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 II

Course Code. (____)

2024

I. General Information:

1.	Course Title:	Clinical Practice II				
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:	3rd Level / 1st Semester				
5.	Pre –Requisite (if any):	Clinical Practice I				
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 II is an advanced course designed for students to deepen their clinical knowledge and practical skills in radiologic technology. Building on the foundation of Clinical Practice I, this course provides students with increased responsibility for patient care and imaging procedures. Students will be exposed to a broader range of diagnostic imaging modalities, including fluoroscopy, computed tomography (CT), and magnetic resonance imaging (MRI), with a focus on specialized imaging techniques and patient management. Students will continue to refine their skills in radiographic technique, image evaluation, and troubleshooting, while maintaining adherence to safety protocols. Throughout this course, students will develop the ability to work more independently, under supervision, within a 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 advanced role of the radiologic technologist in specialized imaging modalities.	**P**	**A3**	Exhibit professional characteristics required by the radiologic technology profession.
a2	Demonstrate knowledge of advanced radiographic techniques and protocols.	**P**	**A2**	Explanation of the principles and procedures of medical imaging acquisitions, medical imaging techniques, and Radiological Technology Sciences, including advanced imaging modalities.
	B. Intellectual Skills:			
b1	Critically assess imaging results and identify areas for improvement in imaging quality.	**P**	**B3**	Analyze and evaluate evidence-based information needed in medical imaging practice.
b2	Analyze and apply appropriate imaging techniques for complex procedures.	**P**	**B1**	Assess the radiation exposure times and intensity of exposure to guarantee imaging technique accuracy while adapting to complex procedures.
	C. Professional and Practical kills:			
c1	Perform specialized radiographic and imaging procedures with minimal supervision.	**P**	**C2**	Apply technical skills in using medical imaging devices, tools, and materials in radiological technology practice.
c2	Evaluate patient conditions and adjust procedures based on individual needs.	**P**	**C4**	Utilize appropriate manual and automated techniques in radiological imaging investigations.
	D. Transferable Skills:			
d1	Demonstrate professionalism and effective communication in clinical settings.	**P**	**D1**	Communicate effectively with clinicians, patients, and support staff.
D2	Manage multiple tasks and prioritize work efficiently in a clinical environment.	**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 advanced role of the radiologic technologist in specialized imaging modalities.	▪ Clinical exposure to advanced imaging modalities (CT, MRI, etc.)	▪ Observation during clinical practice, practical assessments
a2	Demonstrate knowledge of advanced radiographic techniques and protocols.	▪ Clinical workshops, lectures on specialized imaging techniques	▪ Written assignments, practical exams
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
b1	Critically assess imaging results and identify areas for improvement in imaging quality.	▪ Clinical practice and image analysis sessions	▪ Evaluation of image quality, Supervisor feedback
b2	Analyze and apply appropriate imaging techniques for complex procedures.	▪ Case studies, troubleshooting exercises	▪ Case study reports, practical exams
© 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 specialized radiographic and imaging procedures with minimal supervision.	▪ Supervised practice in advanced imaging techniques	▪ Direct observation, performance evaluations
c2	Evaluate patient conditions and adjust procedures based on individual needs.	▪ Clinical decision-making scenarios, patient handling	▪ Supervisor feedback, Log book assessments
(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			

Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
d1	Demonstrate professionalism and effective communication in clinical settings.	▪ Team-based tasks, patient communication practice	▪ Supervisor evaluations
d2	Manage multiple tasks and prioritize work efficiently in a clinical environment.	▪ Time management during clinical rotations	▪ Self-assessment, clinical performance evaluations.

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			11	12	

B. Practical Aspect (Clinical):

No.	Title	Sup-title	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	Advanced Imaging Modalities: CT and MRI	– CT principles, MRI principles, image reconstruction	1	12	a1, b2
2	Fluoroscopy Techniques	– Patient preparation, contrast studies, safety protocols	1	12	a2, b2
3	Radiographic Procedures for Specialized Exams	– Advanced radiography for pediatric, geriatric, and trauma patients	1	12	b1, c1
4	Patient Care in Complex Procedures	– Patient handling, preparation for MRI and CT, sedation protocols	1	12	c2, d1

No.	Title	Sup-title	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
5	**Quality Control in Imaging Systems**	– Equipment calibration, troubleshooting, routine maintenance	2	12	b1, c2
6	**Image Quality and Artifacts**	– Identifying artifacts, correcting exposure errors	1	12	b1, c1
7	**Radiologic Procedures in Emergency Settings**	– Trauma imaging, rapid diagnostic imaging procedures	1	12	c1, a2
8	**Radiation Protection in Advanced Imaging**	– Radiation dose management, shielding, patient and staff safety	2	12	a2, d1
9	**Clinical Decision-Making in Imaging**	– Adjusting protocols for patient conditions	2	12	b2, c2
10	**Evaluation of Diagnostic Imaging Procedures**	– Image assessment for diagnostic adequacy and accuracy	2	12	b1, c1
16	**Final Practical Exam**	– All topics	1	12	a1, a2, b1, b2, c1, c2, d1, d2
Number of Weeks /and Units Per Semester			**11**	**12**	

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:

- Clinical Placement,
- On-the-Job Training
- Supervised Clinical Practice
- Clinical Discussions
- Interactive Learning

VII. Assessment Methods:

- Clinical Evaluations
- Practical Exams
- Loog book
- Instructor Feedback
- Case Study Reports

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1				
2				
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	Clinical Evaluation	Ongoing	20	20%	c1, a1, b2
2	Reflection Journal	7	20	20%	d2, d1
3	Final Practical Exam	16	50	50%	b1, c2
4	Case Study Report	10	10	10%	b2, c1
Total			100	100 %	

IX. Learning Resources:

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

1- Stewart C. Bushong, 2020, Radiologic Science for Technologists Physics, Biology, and Protection, 12th Edition, Elsevier
2- James Johnston, 2024, Essentials of Radiographic Physics and Imaging, Elsevier.

2- Essential References:

1- Arlene M. Adler, Richard R. Carlton, Kori L. Stewart, 2022, Introduction to Radiologic & Imaging Sciences & Patient Care, 8th Edition, Elsevier.
2- Catherine Westbrook, John Talbot John Wiley & Sons, Oct 22, 2018, MRI in Practice, 5th Edition, Wiley-Blackwell..

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.
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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.

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الجمهورية اليمنية
وزارة التربية والتعليم والبحث العلمي
جامعة 21 سبتمبر للعلوم الطبية والتطبيقية
كلية التكنولوجيا الطبية

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 II

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 II				
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:**	3rd Level / 1st Semester				
16.	**Pre –Requisite (if any):**	Clinical Practice I				
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				
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III. Course Intended Learning Outcomes (CILOs) :

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

	A. Knowledge and Understanding:
a1	Understand the advanced role of the radiologic technologist in specialized imaging modalities.
a2	Demonstrate knowledge of advanced radiographic techniques and protocols.
	B. Intellectual Skills:
b1	Critically assess imaging results and identify areas for improvement in imaging quality.
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	C. Professional and Practical kills:
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d1	Demonstrate professionalism and effective communication in clinical settings.
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IV. Course Contents:

A. Theoretical Aspect:

No.	Title	Sup-title	Number of Weeks	Contact Hours
1	None	–		
2		–		

No.	Title	Sup-title	Number of Weeks	Contact Hours
Number of Weeks /and Units Per Semester				

B. Practical Aspect (Clinical):

No.	Title	Sup-title	Number of Weeks	Contact Hours
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2	**Fluoroscopy Techniques**	– Patient preparation, contrast studies, safety protocols	1	12
3	**Radiographic Procedures for Specialized Exams**	– Advanced radiography for pediatric, geriatric, and trauma patients	1	12
4	**Patient Care in Complex Procedures**	– Patient handling, preparation for MRI and CT, sedation protocols	1	12
5	**Quality Control in Imaging Systems**	– Equipment calibration, troubleshooting, routine maintenance	2	12
6	**Image Quality and Artifacts**	– Identifying artifacts, correcting exposure errors	1	12
7	**Radiologic Procedures in Emergency Settings**	– Trauma imaging, rapid diagnostic imaging procedures	1	12
8	**Radiation Protection in Advanced Imaging**	– Radiation dose management, shielding, patient and staff safety	2	12
9	**Clinical Decision-Making in Imaging**	– Adjusting protocols for patient conditions	2	12
10	**Evaluation of Diagnostic Imaging Procedures**	– Image assessment for diagnostic adequacy and accuracy	2	12
16	**Final Practical Exam**	– All topics	1	12
Number of Weeks /and Units Per Semester			**11**	**12**

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

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Total			**100**	**100 %**

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