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

Clinical Practice I

Course Code. (____)

2024

Prepared by:	Reviewed by:	Head of the Department:	Quality Unit:	Dean:
	Dr. -----	Dr. Awadh Al-Kubati	Dr. Mohammed Al-shamahi	Dr. Abdulsalam Dalaq

I. General Information:

1.	**Course Title:**	Clinical Practice I				
2.	**Course Code:**					
3.	**Credit Hours:**	**Credit Hours**	**Theory Contact Hours**		**Practical Contact Hours**	
			Lecture	**Tutorial/ Seminar**	**Lab**	**Clinical**
		4	--	--	--	12
4.	**Level/ Semester at which this Course is offered:**	2nd Level / 2nd 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:

Clinical Practice I is the first hands-on course where students apply the theoretical knowledge acquired in previous courses within a clinical setting. It provides students with an opportunity to work directly with radiologic equipment and perform imaging procedures under the supervision of qualified professionals. The course focuses on the fundamental techniques of radiography, including patient positioning, exposure settings, and image acquisition. Students will also gain familiarity with patient care, safety protocols, and radiation protection during clinical imaging procedures. The course will involve exposure to both general radiography and specialized imaging techniques, fostering the development of professional and technical skills in a real-world clinical environment.

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 the role and responsibilities of a radiologic technologist in clinical practice.	**I**	**A3**	Exhibit professional characteristics required by the radiologic technology profession.
a2	Demonstrate knowledge of radiation protection and safety standards in clinical settings.	**I**	**A2**	Explanation of the principles and procedures of medical imaging acquisitions, medical imaging techniques, and Radiological Technology Sciences, including radiation safety.
	B. Intellectual Skills:			
b1	Analyze and evaluate patient positioning and radiographic technique for different examinations.	**I**	**B2**	Devising solutions for positioning and instructing people throughout a procedure, as well as using the radiation safety protocols.
b2	Troubleshoot common issues in image acquisition and equipment operation.	**I**	**B1**	Assessment of radiation exposure times and intensity of exposure to guarantee imaging technique accuracy and reduce risk factors.
	C. Professional and Practical kills:			
c1	Perform routine radiographic examinations under supervision.	**I**	**C2**	Apply technical skills in using medical imaging devices, tools, and materials in radiological technology practice.
c2	Communicate effectively with patients and healthcare professionals.	**I**	**C3**	Prepare, process, interpret, and present medical images using appropriate qualitative techniques.
	D. Transferable Skills:			

d1	Develop teamwork skills and collaborate effectively in a healthcare setting.	**P**	**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.
d2	Manage time effectively while performing clinical procedures.	**P**	**D2**	Practice ethical and professional behaviors in the clinical setting.
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 the role and responsibilities of a radiologic technologist in clinical practice.	▪ On-site clinical training, supervision by experienced radiographers	▪ Observation during clinical practice, performance evaluation
a2	Demonstrate knowledge of radiation protection and safety standards in clinical settings.	▪ Clinical workshops, lectures on safety protocols	▪ Written assignments, practical assessments
(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 and evaluate patient positioning and radiographic technique for different examinations.	▪ Clinical exposure, case discussions	▪ Evaluation of practical competency, reflective reports
b2	Troubleshoot common issues in image acquisition and equipment operation.	▪ Troubleshooting and critical thinking exercises	▪ Case study assignments, practical exams
(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 routine radiographic examinations under supervision.	▪ Direct supervision	▪ Evaluation by clinical

		during imaging procedures	instructors, feedback from supervisors
c2	Communicate effectively with patients and healthcare professionals.	▪ Role-playing, patient interaction practice	▪ Observational assessments, patient care reports

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

Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
d1	Develop teamwork skills and collaborate effectively in a healthcare setting.	▪ Team-based clinical practice, group reflections	▪ supervisor evaluations
d2	Manage time effectively while performing clinical procedures.	▪ Time management exercises during clinical sessions	▪ Time management assessments

IV. Course Contents:

A. Theoretical Aspect:

No.	Title	Sup-title	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**None**	–			
2		–			
Number of Weeks /and Units Per Semester					

B. Practical Aspect (Clinical):

No.	Title	Sup-title	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**Introduction to Clinical Practice**	– Role of the radiologic technologist, clinical environment	1	12	a1, c1

No.	Title	Sup-title	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
2	**Patient Care and Communication**	– Effective patient interaction, communication skills	1	12	c2, d1
3	**Radiation Protection and Safety**	– ALARA principle, shielding, patient and staff safety	1	12	a2, b2
4	**Basic Radiographic Techniques**	– Positioning for chest, abdomen, and extremities	1	12	b1, c1
5	**Equipment Operation and Maintenance**	– Overview of imaging equipment, exposure factors	2	12	b2, c1
6	**Image Quality and Evaluation**	– Evaluating exposure, contrast, and image clarity	1	12	b1, c2
7	**Specialized Imaging Procedures**	– Fluoroscopy, contrast studies	1	12	b1, c1
8	**Clinical Procedures for Common Radiographic Exams**	– Routine procedures for common exams (e.g., chest, limbs)	2	12	c1, b1
9	**Troubleshooting in Radiographic Imaging**	– Identifying and solving common equipment issues	2	12	b2, c2
10	**Clinical Reflection and Self-assessment**	– Reflective practice, peer and instructor feedback	2	12	d1, d2
16	**Final Practical Exam**	– All topics	1	12	a1, a2, b1, b2, c1, c2, d1, d2
Number of Weeks /and Units Per Semester			**16**		

C. Tutorial Aspect (if any):

No.	Tutorial	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**None**			

No.	Tutorial	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
2				
Number of Weeks /and Units Per Semester				

VII. Teaching Strategies:

- Clinical Placement,
- On-the-Job Training
- Supervised Practice
- Group Reflections

VII. Assessment Methods:

- Clinical Evaluations
- Practical Examinations
- Reflection
- Instructor Feedback

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1				
2				
Total				

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	Clinical Evaluation	Ongoing	20	20%	c1, a1, b1
2	Reflection Journal	7	20	20%	d1, d2
3	Final Practical Exam	16	50	50%	b2, c1

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
4	**Instructor Feedback**	Ongoing	10	10%	d1, d2
Total			**100**	**100 %**	

IX. Learning Resources:

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

1- **Bushong, S. C.** (2016). *Radiologic Science for Technologists: Physics, Biology, and Protection* (11th ed.). St. Louis, MO: Elsevier Mosby.
2- **Roberts, G. M., Hughes, J. P., & Hourihan, M. D.** (1998). *Clinical Radiology for Medical Students* (3rd ed.). London, UK: Hodder Education Publishers.

2- Essential References:

1- **Statkiewicz-Sherer, M. A., Visconti, P. J., & Ritenour, E. R.** (2017). *Radiation Protection in Medical Radiography* (8th ed.). St. Louis, MO: Elsevier Mosby.
2- **Johnston, J. N., & Fauber, T. L.** (2015). *Essentials of Radiographic Physics and Imaging* (2nd ed.). St. Louis, MO: Elsevier Mosby.

3- Electronic Materials and Web Sites etc.:

Electronic Materials and Websites

- Radiology Society of North America (RSNA) Resources
- American College of Radiology (ACR) guidelines
- www.rsna.org
- www.asrt.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:** 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

Clinical Practice I

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

Prepared by:	Reviewed by:	Head of the Department:	Quality Unit:	Dean:
	Dr. -----	Dr. Awadh Al-Kubati	Dr. Mohammed Al-shamahi	Dr. Abdulsalam Dalaq

I. General Information:

12.	**Course Title:**	Clinical Practice I				
13.	**Course Code:**					
14.	**Credit Hours:**	**Credit Hours**	**Theory Contact Hours**		**Practical Contact Hours**	
			Lecture	**Tutorial/ Seminar**	**Lab**	**Clinical**
		4	--	--	--	12
15.	**Level/ Semester at which this Course is offered:**	2nd Level / 2nd 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:

Clinical Practice I is the first hands-on course where students apply the theoretical knowledge acquired in previous courses within a clinical setting. It provides students with an opportunity to work directly with radiologic equipment and perform imaging procedures under the supervision of qualified professionals. The course focuses on the fundamental techniques of radiography, including patient positioning, exposure settings, and image acquisition. Students will also gain familiarity with patient care, safety protocols, and radiation protection during clinical imaging procedures. The course will involve exposure to both general radiography and specialized imaging techniques, fostering the development of professional and technical skills in a real-world clinical environment.

III. Course Intended Learning Outcomes (CILOs) :
Upon successful completion of the course, students will be able to:

	A. Knowledge and Understanding:
a1	Understand the role and responsibilities of a radiologic technologist in clinical practice.
a2	Demonstrate knowledge of radiation protection and safety standards in clinical settings.
	B. Intellectual Skills:
b1	Analyze and evaluate patient positioning and radiographic technique for different examinations.
b2	Troubleshoot common issues in image acquisition and equipment operation.
	C. Professional and Practical kills:
c1	Perform routine radiographic examinations under supervision.
c2	Communicate effectively with patients and healthcare professionals.
	D. Transferable Skills:
d1	Develop teamwork skills and collaborate effectively in a healthcare setting.
d2	Manage time effectively while performing clinical procedures.

IV. Course Contents:

A. Theoretical Aspect:

No.	Title	Sup-title	Number of Weeks	Contact Hours
1	None	–		
2		–		
Number of Weeks /and Units Per Semester				

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

No.	Title	Sup-title	Number of Weeks	Contact Hours
1	**Introduction to Clinical Practice**	– Role of the radiologic technologist, clinical environment	1	12
2	**Patient Care and Communication**	– Effective patient interaction, communication skills	1	12
3	**Radiation Protection and Safety**	– ALARA principle, shielding, patient and staff safety	1	12
4	**Basic Radiographic Techniques**	– Positioning for chest, abdomen, and extremities	1	12
5	**Equipment Operation and Maintenance**	– Overview of imaging equipment, exposure factors	2	12
6	**Image Quality and Evaluation**	– Evaluating exposure, contrast, and image clarity	1	12
7	**Specialized Imaging Procedures**	– Fluoroscopy, contrast studies	1	12
8	**Clinical Procedures for Common Radiographic Exams**	– Routine procedures for common exams (e.g., chest, limbs)	2	12
9	**Troubleshooting in Radiographic Imaging**	– Identifying and solving common equipment issues	2	12
10	**Clinical Reflection and Self-assessment**	– Reflective practice, peer and instructor feedback	2	12
16	**Final Practical Exam**	– All topics	1	12
Number of Weeks /and Units Per Semester			**16**	

C. Tutorial Aspect (if any):

No.	Tutorial	Number of Weeks	Contact Hours
1	**None**		
2			
3			

No.	Tutorial	Number of Weeks	Contact Hours
Number of Weeks /and Units Per Semester			

VII. Teaching Strategies:

- Clinical Placement,
- On-the-Job Training
- Supervised Practice
- Group Reflections

VII. Assessment Methods:

- Clinical Evaluations
- Practical Examinations
- Reflection
- Instructor Feedback

VII. Assignments:

No.	Assignments	Week Due	Mark
1			
2			
Total			

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

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Clinical Evaluation	Ongoing	20	30%
2	Reflection Journal	7	20	20%
3	Final Practical Exam	16	50	40%
4	Instructor Feedback	Ongoing	10	10%
Total			100	100 %

IX. Learning Resources:

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

1. Bushong, S. C. (2016). Radiologic Science for Technologists: Physics, Biology, and Protection (11th ed.). St. Louis, MO: Elsevier Mosby.
2. Roberts, G. M., Hughes, J. P., & Hourihan, M. D. (1998). Clinical Radiology for Medical Students (3rd ed.). London, UK: Hodder Education Publishers.

2- Essential References:

1. Statkiewicz-Sherer, M. A., Visconti, P. J., & Ritenour, E. R. (2017). Radiation Protection in Medical Radiography (8th ed.). St. Louis, MO: Elsevier Mosby.
2. Johnston, J. N., & Fauber, T. L. (2015). Essentials of Radiographic Physics and Imaging (2nd ed.). St. Louis, MO: Elsevier Mosby.

3- Electronic Materials and Web Sites etc.:

Electronic Materials and Websites

- Radiology Society of North America (RSNA) Resources
- American College of Radiology (ACR) guidelines
- www.rsna.org
- www.asrt.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:** 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.