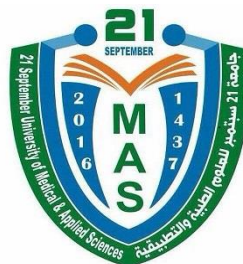


Republic of Yemen
Ministry of Education & Higher Research
Council of Academic Accreditation & Quality Assurance of
Higher Education (CAQA)



**21 septamber University of Medical
and Applied Science**



Faculty of Applied Medical Science

Department of **Medical Radiology and Imaging Technology**

Program of Radiologic Technology and Medical Imaging

Course Specification of

Radiographic Technique 2

Course Code. (____)

2024



T4: This Template is Developed and Approved by CAQA-Yemen, 2023

Prepared by:

Reviewed by:

Dr. -----

Head of the Department:

Dr. Awadh Al-Kubati

Quality Unit:

Dr. Mohammed
Al-shamahi

Dean:

Dr. Abdulsalam
Dalaq

I. General Information:

1.	Course Title:	Radiographic Technique 2			
2.	Course Code:				
3.	Credit Hours:	Credit Hours	Theory Contact Hours		Practical Contact Hours
			Lecture	Tutorial/Seminar	Lab Clinical
		2	2	--	-- --
4.	Level/ Semester at which this Course is offered:	3 rd Level / 1 st Semester			
5.	Pre –Requisite (if any):				
6.	Co –Requisite (if any):	None			
7.	Program (s) in which the Course is Offered:	Bachelor of Radiologic Technology and Medical Imaging			
8.	Language of Teaching the Course:	English			
9.	Location of Teaching the Course:	Faculty of Applied Medical Science			
10.	Prepared by:				
11.	Date and Number of Approval by Council:				

II. Course Description:

This course provides advanced knowledge and skills in radiographic techniques. Emphasis is placed on specialized procedures, advanced positioning techniques, and image quality optimization. Students will gain practical experience in clinical scenarios, enhancing their competency in radiographic technology and medical diagnostics.

III. Course Intended Learning Outcomes (CILOs) : Upon successful completion of the course, students will be able to:			Referenced PILOs	
A. Knowledge and Understanding:			I, P or M/A	
a1	Understand advanced radiographic techniques.	A	A2	Explanation of the principles and procedures of medical imaging acquisitions, medical imaging techniques, and Radiological Technology Sciences as well as patient positioning in computed radiography and MRI techniques.
a2	Comprehend specialized imaging procedures.	A	A1	Demonstrate an understanding of fundamental knowledge of Biomedical sciences (Biology, Biophysics, Anatomy, Physiology, Sectional anatomy, and medical imaging technique).
B. Intellectual Skills:				
b1	Analyze complex radiographic cases.	M	B3	Analyze and evaluate evidence-based information needed in medical imaging practice.
b2	Evaluate image quality and diagnostic effectiveness.	M	B1	Assess the radiation exposure times and intensity of exposure to guarantee the imaging technique is accurate to reduce the risk factors and adapt to patient needs.
C. Professional and Practical kills:				
c1	Perform advanced radiographic positioning.	M	C2	Apply technical skills in using medical imaging devices, tools, and materials in radiological technology practice.
c2	Apply radiation protection principles in practice.	M		
D. Transferable Skills:				

d1	Communicate effectively with healthcare professionals.	A	D1	Communicate effectively with clinicians, patients, and support staff.
d2	Demonstrate problem-solving abilities in clinical settings.	A	D4	Function effectively as an individual, as a member, or leader of a team engaged in appropriate activities to the radiologic technology disciplines to accomplish a common goal.
I= Introduced, P=Practiced or M/A= Mastered/Advanced				

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:

Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
a1	Understand advanced radiographic techniques.	▪ Lectures, Practical Sessions	▪ Quizzes, Midterm Exam, Final Exam
a2	Comprehend specialized imaging procedures.	▪ Lectures, Case Studies	▪ Assignments, Case Study Analysis

(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:

Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
b1	Analyze complex radiographic cases.	▪ Group Discussions, Case Studies	▪ Case Study Analysis, Presentations
b2	Evaluate image quality and diagnostic effectiveness.	▪ Lectures, Practical Sessions	▪ Practical Exams, Assignments

(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:

Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
c1	Perform advanced radiographic positioning.	▪ Practical Sessions, Workshops	▪ Practical Exams, Skill Assessments
c2	Apply radiation protection principles in practice.	▪ Lectures, Simulations	▪ Quizzes, Final Exam

(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:

Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
d1	Communicate effectively with healthcare professionals.	Group Discussions, Presentations	Presentations, Assignments
d2	Demonstrate problem-solving abilities in clinical settings.	Case Studies, Simulations	Case Study Analysis, Practical Exams

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	Advanced Chest Imaging	– Techniques, Positioning, Pathologies, Image Optimization.	1	2	a1, c1, c2
2	Pediatric Radiography	– Pediatric Radiography Challenges, Considerations, Techniques, Safety.	1	2	a1, a2, c1
3	Geriatric Radiography	– Geriatric Radiography Considerations, Techniques, Positioning, Pathologies.	1	2	a1, a2, c1
4	Trauma Radiography	– Trauma Radiography Rapid Assessment, Imaging Techniques, Positioning.	1	2	a2, b1, c1
5	Mobile Radiography	– Mobile Radiography Techniques, Equipment, Positioning, Equipment Handling.	1	2	a1, c1, c2
6	Surgical Radiography	– Surgical Radiography Protocols, Intraoperative Imaging, Sterility, Techniques	1	2	a1, a2, c1
7	Cardiovascular Imaging	– Techniques, Equipment, Positioning	1	2	a2, c1, c2
8	Mid-Term Exam	– In all previous Topics	1	2	a1, a2, b1, b2, c1

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
9	Mammography	– Techniques, Positioning, Quality Assurance	1	2	a2, b1, c2
10	Dental Radiography	– Techniques, Equipment, Safety	1	2	a1, c1, c2
11	Digital Radiography	– Principles, Techniques, Image Processing, Optimization.	1	2	a1, a2, b2
12	Contrast Media in Radiography	– Types, Administration, Imaging Techniques	1	2	a1, b1, c2
13	Advanced Imaging Modalities (CT, MRI)	– Principles, Techniques, Applications	1	2	a2, b2, c2
14	Quality Assurance in Radiography	– Standards, Procedures, Testing	1	2	a2, b1, c2
15	Radiation Protection in Advanced Techniques	– Principles, Techniques, Patient Safety	1	2	a1, c2, d2
16	Final Theoretical Exam	– All theoretical topics	1	2	a1, a2, b1, b2, c1, c2
Number of Weeks /and Units Per Semester			16	32	

B. Practical Aspect (Lab/Clinical) (if any):

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	Mobile Radiography Practical: Equipment Setup, Positioning Techniques	1	2	c1, c2
2	Surgical Radiography Simulation: Intraoperative Techniques, Sterility Practices	1	2	a2, c1
3	Cardiovascular Imaging Practical: Positioning, Technique Adjustments	1	2	c1, c2

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
4	Mammography Case Study: Positioning, Quality Assurance	1	2	b1, c2
5	Dental Radiography Practical: Equipment Handling, Safety Protocols	1	2	c1, c2
6	Digital Radiography Techniques: Image Processing, Quality Control	1	2	b2, c1
7	Contrast Media Administration Scenario: Safety, Imaging Techniques	1	2	b1, c2
8	Mobile Radiography Practical: Equipment Setup, Positioning Techniques	1	2	c1, c2
9	Surgical Radiography Simulation: Intraoperative Techniques, Sterility Practices	1	2	a2, c1
10	Cardiovascular Imaging Practical: Positioning, Technique Adjustments	1	2	c1, c2
15	Final Practical Exam	1	2	a2, b1, b2, c1, c2
Number of Weeks /and Units Per Semester		14	28	

C. Tutorial Aspect (if any):

No.	Tutorial	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	None			
2				
3				
Number of Weeks /and Units Per Semester				

VII. Teaching Strategies:

Prepared by:

Reviewed by:
Dr. -----

Head of the Department:
Dr. Awadh Al-Kubati

Quality Unit:
Dr. Mohammed
Al-shamahi

Dean:
Dr. Abdulsalam
Dalaq

- Lectures,
- Practical Sessions
- Group Discussions,
- Case Studies
- Simulations
- Workshops

VII. Assessment Methods:

- Written Exams,
- Quizzes,
- Practical Exams
- Midterm Exams,
- Assignments
- Case Study Analysis
- Presentations
- Skill Assessments

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	Research Paper on Advanced Chest Imaging	Week 4	2	a1, b1, d1
2	Pediatric Radiography Case Study	Week 6	2	a2, c1, d2
3	Trauma Radiography Scenario Analysis	Week 8	2	a2, b1, c1
4	Digital Radiography Techniques Report	Week 10	2	a1, b2, c2
5	Contrast Media Administration Plan	Week 12	2	a1, b1, c2
Total			10	

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Practical Exam	15	30	30%	c1, c2
2	Midterm Exam	Week 8	10	10%	a1, a2, b1, b2
3	Assignments & Quizzes	Week 3	10	10%	a1, b1, b2, c1, c2, d1
4	Final Exam	Week 16	50	50%	a1, a2, b1, b2, c1, c2
Total			100	100 %	

IX. Learning Resources:

1- Required Textbook(s) (maximum two):

- 1- Ballinger, P.W., & Frank, E.D. (2020). Merrill's Atlas of Radiographic Positioning and Procedures (14th ed.). Elsevier.
- 2- Bontrager, K.L. (2018). Textbook of Radiographic Positioning and Related Anatomy (9th ed.). Elsevier.

2- Essential References:

- 1- Bushong, S.C. (2017). Radiologic Science for Technologists: Physics, Biology, and Protection (11th ed.). Elsevier.
- 2- Carlton, R.R., & Adler, A.M. (2012). Principles of Radiographic Imaging: An Art and a Science (5th ed.). Cengage Learning.

3- Electronic Materials and Web Sites etc.:

Electronic Materials and Websites

- Radiopaedia (www.radiopaedia.org)
- PubMed (www.pubmed.ncbi.nlm.nih.gov)
- American Society of Radiologic Technologists (www.asrt.org)
- Radiological Society of North America (www.rsna.org)

X. Course Policies: (Based on the Uniform Students' By law (2007))

1	Class Attendance: Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	Tardiness: A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
4	Assignments & Projects:

Prepared by:

Reviewed by:

Dr. -----

Head of the Department:

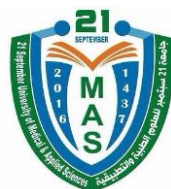
Dr. Awadh Al-Kubati

Quality Unit:

Dr. Mohammed
Al-shamahi

Dean:

Dr. Abdulsalam
Dalaq



	Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	Cheating: Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	Forgery and Impersonation: Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
7	Other policies: The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration.
3	Exam Attendance/Punctuality: No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.

Faculty of Applied Medical Science

Department of **Medical Radiology and Imaging Technology**

Program of Radiologic Technology and Medical Imaging

Course Plan (Syllabus) of Radiographic Technique 2 Course Code.

I. Information about Faculty Member Responsible for the Course:						
Name of Faculty Member:		Office Hours				
Location& Telephone No.:	-----					
E-mail:	--@--.--	SAT	SUN	MON	TUE	WED THU

2024/2025

I. General Information:

12.	Course Title:	Radiographic Technique 2			
13.	Course Code:				
14.	Credit Hours:	Credit Hours	Theory Contact Hours		Practical Contact Hours
			Lecture	Tutorial/Seminar	Lab Clinical
		2	2	--	--
15.	Level/ Semester at which this Course is offered:	3 rd Level / 1 st Semester			
16.	Pre –Requisite (if any):				
17.	Co –Requisite (if any):	None			
18.	Program (s) in which the Course is Offered:	Bachelor of Radiologic Technology and Medical Imaging			
19.	Language of Teaching the Course:	English			
20.	Location of Teaching the Course:	Faculty of Applied Medical Science			
21.	Prepared by:				
22.	Date and Number of Approval by Council:				

II. Course Description:

This course provides advanced knowledge and skills in radiographic techniques. Emphasis is placed on specialized procedures, advanced positioning techniques, and image quality optimization. Students will gain practical experience in clinical scenarios, enhancing their competency in radiographic technology and medical diagnostics.

III. Course Intended Learning Outcomes (CILOs) :

Upon successful completion of the course, students will be able to:

A. Knowledge and Understanding:

a1 Understand advanced radiographic techniques.

a2 Comprehend specialized imaging procedures.

B. Intellectual Skills:

b1 Analyze complex radiographic cases.

b2 Evaluate image quality and diagnostic effectiveness.

C. Professional and Practical skills:

c1 Perform advanced radiographic positioning.

c2 Apply radiation protection principles in practice.

D. Transferable Skills:

d1 Communicate effectively with healthcare professionals.

d2 Demonstrate problem-solving abilities in clinical settings.

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
1	Advanced Chest Imaging	– Techniques, Positioning, Pathologies, Image Optimization.	1	2
2	Pediatric Radiography	– Pediatric Radiography Challenges, Considerations, Techniques, Safety.	1	2
3	Geriatric Radiography	– Geriatric Radiography Considerations, Techniques, Positioning, Pathologies.	1	2
4	Trauma Radiography	– Trauma Radiography Rapid Assessment, Imaging Techniques, Positioning.	1	2
5	Mobile Radiography	– Mobile Radiography Techniques, Equipment, Positioning, Equipment Handling.	1	2

Prepared by:

Reviewed by:

Dr. -----

Head of the Department:

Dr. Awadh Al-Kubati

Quality Unit:

Dr. Mohammed
Al-shamahi

Dean:

Dr. Abdulsalam
Dalaq

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
6	Surgical Radiography	– Surgical Radiography Protocols, Intraoperative Imaging, Sterility, Techniques	1	2
7	Cardiovascular Imaging	– Techniques, Equipment, Positioning	1	2
8	Mid-Term Exam	– In all previous Topics	1	2
9	Mammography	– Techniques, Positioning, Quality Assurance	1	2
10	Dental Radiography	– Techniques, Equipment, Safety	1	2
11	Digital Radiography	– Principles, Techniques, Image Processing, Optimization.	1	2
12	Contrast Media in Radiography	– Types, Administration, Imaging Techniques	1	2
13	Advanced Imaging Modalities (CT, MRI)	– Principles, Techniques, Applications	1	2
14	Quality Assurance in Radiography	– Standards, Procedures, Testing	1	2
15	Radiation Protection in Advanced Techniques	– Principles, Techniques, Patient Safety	1	2
16	Final Theoretical Exam	– All theoretical topics	1	2
Number of Weeks /and Units Per Semester			16	32

B. Practical Aspect (Lab/Clinical) (if any):

No.	Tasks/ Experiments	Number of Weeks	Contact Hours
1	Mobile Radiography Practical: Equipment Setup, Positioning Techniques	1	2
2	Surgical Radiography Simulation: Intraoperative Techniques, Sterility Practices	1	2
3	Cardiovascular Imaging Practical: Positioning, Technique Adjustments	1	2

No.	Tasks/ Experiments	Number of Weeks	Contact Hours
4	Mammography Case Study: Positioning, Quality Assurance	1	2
5	Dental Radiography Practical: Equipment Handling, Safety Protocols	1	2
6	Digital Radiography Techniques: Image Processing, Quality Control	1	2
7	Contrast Media Administration Scenario: Safety, Imaging Techniques	1	2
8	Mobile Radiography Practical: Equipment Setup, Positioning Techniques	1	2
9	Surgical Radiography Simulation: Intraoperative Techniques, Sterility Practices	1	2
10	Cardiovascular Imaging Practical: Positioning, Technique Adjustments	1	2
15	Final Practical Exam	1	2
Number of Weeks /and Units Per Semester		14	28

C. Tutorial Aspect (if any):

No.	Tutorial	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	None			
2				
3				
Number of Weeks /and Units Per Semester				

VII. Teaching Strategies:

Prepared by:

Reviewed by:
Dr. -----

Head of the Department:
Dr. Awadh Al-Kubati

Quality Unit:
Dr. Mohammed
Al-shamahi

Dean:
Dr. Abdulsalam
Dalaq

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- Practical Sessions
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- Quizzes,
- Practical Exams
- Midterm Exams,
- Assignments
- Case Study Analysis
- Presentations
- Skill Assessments

VII. Assignments:

No.	Assignments	Week Due	Mark
1	Research Paper on Advanced Chest Imaging	Week 4	2
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5	Contrast Media Administration Plan	Week 12	2
Total			10

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Practical Exam	15	30	30%

Prepared by:

Reviewed by:

Dr. -----

Head of the Department:

Dr. Awadh Al-Kubati

Quality Unit:

Dr. Mohammed
Al-shamahi

Dean:

Dr. Abdulsalam
Dalaq

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
2	Midterm Exam	Week 8	10	10%
3	Assignments & Quizzes	Week 3	10	10%
4	Final Exam	Week 16	50	50%
Total			100	100 %

IX. Learning Resources:

1- Required Textbook(s) (maximum two):

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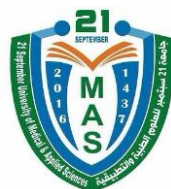
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