical settings.	20%	
Evaluate and compare various digital imaging technologies, including computed radiography, direct and indirect digital radiography detectors, and emerging solid-state detectors.	20%	
Apply advanced image processing techniques to enhance diagnostic image quality and optimize radiation dose.	15%	
Design and conduct research projects in digital radiography technology, including image quality assessment, optimization studies, and clinical validation.	15%	
Critically analyze and interpret medical images using advanced imaging software and tools.	15%	
Communicate effectively and professionally, both orally and in writing, presenting complex technical concepts and research findings to diverse audiences.	15%	

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

Date Printed: 2024-10-24